

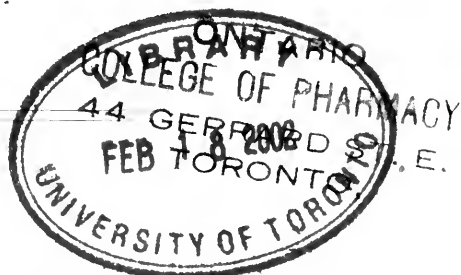


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INDEX TO VOLUME III



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INDEX TO AUTHORS

- Ackerman, Adolph H.,
Advertising, 976
- Alpers, W. C.,
Address, 1695
American Pharmaceutical Association, His-
tory of, 1625
Request from the Historical Department,
597
Syrup of Ferrous Iodide, 420
- Amos, W. S.,
Additions to N. F., 322
- Apple, F. M.,
Calendars for Advertising, 1316
Insurance for Pharmacists, 713
Pennsylvania in A. Ph. A., 1135
Review of Current Pharmaceutical Litera-
ture, 1721
Some Dispensing Hints, 231
Synthetics, 1141
- Arny, Harry V.,
The A. I. P., 1542
- Baker, W. F.,
Digitalis, 304
- Ballenger, Edgar G.,
Gastric Disturbances, 736
- Beal, George D.,
Caramels, 495
Chemistry, Treatise on, (Book Review), 778
Collodion Membranes, 499
- Beal, James H.,
Am. Med. Education, 297
Bichloride Legislation, 161
Bichloride Situation, 483
Co-operation, 295
Harrison Bill, 4, 479
Law for Itinerant Vending, 1690
Legislative Problems, 1051
Price Protection, 8
President-Elect, 136
Professional Ethics, 619
Trade Pirates, 164
- Beath, O. E.,
Oregon Balsam, 28
- Becker, L. A.,
U. S. P. (IX) Preparations, 1023
- Beckwith, C. P.,
Adrenalin, 1547
- Bender, A. W.,
A Prescription Query, 695
- Berlinger, George M.,
Bichloride of Mercury, 1111
Invitation, 1143
Report on Standards, 873
Syrup of Iron Iodide, 970
- Bradley, Theodore, J.,
Nitrometer, 1442
- Bragg, W. H.,
X-Rays, 1602
- Briggs, C. H.,
Compressed Tablets, 31
- Bromley, A. W.,
Advertising, 738
- Brown, J. Lee,
Liquor Magnesiae Citratis, 969
- Brown, Linwood A.,
Methods of Analysis, 642
- Cadwallader, R.,
Address, 1125
- Caspari, Charles E.,
Santonin, 634
- Chambers, H. L.,
A Pharmacopoeia, 51
- Chase, Walter M.,
Biologicals, 1319
- Chillingsworth, F. P.,
Gelsemine, 315
- Clark, Ira B.,
Window Dressing, 122
- Cook, E. Fullerton,
Address, 1298
- Cooper, Zada M.,
College Examinations, A Defense, 1713
Pharmacist's Duty, 672
- Day, Wm. B.,
Hughes-Bacon Bill, 13
Retailers in A. Ph. A., 1688
- Diner, Jacob,
Autogenous Vaccines, 177
- Dodge, Francis D.,
Oils, Analysis of, 1664
- Doepfers, W. A.,
Oubain, 646
- Dunning, H. A. B.,
Formaldehyde and Methyl Alcohol Detec-
tion, 637
- Eberhardt, E. G.,
A Bibliography, 38
- Eldred, F. R.,
A Bibliography, 38
- Elliot, Vanna,
Spirits Camphor and Water, 91
- Emanuel, Louis,
The Law and the Label, 670
- England, Joseph W.,
Dreaming and Doing, 1716
Dr. William Saunders (Obituary), 1726
Joseph E. Morrison (Obituary) 277
Louis Woltersorf (Obituary) 278
- E'we, G. E.,
Laboratory Notes, 1681
- Fantus, Bernard,
Tablet Making, 72
Tablets for Children, 656
- Farwell, Oliver A.,
Rhamnus, 649
- Fell, Joseph,
Glycerin, A Substitute for, 1648
- Fernald, F. K.,
Business Relations, 85
- Ferry, N. S.,
Infection and Immunity, 558, 730
- Floyd, Henry B.,
The Laboratory Equipment of the Pharma-
cist, 569
- Forman, Leroy,
Chicory, Its Detection, 1669
Emulsions, 1444
Glycerine, Its Determination, 1644
Vanilla Extract, 25
- Frame, A. W.,
Poison Law, 663
- Freericks, Frank H.,
Harrison Bill, 1, 882
Pharmacy Laws, 55, 196, 333
- Fuller, H. C.,
Pharmaceutical Chemistry, 129
- Gardner, Robert J.,
Fluid Extract Manufacture, 997
Manufacturing Pharmacy, 1325
- Gathercoal, Edmund N.,
Frangula and Rhamnus Purshiana, 982
The Pharmacognosy Museum, 17
- Gay, Mrs. St. Claire R.,
The Pharmacopoeia, 432
Ginger, 115
Syrup of, 1576
- Godding, John G.,
Massachusetts College of Pharmacy, 77
- Gordin, H. M.,
Lloyd's Reagent, 627, 1656
- Gordon, Fred T.,
History of Homeopathic Pharmacy, 1707
Report of Section on Historical Pharmacy,
1699
- Haskell, Chas. C.,
Digitalis Leaves, 306
Ergotin and Powdered Extract of Ergot, 786
Oubain, 646
- Heidelberg, Fritz,
Metal Colloids, 799
Pituitary Gland, 808
- Helfman, Joseph,
Detroit Meeting, 489
- Hensel, S. T.,
Compound Syrup of Phosphates, 232
Magnesia Magma, 1118

- Hilton, S. L.,
Harrison Bill, 880
Petroleum Liquidum, 577
- Hitchens, A. Parker,
Antitoxins and Vaccines, 715
Sterilization, 792
- Hostmann, Jeannot,
Apparatus in a Pharmacy, 697
- Hynson, Henry P.,
All Fool's Day, etc., 1537
Difficult Things in Dispensing, 313
- Kaplan, J.,
Lloyd's Reagent, 627, 1656
- Kauffman, George B.,
The War and the Drug Market, 1533
- Kebler, L. F.,
The Tablet Industry, 820, 937, 1062
- Kline, A. J.,
Edible Mushrooms, 434
- Kraemer, H.,
Medicinal Plants, 111
- Lascoff, J. Leon,
Camphorated Oil in Ampoules, 689
- Latham, Thomas,
The Liniments of the U. S. P. and N. F., 234
- Laube, J. E.,
Poisons, 257
- Lawall, Charles H.,
Chicory, Its Detection, 1669
Emulsions, 1444
Extract of Vanilla, 25
Law, the Letter of, 326
Liquor Antisepticus, 507
Liquor Antisepticus, Alk., 508
Magma Magnesia, 1002
Mercury Estimation, 50
Pennsylvania Laws, 1025
Review of Phar. Literature, 1593
Separatory Funnel, 498
- Leet, R. A.,
Advertising Methods, 1318
- Lindley, John M.,
A Suggestion or Two, 1173
- Little, L. D.,
The Determination of Citral, 553
- Llewellyn, J. F.,
Pharmaceutical Chronology, 213
- Lloyd, John Uri,
Biography of John King, 217
Lloyd's Reagent, 625
- Lobeck, A. K.,
Efficiency, 700
- Lyman, Rufus A.,
Modern Medicine, 1175
- Lyon, B. B. Vincent,
Autogenous Vaccines, 721
- Maines, E. L.,
Ash Content of Crude Drugs, 423
Manufacturing Points, 1325
Total Extractive as a Factor, 997
- Mansfield, William,
Papain of Commerce, 169
- Marden, J. W.,
Spirits Camphor and Water, 91
- Marshall, E. C.,
A Plain Duty, 1688
Commercialism of Pharmacy, 1154
Digest of Comments on U. S. P., 921
Dr. Beal's Resignation, 769
Mass, S. P. A., 210
Price Standardization, 484
Superstition in Medicine, 1116
Time to Halt, 1144
Unity of Effort, 623
"Yuletide," 1687
- Mason, Harry B.,
Commercialism, The Bugaboo of, 1416
Reform Measures, 116
- Mayer, Joseph L.,
Chemical Examination of Urine, 687
Urine Analysis, 1120
Volumetric Acid and Alkali Solutions, 708
Vlemnick's Solution, 1000
- Mayo, Caswell A.,
Address, Installation, 1219
Historians Report, 76, 1701
Historical Section, 80
- McAdams, Clark,
Indian Tool House, 1611
- McClallen, E. G.,
Dispensing Doctors, 1221
- McElhenie, Thomas D.,
An N. F. Suggestion, 276
- Miller, F. A.,
Digitalis, 304, 306
Medicinal Plants, 34, 308
- Murray, B. L.,
Hydrogen Peroxide, 650
Poison Laws, 663
- Needham, R. H.,
Prescription Writing, 961
The Pharmacopoeia, 1167
- Niece, Frederick E.,
Colorimetric Methods, 1460
Pharmacy and Queries, 1463
- Nitardy, F. W.,
Address on Practical Pharmacy and Dispensing, 1309
A Good Finish for Table Tops, 967
Calomel Suspension, 965
- Noyes, C. R.,
Specifications in Buying Drugs, 851
- Osseward, C.,
Prescriptions, Analysis of, 1554
The Trade-Mark Evil, 67
- Payne, George F.,
Hospital Corps of the U. S. Army, 457
Reports of General Interest, 584
- Pearson, W. A.,
Book Review, 777
- Peyton, J. W.,
Candy as a Side Line, 1314
- Pittenger, Paul S.,
The Pituitary Gland, 808
Testing Ergot, 925
Variation of a Guinea Pig, 815
- Posey, H. G.,
Practical Pharmacy, 348
- Rabak, Frank,
Oil of Hops, 779
Oils, Volatile, 1670
- Ramsay, C. F.,
Fluid Extracts, The Manufacture of, 1646
- Raubenheimer, Otto,
Bibliography of Formularies, 959
Bichloride Tablets of the G. P., 186
Buying Chemicals from Peddlers, 89
Centenary of Pharmacists, 80
Cobblers to Your Last! 1609
Don'ts in Pharmacy, 971
Lotion Alba, 692
Obituary, Prof. Edward Schaer, 276
Pharmaceutical Happenings Century Ago, 1703
Report on Recipe Book, 189
Tablets, 1158
- Rehfeld, Dr. G.,
Lloyd's Reagent and Alcresta Alkaloids, 710
- Remington, Joseph P.,
Philadelphia College of Pharmacy, 78
Progress of Pharmacopoeial Revision, 429
- Rippetoe, J. R.,
Nitroglycerine Tablets, 96
- Roemer, J.,
Non-Official Medicaments, 259
- Rupert, J. F.,
Native Dentists in China, 849
- Sayre, Lucius E.,
Gelsemine, 314
Lactucarium, Syrup of, 237
Materia Medica, 253
Oil of Birch and Methyl Salicylate, 1658
Oregon Balsam, 28
- Schaefer, Hugo H.,
Nux Vomica, Alkaloid in, 1677
- Schleffelin, Wm. J.,
Radium Emanation, 1649
- Schlotterbeck, A. G.,
The Maine Ph. Ass'n, 350
- Schneider, Albert,
Qualifications to Teach, 503
- Schulte, Arthur C.,
Window Dressing, 440
- Scoville, Wilbur L.,
Glycerite of Bismuth, 1294
Tinct. of Cantharides, 631
- Seltzer, L. A.,
The Detroit Committee, 1456
- Sherman, Charles R.,
Clerks, 1449
- Sievers, A. F.,
Belladonna, 98, 192

- Smith, N.,
Nitroglycerine Tablets, 96
- Smith, Ernest R.,
Fluid-Glycerates of the N. F., 324
- Stewart, Alonzo H.,
Harrison Bill, 882
- Stewart, Francis E.,
Science of Immunology, 1290
Materia Medica Standardization, 1161
Sensitized Vaccines, 103
- Stewart, J. Reverdy,
Antitoxins and Vaccines, 858
- Stockberger, Dr. W. W.,
Cunila Mariana, 33
Drug Plant Breeding, 166
Medicinal Plant Gardens, 1436
- Taylor, H. L.,
Standardizing a Three Year Course, 330
- Thurston, A.,
Testing Linseed Oil, 174
- Vanderkleed, Charles E.,
Laboratory Notes, 1681
Metal Colloids, 799
Pituitary Glands, 808
Testing Ergot, 925
Variation in a Guinea Pig, 815
- Vardaman, Ben R.,
The Art of Making a Sale, 509
- Varnum, Walter H.,
Adulterated Preparations, 500
- Waldecker, F. C.,
The Phylacogens, 868
- Wallace, John C.,
National Drug Conference, 191
- Wardle, Arthur S.,
Dispensing Physicians, 1322
- Watson, G. N.,
Oil of Birch and Methyl Salicylate, 1658
- White, William R.,
Handling Stronger Ammonia Water, 506
- Wilbert, M. I.,
Harrison Bill, 880
List of Useful Remedies, 932
Need for Greater Uniformity in Laws, 1168
Official and Other Tinctures, 1660
Paraffine Oil, 580
The Patent Medicine Problem, 572
The Sixty-Fifth Annual Session the A. M. A., 1121
Titles for New Remedies, 652
- Wilkerson, Jerome C.,
Advertising, 125
- Wimmer, Curt P.,
Colloids, 1004
- Windolph, Fred,
Better Drugs, 1603
- Woodruff, C. M.,
National Drug Trade Conference, 261, 744
- Wyckoff, E. E.,
Hypophosphorous Acid, 182
- Wolff, Frank A.,
The Bureau of Standards, 1426
- Youngken, H. W.,
Relation of Pharmacognosy to Pharmacy, 175
- Zeig, John,
Organo-Therapy, 1138
- Zoller, Harper F.
Caramels, 495

INDEX TO SUBJECTS

A

Acacia, 359
 syrup of, 1575
 Acetum Scillae, 549
 Acid and Alkali V. S., Standardization of, 708
 Acid, citric, 1563
 hydriodic, 1564
 hydrobromic dilute, 1564
 hydrochloric, 1564
 hypophosphorous, assay of, 182, 1564
 nitric, 1564
 phosphoric, 1564
 sulphuric, 1564
 concentrated for tests, 1582
 Aconite—
 root, 359, 670
 assay of, 986
 Address, of Pres. Beringer, 1217
 of chairman, section on Pharmacopœia and
 Formularies, 1298
 of chairman of section on practical phar-
 macy and dispensing, 1309
 of chairman on Historical Pharmacy, 1695
 of president of women's section, 1513
 installation of Pres. Mayo, 1249
 of R. Cadwallader, 1125
 report of committee on president's, 1368
 Adeps—
 benzoin, 1565
 Adjuvant elixir, 1568
 Adrenal gland, 1139
 Adrenalin, pharmacy of, 1547
 Adulterated preparations, the cause of, 500
 Advertising—
 art of writing, 738
 calendars, 1316
 pharmaceutical, 125
 retail drug store, 976
 "What Methods to Employ," 1318
 Agar-Agar, 360
 Agaricus, 434, 873
 Albumen, 873
 Alcresta—alkaloids, 710
 Alkaloid—gelseminine, study of, 314-315
 Almond meal, 856
 Almond, oil sweet, 362
 Alpers, William Charles, 1722
 Aloes, 360, 855
 Althaea, 361
 All Fool's Day,—
 at the dispensing counter, 1537
 Amendment—
 to By-Laws of House of Delegates, 1403
 to Food and Drug regulations, 902
 to Harrison Bill, 479
 to Pharmacy Laws, 55, 196, 333
 Amer. Druggists' Fire Ins. Co., meeting of,
 1750
 Amer. Druggists' Syndicate, convention, 589
 American Institute of Prescriptionists, (The)
 1542
 Am. Medical, education criticised, 297
 American Pharmaceutical Association—
 convention, rates and routes for, 921
 history of, 1625
 honorary pres. of, Geo. Henry Schafer, 1459
 officers elected, 1535
 Pennsylvania in, 1135
 reform measures for, 416
 retailers in, 1688
 sixty-second annual convention of, 1217
 Year Book of, 819
 Ammonia liniment, 550
 Ammonia water—
 method of handling, 506
 Ampoules—
 camphorated oil, 689
 Amyl nitrite, 362, 1327, 1466, 1684
 Analysis—
 of emulsions, 1444
 of prescriptions, 1554
 methods of, 642, 1076

Anise, 362
 oil of, 855, 1105
 Antisepticus, liquor, 507
 Antipyrin—
 tablets, 1087
 Antitoxins—
 and vaccines, 715
 preparations and care of, 858
 Apothecaries Abroad, 1735
 Apparatus in retail pharmacy, 697
 Apple, Franklin M., 1725
 Arnica, 363
 Arny, Harry V., 1725
 Aromatic elixir, 1568
 Arsenic—
 in Fowler's Solution, 645
 test of, 1579
 Art of making a sale, 509
 Asafoetida, 363
 Asclepias, 873
 Ash-content of crude drugs, 423
 determination of, 1078
 Associations—
 Maine, history of, 350
 Massachusetts, State, 1240, 1037
 Medical, American, 65, 1121
 Illinois, 1035
 Kentucky, 1180
 Maryland, 1180
 Missouri, 1181
 Pennsylvania, 1182
 N. A. R. D., 1034, 1474
 National of Boards of Pharmacy, 584
 National of Mfgs. of Medicinal Products,
 587
 National Wholesale Druggists, meeting of,
 1608
 Women's Pharm. of the Pacific Coast, 1343
 Aspidosperma, 1566
 fluid extract, 1569
 Assay—
 alkaloidal, gen. directions, 984
 allyl iso-thiocyanate, 1110
 cinnamic aldehyde, 1107
 citral, 1119
 phenols, 1110
 Atropin sulphate, 1088

B

Balsam, Oregon, 28
 Baptisia, 873
 Beal's, Dr., Resignation, 769
 Beef, wine and iron, 670
 Beeswax, 854
 Belladonna, 365, 366, 492
 alkaloidal content of, 98
 assay of, 987
 emplastrum, 1568
 Benzoin, 366, 855, 1565
 Bergamot—
 oil of, 876
 Berries, blackberry, 874
 raspberry, 874
 horse-nettle, 874
 Bibliography—
 of deterioration of drugs, 38
 of formularies, 959
 Bichloride legislation, 161
 situation, 482
 Biological products, 1100
 business, boosting the, 1319
 Blood Root, 399
 tincture of, 1577
 Book Reviews, 777, 924, 1157
 Branches A. Ph. A., 142, 279, 458, 598, 762,
 891, 1030, 1340, 1484, 1612, 1744
 Brown, Linwood A., 1724
 Buchner, Ludwig Andreas, 83
 Buchu, 367
 Bureau of Standards—
 work of, 1426
 Butternut, 874

C

Cade, oil of, 1106
 Caffaina, alkaloid, 1089
 citrated, 549, 1089
 Calendars as an advertising medium, 1316
 Candy, as a side line, 1314
 Cajuput, oil of, 1106
 Calamine, 856
 Calcium glycerophosphates, 1566
 California, 1915! 880
 Calomel suspension, 965
 Calumba, 367
 Cambogia, 368
 Camphor, a study of, 91
 liniment of, 550
 Camphorated oil—
 apparatus for filling ampoules with, (illus-
 trated), 689
 Cannabis, 368
 Cantharides, 369, 988, 1567
 tincture of, 631, 1576
 Capsicum, 369
 Caramels, preparation of, 495
 Cardamon, 369
 Carum, 370
 oil of, 1106
 Cascara sagrada aromatic, 1569
 Castile soap, 853
 Causerie, 920
 Centenary—
 of men famous in pharmacy, 80
 Ceratum, 1567
 cantharides, 1567
 Chapman, William B., 81
 Chemicals, buying from peddlers, 89
 Chemistry, pharmaceutical, 129
 Chicory, its detection, 1669
 Cinchonidin, 1090
 Cinchona—
 assay of, 989
 flava, 371
 rubra, 372
 tinctures of, 1577
 Chondrus, 371
 Cimicifuga, 371
 Citric acid, 1563
 syrup of, 1576
 Cinnamon, 372, 373
 oil of, 1107
 Clerks—
 how to gain efficiency from, 1449
 City, the convention, (illustrated), 916, 1151
 Clover, 879
 Cloves, 370
 oil of, 1107
 Cobblers, To Your Lasts!! 1609
 Coccus, 373
 Cochineal, 373
 Colocynthis, 374
 Colchicum, 545
 assay of, 990
 extract of, 374, 534, 996
 College Examinations, A Defense, 1718
 Colleges of Pharmacy—
 Massachusetts, 77
 Philadelphia, 78
 Iowa, 1342, 1475
 Illinois, 1342
 St. Louis, 1343
 West Virginia, 1475
 College and Society, 887, 1034, 1179, 1342, 1475,
 1614, 1748
 Collodion, 549
 cantharidal, 550
 flexile, 1567
 Colloids, metal, (illustrated), 799
 their importance, 1004
 Colorimetric methods, (illustrated), 553, 1460
 Commercialism—
 the bugaboo of, 1446
 Committee, local,
 Detroit, its organization, plans and work,
 1456
 Compressed tablets, 31, 820, 937, 1062
 Condurango, 374
 Conference National Food Trades, 584
 National Drug Trade, 590
 minutes of, 744
 Convallaria, 375

Conventions—

American Druggists Syndicate, 589
 N. A. R. D., 1034, 1474
 N. W. D. A., 1608
 Convention, (A. Ph. A.), 1217, 1336, 1353, 1489
 at Detroit, 921
 invitation to, 1143
 dispatch of business at, 1145
 attendance at, 1371
 Co-operation overdoing, 295
 Coriander, 376
 oil of, 1107
 Creosote coal-tar, 856
 Cresol, 1567
 Council business, 157, 287, 471, 611, 761, 905
 1038, 1186, 1343, 1374, 1479, 1614, 1754
 Cubebs, 376
 oil of, 1107
 Cunila Mariana, 33

D

Day, William B., 1336
 Decoctions, 550
 Delegates—
 resolutions from House of, 1401
 accredited to the 62nd annual convention
 1404
 Detroit, the Convention City, 624
 the work of the local committee, 1456
 Delphinium, 873
 Dentists—
 native, in China, 849
 Digitalis—
 activity of, 304
 potency of, 306
 dried, 377
 infusum, 550
 tincture of, 1577
 fluid extract of, 541
 Dioscorea, 874
 Dispensing counter—
 All Fool's Day at, 1537
 Dispensing, difficult things in, 343
 Dispensing doctors, 1321, 1322
 Don'ts in pharmacy, 971
 Dreaming and Doing, 1716
 Drugs—
 ash content of, 423
 better, as well as foods, 1603
 crude, 972
 deterioration of, 38
 habit forming, 1168
 specifications in buying, 851
 Drug plant breeding, 166
 Drug market, effects of the war on, 1533
 Drug store, efficiency in a, 700
 Drug trade, conference, 590, 744

E

Education, medical, criticized, 297
 Elder Flowers, 877
 Electrical science, 1606
 Elixir—
 aromatic, 1568
 adjuvant, 1568
 Emplastrum—
 belladonna, 1568
 cantharides, 1568
 capsicum, 1569
 rosin, 1569
 lead, 1669
 Emulsum, amygdalae, 549
 analysis of, 1444
 asafoetidae, 549
 olei morrhuae, 550
 olei terebinthinae, 550
 Entertainments proposed at Detroit meeting,
 (illustrated), 489
 Ergot, 377
 activity of, (illustrated), 786
 fluid extract of, 541
 method of testing (illustrated), 925
 Eriodictyon, 378
 Ether, 1565
 Ethics, a question of professional, 619
 Eucalyptus, 378
 oil of, 854, 1107
 Euonymus, 379
 Examinations, College, 1718

Exposition, Panama-Pacific International, 449

Extracts—

aconiti pulveratum, 533
 belladonnae foliorum, 533, 534
 cannabis indicae, 534
 cascarae sagradae, 534
 cimicifugae pulveratum, 534
 colchici cormi, 374, 534, 990
 colocynthis, 535
 ergotae, 535
 euonymi pulveratum, 535
 fellis bovis pulveratum, 535
 gelsemii pulveratum, 535
 gentianae, 536
 glycyrrhizae purum, 536
 hydrastis pulveratum, 536
 hyoscyami, 536
 mali, 536
 nucis vomicae pulveratum, 536
 opii pulveratum, 537
 physostigmatis pulveratum, 1569
 powdered, 533
 rhei pulveratum, 537
 stramonii, 537
 stramonii pulveratum, 537
 sumbul, 537
 taraxaci, 538
 vanilla, 25, 411, 548
 viburni prunifolii, 1569

F

Fennel, 379
 Ferrous iodide, 420
 Flores verbasci, 1597
 Fluid extracts, 538
 aconite, 540
 apocyni, 540
 aromaticum, 540
 aspidospermatis, 1569
 aurantii amari, 540
 belladonna, 540
 buchu, 540
 cannabis indicae, 541
 cascara sagrada, 541, 1569
 cimicifugae, 541
 cinchonae, 541
 colchici seminis, 541
 digitalis, 541
 ergot, 541
 eriodictyli, 541
 eucalypti, 541
 gelsemii, 541
 gentianae, 541
 glycyrrhizae, 541
 granati, 541
 grindeliae, 542
 guaranae, 542
 hydrastis, 542
 hyoscyami, 542
 ipecacuanhae, 542
 lobelia, 542
 nux vomica, 542
 pareirae, 542
 pilocarpi, 542
 podophylli, 542
 rhei, 542
 sabal, 543
 sarsaparillae, 543
 scillae, 1570
 senegae, 543
 senna, 543
 spigeliae, 543
 staphisagriae, 543
 stillingiae, 543
 sumbul, 543
 taraxaci, 543
 tritici, 543
 ura ursi, 543
 veratri, 544
 viburni, 544
 xanthoxylum, 544
 zingiberis, 544

Fluidextracts, manufacture of, 997, 1646

Foeniculum, 379

oil of, 1108

Food and drug trades conference, 584

Food in packets, 1601

Formaldehyde, estimation of, 637

Formulary, National—
 additions to, 322

Fowler's solution—
 arsenic in, 645

Frangula, 380

chemical tests for, criticised, 982

Fraxinus, 874

Funnel, separatory—new form, (illustrated)
 498

G

Galenicals, 973

miscellaneous, of the U. S. P., 549

Galla, 380

Gambir, 381

Garlic, 1597

Gastric disturbances, prevention of, 736

Gaultheria, oil of, 854

Gelatinum, 1570

glycerinatum, 549

Gelseminine—

study of, 314, 315

Gelsemium, 381

Gemmae populi, 874

Gentian, 381

Glands—

adrenal, 1139

ovarian, 1140

pituitary, 1139

suprarenal, 1100

thymus, 1139

thyroid, 1101, 1139

Glucose, 1570

Glycerine, 854

determination of, 1644

substitute for, 1648

Glycerite—

acid tannic, 550

amyl, 549

of bismuth, 1294

boroglycerini, 549

hydrastis, 1571

phenolis, 549

Glycerophosphates, 1566, 1575

Glycyrrhiza, 382

Granatum, 383

Grindelia, 383

Gualacum, 384

Guarana, 384

assay of, 991

fluidextract of, 542

Guinea pig—

variation of susceptibility, 815

H

Hamamelis, 1565

Harmony, 915

Harrison Bill, 1, 4, 479

a symposium on, 880

Health Service, U. S. Pub., 159, 291, 474, 614,
 763, 909, 1046, 1195, 1350, 1478, 1621

Hedeoma, oil of, 1108

Hemp, Canadian, 362

Hexamethylenamine, 654, 1093

formaldehyde in, 637

Hints, dispensing, 231

Historian, report of, 76

Historical section—

photographs on file, 80

important dates since 1700, 243

Hops, 384

oil of, 779

Horse medley, 856

Hughes-Bacon Bill, 13

brief in behalf of, 592

Humulus, 384

Hydrangea, 1597

Hydrargyri—

massa, 1572

oleatum, 1573

Hydrastis, 384

assay of, 992

fluidextract of, 542

Hydrogen peroxide—

acidity of, 650

Hyoscyamus, 385

assay of, 992

Hypophosphites—

syrup of, 1576

I

- Illustrations, (Frontispiece), Beringer, Geo.
 Mahlon, August; Mayo, Caswell A., Sep-
 tember; Detroit Ladies' (group), Octo-
 ber; Remington, Joseph Price, Novem-
 ber; Saunders, William, December.
- Immunology—
 New science of, 1290
- In and Out of the Indian Toolhouse, 1611
- Infection and Immunity—
 a review, 558, 730
- Infusum, 550
- digitalis, 550
- sennae compositum, 549
- Insurance—
 for pharmacists, 713
- Inula, 1598
- Iodine, tincture of, 644, 671
- Ipecacuanha, 385
 assay of, 993
 syrup of, 1576
- Iris, 1598
- Iron, carbonate, 1574
 iodid of, 420, 970
 mass, carbonate, 1572
 tinct. of, 1577

J

- Jalapa, 386
 assay of, 994
- Juniper, 875
 oil of, 1108

K

- King, John, M. D., 84, 247
- Kino, 386
- Krameria, 387

L

- Lactucarium, syrup of, 237, 387, 1576
- Lac vaccinum, 875
- Laboratory equipment of the pharmacist, 569
- Laboratory notes, 1681
- Larkspur, 873
- Lavender, oil of, 1108
- Lawall, Charles H., 1724
- Law, and Label, The, 670
- Laws, Pharmacy, 55, 196, 333, 1025, 1168, 1752
 for itinerant vending, 1690
 letter of the, 326
 poison, aspects of, 663
- Porto Rico, 1044
- A Model Pharmacy, 1750
- Legal Decisions, 154, 282, 467, 607, 757, 902,
 1044, 1184, 1348, 1476
- Legislation—
 Bichloride, 161, 591
 Bichloride tablet, 1111
 Harrison Bill, 1, 4, 479
 Hughes-Bacon Bill, 13, 592
 Metz Bill, 486
 Porto Rico Pharmacy Law, 1044
 Stevens Bill, 485
- Letters to the Editor, 1752
- Lime, 853
 lactophosphate syrup of, 1576
 liquor of, 528
- Lemon, 388
 oil of, 1108
- Leptandra, 388
- Liniments—
 ammonia, 550
 belladonna, 549
 calais, 549
 camphor, 550
 chloroform, 549
 saponis, 550, 1571
 terebinthinae, 550
- Linseed, 388, 850
 oil, testing of, 174
- Liquid petroleum, (U. S. P. VIII), 577, 1013
- Liquor, acidi arsenosi, 527
 ammonia acetate, 527
 antisepticus, 507, 508
 arseni et hydrargyri iodidi, 527
 calais, 528
 chlori compositus, 528
 cresolis compositus, 528
 ferrous ammonia acetate, 528

- ferrous chloride, 528
- ferrous subsulphate, 529
- ferrous tersulphate, 529
- formaldehyde, 529
- hydrogen dioxide, 529
- iodi compositus, 530
- magnesia citratis, 530, 968
- plumbi subacetatis, 530
- potassii arsenitis, 530
 citratis, 531
 hydroxidi, 531
- sodii arsenitis, 531
- sodii, chlorinatae, 531
- sodii chloride physiologicus, 532
- sodii hydroxidi, 532
- zinc chlorid, 532
- Literature, Pharmaceutical, Review of, 1593,
 1721
- Lloyd's reagent, 625, 627, 710, 1656
- Lobelia, 389
- Lotio alba, 692
- Lupulinum, 390
- Lycopodium, 390

M

- Mace, 1599
- Magma Bismuth, 1571
- magnesia, 1118
- Magnesia, magma, 1118
 assay of, 1002
- Massachusetts College of Pharmacy, 77
- Massa Ferri Carbonatis, 549, 1572
- hydrargyri, 550, 1572
- Materia medica, 253
 standardization, 1161
- Matricaria, 390
- Mayo, Caswell A., 1336, 1725
- Medicaments—
 need of authority for, 259
- Medicinal Plants—
 cultivation of, 111
 gardens, 1436
 growing of, 34
 influence of soil on, 308
- Medicine—
 superstition in, 1146
 modern, trend of, 1175
- Medullary ray cells, 649
- Membranes, collodion—for dialysis, 499
- Menyanthes, 875
- Mercury, volumetric determination of, 50
- Metal Colloids, (illustrated), 799
- Methyl alcohol, detection of, 637
- Methyl, salicylate of, 1104, 1658
 detection of, 556
- Method, advertising, 1318
 colorimetric, 1460
 of determining citral, 553
 of handling ammonia water, 506
- Migraine tablets, 1093
- Mistura, cretae, 549
 glycyrrhizae compositae, 551
- Monoxidum—
 nitrogenii, 1572
- Morphine—
 determination of, in tablets, 642
 estimation of, and Lloyd's reagent, 1656
 sulphate of, 1093
- Moschus, 391
- Mucilago, acaciae, 551
 tragacanthae, 549
- Museum, Pharmacognosy, The, 17
- Mullein flowers, 1597
- Mushroom, edible, culture of (illustrated), 434
- Myristica, 391
 oil of, 1109
- Myrrh, 392

N

- National Drug Trade Conference—
 proceedings of, 261
 report of delegates (1913), 191
- National Formulary—
 proposed additions to, 322
 fluidglycerates, comments on, 324
- Necrology, 276, 610, 1029, 1324, 1610, 1751
- Nitric acid, 1564
- Nitrogenii Monoxidum, 1572
- Nitroglycerine tablets, 1074-75, 1094

Nitrometer, A New, (illustrated), 1442
 Nux Vomica, 392, 1096
 new alkaloid in, 1677
 assay of, 994

O

Officers, election of, 1336, 1535
 nomination of A. Ph. A., 1354

Oil—

almond, (bitter), 1105
 anise, 855, 1105
 bay, 876
 bergamot, 876
 birch, 1658
 cade, 1106
 cajuput, 1106
 carl, 1106
 cassia, 855
 cloves, 1107
 cinnamon, 1107
 coriander, 1107
 cubebs, 1107
 eucalyptus, 854, 1107
 fennel, 1108
 gaultheria, 854
 hops, 779
 juniper, 858, 1108
 lavender, 858, 1108
 lemon, 1108
 neroli, 875
 nutmeg, 1109
 orange, 851, 1106
 picis, 1109
 pimento, 1109
 pennyroyal, 1108
 peppermint, 1109
 pini pumil, 1110
 rosemary, 1110
 russian, 1013
 sandal, 1110
 sassafras, 1110
 sesami, 1573
 sinapis, 1110
 spearmint, 1109
 turpentine, 1110, 1573
 thyme, 1110
 wormseed, 1107

Oils, analysis of, 1664
 volatile, 1670

Oleo-resins, aspidii, 551
 capsici, 551
 cubebae, 549
 petroselinii, 1573
 piperis, 551
 zingiberis, 551

Opium, 393

deodoratum, 1574
 granulatium, 1574

Orange—

oil of, 1106
 syrup of, 1576

Orris, 1598

Oregon Balsam, 28

Organo-Therapy, 1138

Opil Pulvis, 393

Ouabain, stability of, 646

Ovarian gland, 1140

Ovum gallinaceum, 877

P

Panama-Pacific International Exposition, 449,
 1751

chemical and pharmacal arts in, 1019

Papain, 169

Paraffin oil, 580

Patent medicine problem, 572

Passiflora, 877

Passion flower and vine, 877

Patents, introduction to report of com. on, 675

Pennsylvania, in the A. Ph. A., 1135

Pepo, 393

Petrolatum liquidum, 577

Peppermint, 390

essence of, 671

oil of, 1109

Petroselinum, 1599

fructus, 393

oleoresina, 1573

Pharmaceutical Happenings, 1703

Pharmacists—

duty of, 672
 insurance for, 713
 laboratory equipment of, 569
 organo-therapy for, 1138
 Pharmacognosy Museum, The, 17
 relation to pharmacy practice, 175
 Pharmacy of adrenalin, 1547
 Pharmacy, and queries, 1463
 don'ts in, 971
 commercialization in, 1454
 homeopathic, history of, 1707
 legislative problems of, 1501
 manufacturing, practical points in, 1325
 relations to pharmacognosy, 175
 retail, apparatus in, 695
 section on practical, and dispensing, 1155,
 1519

Pharmacopoeia, A, for physicians and drug-
 gists, 51

Pharmacopoeia, U. S., The—

its limitations, 432
 ninth revision, 359, 524, 984, 1100, 1563
 progress of revision of, 429
 preparations of, 1023
 report of committee on, 1301
 revision of, 863

the druggist, physician and the, 1167
 Philadelphia College of Pharmacy, 78

Phosphoric acid, 1564

Phylacogens, The, 868

Physicians and prescription writing, 961

Physostigma, 394

assay of, 995

Picis liquidæ, oil of, 1109

syrup of, 1576

Pills, aloes, 549

asafetida, 549

cathartica composita, 549

ferri carbonatis, 549, 1547

ferrous iodide, 549

phosphori, 549

rhei composita, 549

Pillocarpus, 394

assay of, 996

Pimento, oil of, 1109

Pimpinella, 1599

Pini pumilionis, oil of, 1110

Piper, 395

Pituitary gland, 1139

pharmacodynamic, study of (illustrated)
 808

Plain Duty, A, 1688

Plants, medicinal, cultivation of, 111

gardens, 1436

growing of, 34

influence of soil on, 308

Podophyllum, 396

Poisons, safeguarding use of, 257

Potassium bicarbonate, 1096

chlorate, 1574

citrate, efferr., 549

formate, 1599

iodide, 645

permanganate, 1097

Powders, Seidlitz, 643

Preparations, adulterated, 500

analysis of pharmaceutical, 642

of the new U. S. P., 1023

of pure sucrose and dextrose caramel, 495

Prescription dept., pharmacy and system in,
 348

Prescriptions, and a query, 695

writing by physicians, 961

analysis of, 1554

President, address of, Geo. M. Beringer, 1217

address of, Mrs. Godding, 1513

greeting from honorary pres., A. B. Lyons,
 136honorary, Geo. H. Schafer, sketch of life,
 1459

installation address of, C. A. Mayo, 1249

newly-elected, for 1915-16, Wm. C. Alpers,
 1535Prescriptionists, the American Institute of,
 1542Preservatives, value of, in syrup of iron
 iodid, 970

Price Protection, 8, 85, 484

Problems, Patent Medicine, 572

- Proceedings of the local branches, 142, 279,
 458, 598, 752, 891, 1030, 1340, 1481, 1612,
 1744
 Processes, type, 538, 539, 540
 Prunus virginiana, 396
 syrup of, 1576
 Pulvis aromaticus, 551
 glycyrrhiza compositus, 551
 ipecac et opii, 551
 jalapæ compositus, 552
 rhei compositus, 552
 Pyrethrum, 397
 Pumex, 877
- Q**
- Qualifications to teach, 503
 Quassia, 397
 Quinin, bisulphate, 1097
 sulphate, 1097
 valerate, 1600
- R**
- Radium Emanation, 1649
 Rammelsberg, Carl Friedrich, 82
 Reagents of U. S. P., ninth revision, 1581
 Relations, mutual, of mfr. and druggist, 85
 Remedies, useful, proposed list of, 932
 Remington, Joseph P., 1536
 Reports, committee on auditing, 1267
 on credentials, 1353
 on Ebert prize, 435
 on formation of local branches, 1279
 on membership, 1277
 on nominations, 1354
 on patents and trade-marks, 675, 680, 1521
 on physiological testing, 1433
 on president's address, 1368
 on Procter memorial, 1267
 on publication, 1378
 on quality of medicinal products, 1283
 on recipe book, 189, 1302
 on revision of constitution and by-laws,
 1491
 on status of pharmacists, 1270
 on time and place, 1355
 on U. S. Pharmacopœia, 1301
 on unofficial standards, 873, 1597
 on weights and measures, 1271
 on women's section, 1513
 of delegates to National Drug Conference,
 191, 1275
 of general secretary, 1256
 of historian, 76, 1701
 of N. A. R. D. Convention, 1034
 of retiring general secretary, 1251
 of secretary of section on education and
 legislation, 748, 887
 of secretary of section on Historical Phar-
 macy, 1699
 of special committee on rules and by-laws,
 1280
 of treasurer, 1258
 Resignation of Dr. Beal, 769
 Resins, 544, 1574
 jalap, 544
 podophylli, 544
 scammonii, 544
 Revision, Pharmacopœial, progress of, 429
 Rhamnus purshiana, 397
 chemical tests of, criticised, 982
 Rhubarb, 398
 fluidextract, 542
 syrup of, 1576
 Rosin, 854
 Rosmarini, oil of, 1110
 Roster, official (1913-14), 1197
 Ruddiman, Edsel A., 1724
 Russian mineral oil, 1013
- S**
- Sabal, 399
 Sales, the art of making, 509
 Sambucus, 877
 Sanguinaria, 399
 tincture of, 1577
 Santalum, rubrum, 400
 oil of, 1110
 Santonin in santonica, 634
 Sarsaparilla, 400
 comp. syrup of, 1576
 Sassafras, 401
 oil of, 1110
 Scammony, 402
 Schafer, George H. (illustrated), 1459
 Schödlér, Friedrich, 81
 Science, electrical, 1606
 Science of immunology, 1290
 Scientific section, 1154
 Scilla, 402
 acetum, 549
 fluidextract, 1570
 compound syrup, 1576
 Scopolamine, hydrobromide, 1574
 Seidlitz powders, assay of, 643
 Senecio, 877
 Sections, Historical, 80
 Pharmacopœias and Formularies, 1154
 Practical Pharmacy and Dispensing, 1155,
 1519
 Scientific, 1154
 Women's, minutes of, 1513
 Serum, antidiphtheric, 1101
 antitetanus, 1102
 Sessions, General,
 First, 1217
 Second, 1353
 Third, 1363
 Fourth, 1382
 Sevum preparatum, 1575
 Senega, 403
 syrup of, 1576
 Senna, 404
 syrup of, 1576
 Serpentina, 404
 Sesami, oleum, 1573
 Silicea, terra, purified, 1577
 Sinapis alba, 405
 Sinapis, oil of, 1110
 Soap, liniment, 550, 1571
 Sodium, salicylate of, 1098
 bicarbonate of, 1098
 bromid of, 1098
 glycerophosphas of, 1575
 formate of, 1600
 Solutions, test, cobaltous chloride, 1101
 gold chloride, 1101
 volumetric, standardization of, 708
 Spearmint, 391
 oil of, 1109
 Spigelia, 405
 a substitute for, 33
 Spirits, (U. S. P. IX), 526, 527
 Standardizing a three-year course, 330
 Standards, report of committee on unofficial,
 873, 1597
 for the unofficial, drugs and chemical prod-
 ucts, 1597
 Staphisagria, 407
 Stas, Jean Servais, 82
 Sterilization, 792
 Stillingia, 406
 Stramonium, 407
 assay of, 996
 Strontium—
 bromid, 1098
 carbonas, 878
 Strophanthus, 407
 Strychnin—
 sulphate, 1098
 valerate, 1601
 Succus, citri, 878
 pomorum, 879
 Suggestion or Two, A., 1173
 Sulphur, precipitated, 853
 Sulphuric acid, 1564
 Sumbul, 408
 Suppositories, 552
 glycerine, 552
 Syllabus, the new pharmaceutical, 1535
 symposium on, 1727
 Synthetics, new, gen. use of, 1141
 Syrups (U. S. P. IX), 1575, 1576
 Syrup, phosphates, comp., 232
- T**
- Tablets, sweet, for children, 656
 compressed, 31, 72
 Tablet manufacturer, 820, 937, 1062
 Talcum, 854
 Tannic acid, 854

Tragacantha, 408
 Taraxacum, 408
 Tartaric acid, 1564
 Three-year course, standardized, 330
 Thyme, 1601
 oil of, 1110
 Thyroprotein, 1139
 Time to Halt, 1144
 Tinctures, 544, 1660
 aconite, 544
 aloes, 545
 asafoetida, 545
 aurantii amari, 545
 aurantii dulcis, 545
 belladonnæ foliorum, 545
 benzoin, 545
 benzoin comp., 545
 calumbæ, 545
 cannabis indicæ, 545
 cantharides, 631, 1576
 capsici, 545
 cardamomi, 545
 cinchona, 1090-1091, 1577
 cinnamon, 545
 colchici seminis, 374, 545
 digitalis, 1577
 ferri chloride, 545
 gambir comp., 546
 gelsemi, 546
 gentianæ comp., 546
 gualiaci, 546
 gualiaci ammoniata, 516
 hydrastis, 546
 hyoscyami, 546
 iodi, 546, 645, 1577
 kino, 546
 lactucarii, 547
 lavender composite, 547
 limonis corticis, 547
 lobeliæ, 547
 moschi, 547
 myrrh, 547
 nux vomica, 547
 opii, 547
 opii camphorata, 547
 opii deodorati, 547
 physostigmatis, 547
 pyrethri, 547
 quassia, 547
 rhei, 547
 rhei aromatica, 547
 sanguinaria, 1577
 scillæ, 547
 stramonii, 548
 strophanthi, 548
 tolutana, 548
 valerianæ, 548
 valerianæ ammoniata, 548
 vanilla, 548
 veratri, 548
 zingiberis, 548
 Titles, Pharmacopœial, for new remedies, 652
 Trade-mark evil, 67
 Trade-marks, report on, 675

Trade pirates, 164
 Triticum, 409
 Triturates, 549
 Trochisci of U. S. P. (IX), 1578
 Tolu, syrup of, 1576
 Trillium, 879
 Trional, 1099
 Trioxymethylene, 1577
 Turpentine, 853
 liniment of, 550
 oil of, 1110, 1573

U

Ulmus, 410
 Unity of effort, 622
 Unguentum, (U. S. P. IX), revision, 1578
 1579
 Urine, analysis of, 1120
 chemical examination of, 687
 Uva ursi, 410

V

Vaccines, sensitized, 103
 and antitoxins, the use of, 715
 autogenous, consideration of, 721
 autogenous, preparation of, 177
 protection and care of, 858
 Virus vaccinicum, 1103
 Valeriana, 411
 Veratrum viride, 412
 Verbena, 879
 Veronal, 1099
 Viburnum opulus, 413
 prunifolium, 413
 Volumetric determination of mercury, 50
 Vlemminck's solution, 1000
 Vrij, Dr. Johan Eliza de, 83

W

Waters, U. S. P. (IX), 524-25-26, 1565
 White ash bark, 874
 Wild, Johann Rudolf, 81
 Wild Yam root, 874
 Window dressing, 122, 440
 Women's section, 1513
 Wormseed, oil of, 1107
 Wright's stain, 95

X

X-rays show ether waves, 1602

Y

Yearbook of A. Ph. A., 819
 "Yuletide," 1687

Z

Zanthoxylum, 414
 Zinc phenolsulphonate, 1099
 Zingiber, 415
 syrup of, 1576

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MORE ABOUT THE HARRISON BILL.*

IN the December number of the JOURNAL, Editor Beal, in his customary interesting and lucid manner, discusses some of the objections made to the present so-called Harrison Bill. If there be any one thing which I regret in this connection, it is my inability to share the views of Dr. Beal on this oft discussed measure. In aid of a clear understanding of these comments, it is suggested that they be read together with the editorial.

First: It will hardly do to say that the National Drug Trade Conference in its draft of the Harrison Bill sought only the means to trace habit-forming drugs to the hands of the distributor, and to avoid interference with the police powers of the several states. The bill as drafted would supervise and control every grain of the narcotics as distributed to consumers by retail druggists, other than preparations containing minimum quantities. To say that the Harrison Bill does not undertake to regulate distribution to the consumer, in the face of a provision under which pharmacists may sell only on physicians' prescriptions, and are required to keep such prescriptions for a term of years, always subject to the control and inspection of Government officials, cannot well be. There are a number of other instances in which the bill would aim at police regulation without showing any connection with the taxing or inter-state commerce power of the Federal Government. The most curious part of it all is, however, found in the fact that the Conference deemed it necessary to ignore its own expressed intent when it came to consider distribution by the retail druggist.

Second: To contend that physicians are not required to register under the bill if they merely prescribe, is hardly correct, for Section II of the bill provides that the pharmacist may fill the prescription *only of physicians who are regis-*

*A reply to "Some Objections to the Harrison Bill" on p. 1498 of the December Journal.

tered under the Act. It will not serve the physician much to have the right to prescribe without being registered, if no one may lawfully fill his prescription. The point, however, is that a physician who does not assume the functions of a pharmacist, and who himself uses the narcotics only for administration by him in cases of emergency, should not be put upon the plane with the dispensing doctor.

Third: It is my opinion that those who have been advocating Federal regulation of the traffic in narcotics, have had in mind largely the inefficiency of the state laws, and the inefficiency of their enforcement. It is, therefore, aside of the question to say, that if state laws are inefficient, or if local authorities are lax in their enforcement, that then the interest of the Harrison Bill will be largely nullified. Those who have advocated proper Federal legislation, have sought something which would be effective in spite of the inefficient state laws, and the lax enforcement by local authorities.

Fourth: Of course, it is no hardship to require the pharmacist to preserve his prescriptions. This is not the point. The pharmacist is required to preserve them *as a record, and must keep them open for inspection and supervision.* If such a requirement for record, inspection and supervision is deemed essential from the pharmacist, then, why is it not essential for the man who as a dispensing physician assumes the function of a pharmacist? There can be only one sound reason advanced for the differentiation, and this would have to be based on the claim that the wrong doers are all in the ranks of pharmacy, and not in the ranks of the dispensing physician.

Fifth: It is difficult to understand why it would be unjust to require the dispensing physician to write a prescription for the narcotics which he would dispense, and then to keep such prescription as a record open for inspection and supervision, just as the pharmacist is required to do. If the dispensing physician assumes to act in a dual capacity, why should he not be required to comply with the requirements which are incident to each of said capacities? Of course, if the dispensing physician does not know how to write a prescription, it may be a little hard on him, but then, in the cause of humanity, it is high time that he learn. Incidentally, he might then learn to write other prescriptions. The requirement is not intended to be that some third person write the prescription for the dispensing physician. He is to write it himself, and thus establish the written record for inspection, just as the pharmacist is required to do.

Sixth: While it is true that inequality in the operation of the laws between the pharmacist and the physician gives some ground for questioning the constitutionality, this is not at all the only reason advanced. The important grounds upon which the constitutionality of the Harrison Bill is questioned are

(a) That it discriminates between those who are required to pay the same tax. A manufacturer and a wholesaler, who pay the tax and who are not pharmacists (created by state law) may not sell to the consumer, while the pharmacist may sell to the consumer and act also as a manufacturer and sell at wholesale. That the pharmacist is permitted to do this, is of itself no cause for complaint on the part of the writer, but under the law it produces such inequality and discrimination as to seriously affect the constitutionality of the bill. This

is said with full knowledge, that uniformity as specifically required by the Federal Constitution, has been decided to mean geographical uniformity, but aside from this, it is the first essential of every act to give the same rights to those who are required to pay the tax.

(b) Sub-Section (a) and (b) of Section II, are purely an exercise of the police power, without showing any connection whatever with either the taxing power or the interstate commerce power. If these provisions are not shown to be an incident to either the taxing power or the interstate commerce power of the Federal Government, then the Government has no authority to enact them.

If these two Sub-Sections are held unconstitutional, they do not merely affect some minor provisions, but do affect the constitutionality of the entire act, and they can be changed, if the dispensing physician is not exempted, to meet constitutional objection.

Seventh: In deciding upon the constitutionality of the Act, the Court could not take into consideration that the druggist has no business to sell habit-forming drugs direct to the general public. It would have to recognize, that in and of itself, such is not properly a concern of the Federal Government. The example sought to be cited of inequality between the druggist who buys a barrel of alcoholic liquor and sells it as such, and the druggist who buys a barrel of alcoholic liquor and uses it to make real medicines, and then sells it, is hardly an analogy. In the one case the druggist sells liquor and in the other he sells medicines. The druggist who sells liquor has exactly the same right as has the druggist who sells medicines, and if he does not sell his barrel of alcoholic liquor as such, then he is not required to pay the retail liquor dealer's tax.

Eighth: It has not become known to me, that any one has advocated that the dispensing physician should be required to demand of his patient that he register as a dealer. The thing that has been advocated is, that the dispensing physician make and keep exactly the same kind of a record as the pharmacist is intended to keep. If there be any absurdity in this, it can be found only in the mind of one who would favor the dispensing physician acting as a pharmacist, as against the pharmacist acting as a pharmacist. The question is not with reference to the administration of a dose by the physician to the patient, it is with reference to the physician who would dispense to his patient a quantity of narcotics for subsequent use.

Ninth: To claim that permission to the dispensing physician to distribute narcotics *only in the course of his professional practice*, is a safeguard against the abuse of the privilege is rather farfetched and not borne out by past experience. The latitude which of necessity would need to be given every physician is sufficient to cover most every possible abuse. To say that the danger of a \$2000.00 fine, in making use of the order blank to obtain the drugs for any other but a lawful business, would prevent abuse by the physician hardly serves to sustain the point which is sought to be made, for so long as it rests in the discretion of the physician to claim that he has dispensed the drug in the legitimate practice of his profession, it also rests with him to claim that it was a lawful business. To say that, if the exception and discrimination made in the bill in favor of the dispensing physician transfers to him all of the illegitimate traffic

in narcotic drugs, this should be a source of congratulation on the part of the pharmacist, is entirely aside of the point involved. Those who have sincerely and actively been advocating proper Federal regulation, which should include the Drug Trade Conference, have been interested and engaged in this effort for the purpose of securing efficient regulation which would curb the narcotic evil for the common welfare of all, not for the purpose of giving one class of men an opportunity to proudly strike their chests proclaiming that the evil doers are not among them. To the person who is interested in preventing illegitimate traffic in narcotics, it can be but of small satisfaction to know that his effort has succeeded only in transferring part of the traffic from one class entirely to another class. Of course, there is nothing in the bill which would restrict further state legislation. It is, however, the opinion of many, and more than likely the opinion of those who first agitated proper Federal regulation, that state legislation, no matter how thorough and complete, would always fail because of insufficient enforcement by the state authorities.

Tenth: There must be error in the claim, that the phrase "Registered Under This Act" was carried over from several earlier forms of the bill, for the writer has industriously studied such earlier forms of the bill and has not found the phrase *in connection with the subject matter* in which it is found in the present Harrison Bill. To impose upon the pharmacist under a penalty of \$2000.00 and five years' imprisonment the duty to know that a prescription which he would fill is written by a physician who is registered as a dealer in narcotics, is certainly going just a little beyond sound reason. That those who are responsible for this provision did not really intend it, must be granted by any fair-minded man, but that it continues to be defended after being pointed out, is to be regretted. It certainly would be far more in keeping with the sound judgment of those who are responsible for it, had they graciously said "It is an error and we will see that it is corrected."

In making these comments it has been my purpose to touch only upon the more important features of the editorial in question. It, however, may not be out of place to say that, I cannot believe that Congress will ever stultify itself by enacting into law that so-called Harrison Bill in its present form. So long as certain special interests seek advantages and exceptions, the difficult problem of securing proper effective and enforceable legislation will not be solved, unless those who are entrusted with the task decide that all shall be treated with equal fairness, and none with special favor. As soon as this can be agreed to, the inherent difficulties will become far less difficult.

FRANK H. FREERICKS.



THE EDITOR'S REPLY TO MR. FREERICKS.

WHEN the discussion of so technical a matter as is involved in the Harrison Bill is unduly prolonged there is always danger that it may become a mere exercise in verbal dialectics, and what was intended as serious debate degenerate into fruitless quibbling over words and definitions.

While desirous of avoiding responsibility for such a result in the present in-

stance, the Editor feels that circumstances require him to make some reply to the very interesting comments submitted by Mr. Freericks in the preceding paper. For convenience of reference, the several sections of this reply are numbered to correspond to the sections of Mr. Freericks' argument to which they refer.

First. The Harrison Bill does not propose to interfere in the police regulations of a state any further than is necessary to insure the collection of the tax levied. The tax is laid upon the handling of certain drugs by dealers, and having power to levy the tax the Congress has also power to adopt such regulations as will insure its collection from those who should pay it, even though these incidental regulations operate wholly within a state.

The tax is not levied upon the purchase of the drugs for consumption, but upon the business of dealing in such drugs, and dealing in them includes both a purchase and a resale, either to a customer or to a patient.

In order to distinguish between those who are dealers and those who are not, the former are required to register and use an official order blank for their purchases of the drugs. The production of the order blank is legal evidence of their having registered and paid the tax.

The physician's patient, however, is not a dealer and not liable for the payment of any tax, and the bill simply provides that the physician's prescription shall be sufficient evidence to the seller that the drug is intended for consumption and not for resale. The requiring of order blanks and prescriptions is not an interference with the state's police powers, but only the requiring of evidence of certain facts: in the case of the order blank that the dealer has paid the tax; in the case of the prescription that the drug is required for consumption, for which no tax is necessary.

Second. The editorial which Mr. Freericks reviews stated plainly that the practical effect of the Act would be to require all physicians to register as dealers, whether they were of the class commonly known as dispensing physicians or not. As this point was not in controversy it did not seem to the Editor to be necessary to point out all of the reasons why every physician would be compelled to register.

Third. No doubt the advocates of Federal regulation of the traffic in habit-forming drugs had it in mind to supplement state laws and to make their efficient enforcement possible. There is no dispute on this point. It has been the constant claim of those who helped to formulate the Harrison Bill that this was the objective at which they aimed.

To advocate, however, that Federal legislation should be such as will effectually control the traffic irrespective of state laws and their efficient enforcement is to advocate the impossible. To do so would necessitate a far greater interference with the state's exclusive jurisdiction in police affairs than is involved in the most extreme proposition of the Harrison Bill. If the traffic in habit-forming drugs is to be touched at all through Federal law, it must be either through the expressed power of Congress to regulate interstate commerce, or through its power to levy taxes, and its implied power to make these regulations effective, even though they do incidentally affect the police powers of the state.

Fourth. The pharmacist may dispense either on an order blank or on a prescription. The first is preserved as a record to show that the drug was sold to a

dealer who has paid the tax, the second that the sale was to a consumer who is not required to pay the tax. If the physician, acting as a dealer, sells to one not his own proper patient he would have to preserve the same record as the pharmacist.

Fifth. To require that the physician write a prescription for what he dispenses, and then *himself keep the prescription*, as suggested by Mr. Freericks, would be fruitless, if not worse. It would cause the law-abiding physician some additional trouble, and would give the dope dispensing doctor something he would very much like to have, namely, the authority to manufacture evidence at will to cover his nefarious practice. When a physician has so far lost his sense of professional responsibility as to be willing to sell habit-forming drugs to habitues, a little thing like writing a fake prescription is not going to burden his conscience, especially when the law by recognizing his right to do so would make it still more difficult for the state officers to prove that the substance had been improperly dispensed.

He could write a prescription for a grain and deliver an ounce, or any other quantity, and the patient, if a "fiend" or one who is obtaining the drug for surreptitious sale to others, would do anything necessary to keep the doctor out of trouble, and thus preserve his source of supply unimpaired.

If the proposition was that the physician when he dispenses should deliver a prescription to a *third* party, who had the means of knowing that the amount delivered corresponded to the prescription, (as is the case when the pharmacist fills it) then it might prove effective; but such a proposition is not under discussion.

Sixth. To the objection that the law would discriminate between the wholesaler and manufacturer on the one hand and the retailer on the other in that it would require all to pay the tax, while only the latter, (i. e., the pharmacist registered under state law) could dispense on prescription would constitute such an inequality as to make the law invalid, it may be replied that wholesalers and manufacturers, acting as such, do not compound prescriptions for patients.

The bill does not divide dealers into wholesalers, retailers, etc. It classes them all as "dealers," and does not discriminate as to the amounts they may sell or the persons to whom they may sell. That the state law would permit some dealers to fill prescriptions and deny the privilege to some others is an incidental matter with which the Federal law would have nothing to do.

If any dealer, whether wholesaler, retailer, or physician, sells to another dealer, he must have an order blank to show that the purchasing dealer has paid the tax. If the dealer dispenses on a prescription, the latter is recognized as sufficient evidence that the sale was to a consumer who is not liable for the tax. If the state law permits wholesalers to fill prescriptions, these prescriptions would be accepted the same as those of the retailer.

The same reply applies to the objections that exceptions (a) and (b) constitute an invasion of the state's exclusive right to police powers.

These exceptions do not change the liabilities of the physician or other dealers to register and pay the tax. They only relieve the patients from the necessity of presenting an order blank to the physician or pharmacist before they can ob-

tain the medicine. If the drug is dispensed by a physician, dentist, or veterinarian when they shall personally attend upon such patient, this is accepted as sufficient evidence that the drug is for consumption and not for resale, and consequently that the person who gets it is not liable for the tax. The physicians's prescription when filled by the pharmacist is accepted as evidence of the same fact.

They are properly incidental to the exercise of the taxing power, since they relate to evidence regarding payment or non-payment of the tax. The fact that the law chooses to accept such evidence as sufficient to show that the sale is to a consumer who is not required to pay a tax could not, in the writer's opinion, be construed as an undue invasion of the state's police powers.

Seventh. In passing upon the constitutionality of an act, a court would most certainly take into consideration the rights of the party claiming relief. The claimant could not attack the validity of an act except by pleading that it abridged some of his rights under the Constitution. Unless his constitutional rights are abridged, he has nothing to plead, and consequently no standing in court.

The case cited of the difference in the burden placed upon the sale of alcoholic liquors for beverage purposes, and their sale when used as the constituents of a medicine is exactly in point. The tax is levied upon the traffic in alcoholic liquors for the purpose of raising revenue, but the law recognizes that the sale in the one case may be opposed to the public welfare and in the other case in aid of it, and hence places the tax upon the one and not upon the other.

The Harrison Bill does not go even so far as this. It requires the tax from every dealer alike, whether sold for the purpose of a medicine or for ministering to a previous habit.

All that exceptions (a) and (b) amount to, *when viewed in their true light*, is to relieve the consumer (i. e., the patient) from the necessity of registering as a dealer—which he is not—and using an order blank upon which to obtain the medicine which his condition requires.

Eighth. The writer is a pharmacist, his sympathies are with the pharmacist, and he yields to no one in his readiness to defend every moral and constitutional right that the latter is entitled to, but he denies that the bill would invade any such rights.

If the bill proposes an inequality of obligation as between the physician and the pharmacist it can be removed only by increasing the obligations of the former or by decreasing those of the latter. As to the futility of increasing the obligation of the physician by requiring him to preserve his own record without supervision or control by a third party the writer has already expressed himself, and will not repeat the argument.

When it comes to reducing the obligations placed upon the pharmacist by the bill, the writer claims that the requirements are already as light as they should be. The pharmacist's moral and professional obligations, and in many cases the state laws require that he dispense these drugs, (when in such form and quantity as to create or foster a habit) only on a physician's prescription. The bill requires no more than this, and hence does not increase the burden which is now imposed upon him both by moral and by state law.

Ninth. The dope dispensing doctor might "claim" that he dispensed the drugs in the conduct of a lawful business and in the course of the legitimate practice of medicine, but when confronted by a Federal court and jury he would discover that there is a vast difference between "claiming" and proving.

Tenth. There was no error in stating that the phrase "registered under this act" was introduced into one of the earlier forms of the bill. The Bill known as H. R. 28277, introduced January 20, 1913, after the first Drug Trade Conference, contains on page 9 the following: "That nothing contained in this section shall apply to the delivery of prescriptions of physicians, dentists and veterinarians duly registered under this act, compounded by a person duly registered under this act."

It is beside the point to say that it was not "used in the same connection as in the present bill." The first bill was a regulation of interstate commerce; the present one is a tax measure, and consequently the connection could not be the same. The intent of the phrase in both bills, however, was the same, namely, to give to drugs when dispensed on physician's prescriptions a different status under the law than when dispensed without a prescription.

As stated in the editorial, the writer considers the danger of harm to the druggist from filling the prescriptions of unregistered physicians as rather remote. As the bill will compel every physician to register as a dealer, even if he dispenses only on emergency, as all must do sometimes, there is not one in a thousand who will risk the penalties of the law by not doing so. If objection had been made to the phrase before the National Drug Trade Conference adjourned it is likely that it would have been eliminated, not because of any particular danger due to its presence, but from a desire to make the bill as satisfactory to as many persons as possible.

That Congress will not pass the bill in exactly its present form is quite probable. It would be equally safe to prophesy that Congress will never pass any other bill of equal length and importance without making changes in its phraseology as introduced.

J. H. BEAL.



BRIGHTER PROSPECTS FOR PRICE PROTECTION.

WHEN the retail druggist stood alone, as until recently he did, in asking for the maintenance of the advertised retail prices on proprietary articles the rate of progress toward the legal and public recognition of his claim was slow, and at times the movement has even seemed to be in the reverse direction.

This ill success has been due to the world-wide and almost world-old popular belief, or more properly superstition, that there is an enormous profit in the sale of drugs, and the contest between the aggressive cutter and his fellows has generally been regarded as a dispute between robbers over their ill gotten gains, or if any sympathy was aroused it was betowed upon the cutter, who was looked upon as being, partially at least, in favor of giving the public a square deal.

When the druggist attempted to tell his customers that his average net profits were even less than those of some other retailers, he was met with polite incredul-

ity or flat unbelief. Nor has this prejudice been confined alone to those whose opportunities for impartial observation might be presumed to be limited, but it was extended to those who might be presumed to know better. On several occasions when the writer has called the attention of his friends in the newspaper fraternity to the well considered and carefully prepared articles by Mr. Harry B. Mason on drug store profits, while he was listened to politely enough it was easy to see that his hearers were inclined to believe that Mr. Mason had somehow juggled the figures so as to make out a better case for the druggist than the facts warranted. If the newspaper man condescended to argue the case it was usually to point to the success of those who extensively advertised themselves as cutters, and yet were able to conduct several flourishing stores, and by their scale of living exhibit all of the external evidences of financial prosperity.

If it was objected that these notorious cutters cut the prices of advertised proprietaries merely to create a reputation for cheapness, and relied for their profits upon the sale of their own make of substitutes for the advertised goods and by boosting the margins on goods the prices of which were not advertised, it was thought sufficient to reply that the average retailer ought to adopt the same policy and thus reap some of the prosperity that goes to the aggressive cutter.

In other words, the druggist's reputation as a taker of exorbitant profits is too deeply ingrained in the mind of the average man to be overcome either by evidence or argument to the contrary.

When, however, patented razors and cameras, copyrighted books, package groceries, and dozens of other articles widely advertised to sell at specified prices were seized upon by department stores and others to use in the same way they had used proprietary medicines—by advertising them at cut prices to draw people into their stores, and recoup themselves by the sale of more profitable articles,—then the regular dealers in these goods began to understand that the cause of the retail druggist was, after all, the cause of the square deal and fair play. The great difficulty has been, and still is, to reach and convince the purchasing public which, having only partial knowledge, has been persuaded that it has been profited by the price cutters.

Until one or two years ago, the task of reaching and instructing public sentiment seemed almost hopeless, but within that period there has appeared evidence, the volume of which is daily increasing, to show that the public conscience is at last beginning to be aroused to the economic and moral evils of price cutting upon fixed price goods, and is beginning to seriously consider legislation designed to prevent so-called competition from being used as an instrument for the destruction of real competition which always results when the independent small dealers are driven from the field.

The drug trade can now congratulate itself that its own members have done not a little to inaugurate the reform, and have secured through judicial decisions, not only a clear definition of the questions at issue, but also some clean-cut arguments in support of the principle of price maintenance, as in the case of the Miles Medical Co. vs. Park and Sons, in which Justice Holmes, in his dissenting opinion says:

"I cannot believe that in the long run the public will profit by this course, permitting knaves to cut reasonable prices for mere ulterior purposes of their own,

and thus to impair, if not destroy, the production and the sale of articles which it is assumed to be desirable the people should be able to get."

Since then the movement for adequate and proper price maintenance has received an important impetus by the organization and activities of the American Fair Trade League, which has enlisted the interests and co-operation of prominent publicists in their propaganda. One of the most notable of the recent utterances upon the subject is found in an article on "Cutthroat Prices," by Louis D. Brandeis, in a recent number of *Harper's Weekly*. In drawing a distinction between price maintenance and price fixing Mr. Brandeis uses the following argument:

"The independent producer of an article which bears his name or trade-mark—be he manufacturer or grower—seeks no special privilege when he makes contracts to prevent retailers from cutting his established price. The producer says in effect: 'That which I create, in which I embody my experience, to which I give my reputation, is my property. By my own effort I have created a product valuable not only to myself, but to the consumer; for I have endowed this specific article with qualities which the consumer desires, and which the consumer should be able to rely confidently upon receiving when he purchases my article in the original package. To be able to buy my article with the assurance that it possesses the desired qualities, is quite as much of value to the consumer who purchases it, as it is of value to the maker who is seeking to find customers for it. It is essential that the consumer should have confidence not only in the quality of my product, but in the fairness of the price he pays. And to accomplish a proper and adequate distribution of product guaranteed both as to quality and price, I must provide by contract against the retail price being cut.'

"The position of the independent producer who establishes the price at which his own trade-marked article shall be sold to the consumer must not be confused with that of a combination or trust which, controlling the market, fixes the price of a staple article. The independent producer is engaged in a business open to competition. He establishes his price at his peril—the peril that if he sets it too high, either the consumer will not buy or, if the article is, nevertheless, popular, the high profits will invite even more competition. The consumer who pays the price established by an independent producer in a competitive line of business does so voluntarily; he pays the price asked, because he deems the article worth that price as compared with the cost of other competing articles. But when a trust fixes, through its monopoly power, the price of a staple article in common use, the consumer does not pay the price voluntarily. He pays under compulsion. There being no competitor he must pay the price fixed by the trust or be deprived of the use of the article."

In pointing out how, under the disguise of open competition, price cutting may become the most effective instrument in the creation and maintenance of monopoly, Mr. Brandeis presents the following cogent thoughts:

"The competition attained by prohibiting the producer of a trade-marked article from maintaining his established price offers nothing substantial. Such competition is superficial merely. It is sporadic, temporary, delusive. It fails to protect the public where protection is needed. It is powerless to prevent the trust from fixing extortionate prices for its product. The great corporation with ample capital, a perfected organization and a large volume of business, can establish its own agencies or sell direct to the consumer, and is in no danger of having its business destroyed by price-cutting among retailers. But the prohibition of price-maintenance imposes upon the small and independent producers a serious handi-

cap. Some avenue of escape must be sought by them; and it may be found in combination. Independent manufacturers without the capital or the volume of business requisite for engaging alone in the retail trade, will be apt to combine with existing chains of stores, or to join with other manufacturers similarly situated in establishing new chains of retail stores through which to market their products direct to the consumer. The process of exterminating the small independent retailer already hard pressed by capitalistic combinations—the mail-order houses, existing chains of stores, and the large department stores—would be greatly accelerated by such a movement. Already the displacement of the small independent business man by the huge corporation with its myriad of employees, its absentee ownership, and its financier control, presents a grave danger to our democracy. The social loss is great; and there is no economic gain. But the process of capitalizing free Americans is not an inevitable one. It is not even in accord with the natural law of business. It is largely the result of unwise, man-made, privilege-creating law, which has stimulated existing tendencies to inequality instead of discouraging them. Shall we, under the guise of protecting competition, further foster monopoly by creating immunity for the price-cutters?"

And, finally, this very remarkable paper is closed with the following stirring appeal to the common sense and spirit of fair play of the American people:

"Americans should be under no illusions as to the value or effect of price-cutting. It has been the most potent weapon of monopoly—a means of killing the small rival to which the great trusts have resorted most frequently. It is so simple, so effective. Far-seeing organized capital secures by this means the co-operation of the short-sighted unorganized consumer to his own undoing. Thoughtless or weak, he yields to the temptation of trifling immediate gain; and selling his birthright for a mess of pottage, becomes himself an instrument of monopoly."

That the leaven is spreading is also apparent from the fact that many other independent and non-partisan journals of national circulation are beginning to quote with approval the arguments of the price protection advocates, as for example, the following which is quoted from the editorial columns of the *Saturday Evening Post*:

"Thoroughgoing followers of Adam Smith held that competition would cure everything. Give competition free sway and goods would be sold at the lowest possible price because manufacturers would bid against one another for customers; wages would be as high as possible because manufacturers would bid against one another for labor; goods would be of the best quality because such goods would attract the most buyers.

"Nobody, we suppose, believes that now. Experience contradicts it on every hand. Everyone who reads the newspapers sees that competition, instead of curing all evils, creates many. The Standard Oil Company was a perfect fruit of unlimited competition—being simply the competitor that survived and beat all others in a completely untrammelled field.

"Banks, railroads, insurance companies, meat packers, food manufacturers, and others, are restrained by law from competing in certain ways. It is said now that we want fair competition—which always means limited and restrained competition.

"The big thing before the forthcoming session of Congress will be the Administration's trust policy; and the big question concerning that policy is as to how much it will insist merely on competition.

"President Wilson has already signed a bill containing an exemption which im-

plies that monopolistic co-operation may be very beneficial for labor and for agricultural products, even with no supervision on behalf of the public. That is a pretty plain acknowledgment that competition is no cure-all."

Additional encouragement is found in the fact that politicians in search of popular issues are also beginning to see the light, as is witnessed by the recent report of a newspaper interview with Secretary McAdoo, who as a member of the President's official family may be expected to be in accord with the policy of the present administration:

"How would you regulate monopoly?" I inquired.

"I do not believe you can successfully regulate monopoly by permitting it to exist and by then passing laws to control it. Some men advocate this, prominently among whom is Mr. George W. Perkins. There are others equally as conspicuous. The only way to regulate monopoly successfully is to prevent it. I believe in prevention. What we ought to do is to regulate competition. By that I mean that we should pass such legislation as will preserve the virtues of competition and destroy its brutalities."

"Brutalities?" I interrupted.

"Yes, brutalities. Competition is full of them, but they are not half so great an evil as the brutalities of monopoly. Let me give you an instance of what I mean by the brutalities of competition. Suppose you own an oil refinery in Indiana and are doing a sound and profitable business in your own zone, which let us say, extends within radius of 200 miles from your establishment.

"Now, suppose that the Standard Oil Company, which has business throughout the United States, invades your territory and finds that you are in its way. It cuts the price of oil below the cost of production and drives you out of business. That is what I call one of the brutalities of competition.

"The Standard Oil Company would lose money in your territory while the fight was going on, but it could increase its price in other parts of the country, where it had a monopoly, and reimburse itself for these losses it was meeting in your territory. After it had driven you out of business it could put up the price in your territory and recoup again what it spent in disposing of you as a competitor.

"It should be made unlawful for a corporation to engage in this kind of practice. It is harmful in every respect, injurious to the public interest, and destructive to proper business standards and ethics. To my mind it is one of the most interesting economic problems of the day, and I have no doubt that it will receive attention by Congress when the whole question of trusts and monopolies is again considered."

In this connection also the writer takes the liberty of quoting from an article by J. Leyden White in a late issue of the *N. A. R. D. Journal*, in which it is shown in a convincing way that the battle for fair prices is not a struggle for special privileges to the retailer, but only an attempt to secure for him equality of commercial opportunity under the law, so that what are now special privileges enjoyed by the few may be converted into general privileges open to all alike. Mr. White says:

"The farmers who originate it, the producers, the growers, demand that they shall have a right to combine for selling purposes, for the price-fixing of corn, simply to protect themselves from their cut-rate competitors, the brokers. In this demand they are solidly backed by all union labor, by all country dwellers who have to do with them, even by country druggists. So powerful is this demand of the right to combine to preserve the farmer's profits on corn (and other products) that the General Deficiency Bill that recently became a law, in so far as that bill could, exempted farmers from the operation of the Sherman anti-trust law.

"The railroad men who take the corn from the farmers are unionized. So are the steamboat men, the longshoremen, freight handlers of all classes, the elevator men, the teamsters and all other labor concerned with its transportation. To defend itself against the cutters that menace it, every element of this labor demands the right to fix its own profits, its wages. This right to defend itself against the cutters whom it call 'scabs' is now generally acknowledged. As the corn goes into a manufactured article, let us say corn flakes, every element of labor, including even the printers of its advertising matter, has the power to combine, and does combine to fix, and does fix its own profit on the corn, by fixing its own wage.

"And did you ever hear of any association of jobbers or manufacturers being afraid to meet organized labor to fix prices, profits, wages, on anything with which labor is concerned? Ever hear them use the Sherman law spook on wage earners as they do on retailers?

"In the various sales of the corn, from the farm to the consumer, every price, every profit is fixed by combination. Brokers, elevator men, commission men, millers, bakers, manufacturers, all fix their profits on corn in their exchanges, boards, of trade, milling associations, and so forth. True, some of them are called 'trusts,' some are said to violate that Sherman spook, but as far as actual stoppage of any of their price-fixing is concerned—it's a joke.

"I said that every price, every wage, every profit is fixed. As a matter of fact, within or without the law, and with the favor of the actual majority of American citizens, every profit coming from the corn, from planter to eater, is practically, although not entirely satisfactorily fixed by the people making the profit, *except in one case.*

"The retail grocers who sell the canned corn or the corn flakes are not allowed to fix their wages, their profits. There the chain breaks, there is the missing link!

"The labor union of girls who fill the boxes with corn flakes can meet their employers, demand a meeting and fix their profit, their wage, and neither public sentiment nor law says nay. But let the same manufacturer dare to meet with retail grocers to fix their profits, their wages, and lo, and behold, the majesty of the law, the power of Government steps in—and keeps the chain from being consistently linked up."

The question is no longer one for academic discussion by trade associations, but has become one of practical politics, and the contest for fair and honest competition has been transferred from the courts to the floors of the state and national legislative bodies.

The cause of the retailer is so just and reasonable that it needs only to be presented clearly and forcibly in order to win legislative approval. It is now up to the retailers of every class to see to it that those who make the laws are fully informed on the subject, and duly impressed with the earnestness and political force of those who make the law makers.

J. H. BEAL.



THE PRESENT STATUS OF THE HUGHES-BACON BILL.

THE annual report of the Surgeon General to the Secretary of War makes a strong plea for the increase and improvement of the status of the Army Hospital Corps. This report has just been published. We quote from it the following:

"I can not in transmitting this, my last, annual report fail to call your attention to one particular in which the Medical Department is unprepared to fulfill its responsibilities to the Army and the Nation. It is one which has been the sub-

ject of frequent communications from this office in the last few years and has been pointed out for several years in the annual reports—this is the great deficiency in number of the Hospital Corps; so that when the tactical divisions of the Regular Army take the field they can have not more than one-fourth of the sanitary units required for the medical service and called for by the Field Service Regulations. In fact the first division stationed in the Eastern Department has not a single sanitary unit. No action by Congress is necessary to remedy this defect, since Congress, in order that such deficiency might be avoided, has placed in the hands of the President the responsibility for providing a sufficiently numerous Hospital Corps to care for the sick and wounded, and has specifically stated that they shall not be counted as a part of the strength of the Army. It is believed that Congress has thus shown the intention that our Army shall have an adequate medical service proportioned to its strength, and this is what I have repeatedly urged. It is also believed that if the Secretary would recommend to Congress the reorganization of the Hospital Corps, which is asked for in this report, it will be easily obtained and will much facilitate the recruitment of suitable men for this relatively unattractive service.

"The authorized strength of the Hospital Corps is as follows:

Sergeants, first-class	300
Sergeants	362
Corporals	50
Private, first-class and privates	2800
Total	3512

"The number of sergeants, first-class, is fixed by law, the total strength of the Hospital Corps and number in the various other grades is determined by Executive order.

"In service June 30, 1913

Sergeants, first-class	295
Sergeants	336
Corporals	38
Acting cooks	190
Privates, first-class and privates	2560
Total	3419

"It will be observed that the Hospital Corps is over $2\frac{1}{2}$ percent. below its authorized strength. It has been found impossible to keep this corps at its normal strength by enlistments, or by voluntary transfer from the line. On four occasions during the year requests have been made to the Adjutant General for the transfer of unassigned recruits from the various depots to fill vacancies, and these requests have been complied with in so far as practicable. About 225 men have been transferred to the corps as a result of this policy. It has not resulted, however, in obtaining the most desirable class of men for service with the sick.

"The authorized strength of the Hospital Corps (3,512) is inadequate for the needs of the service, and does not provide the number of men prescribed by Army Regulations for duty with the Army as now constituted. When the allowance of 3,500 men was fixed for the Hospital Corps, the strength of the Army was less than 76,000. Its present authorized strength, exclusive of Hospital Corps and Philippine Scouts, is about 84,810, and a corresponding increase in the Hospital Corps would bring that organization up to 3905.

"As previously stated in this report, it has been impossible to keep the Hospital Corps filled up to its authorized strength by enlistment and reenlistment, and there has been a constant drain upon it by the transfer of desirable men to

the line and to other staff corps. This is interpreted to mean that the relative desirability of service in the Hospital Corps has lessened since the organization of the corps.

"In his annual report for the fiscal year 1911-12, the commanding general, Central Division, alludes to this condition of affairs in the following terms: 'The discipline and work of the Hospital Corps has been excellent. There has been some difficulty in keeping the detachments up to their authorized maximum strength, as the Hospital Corps does not offer sufficient inducements to make men desire to transfer to it from the line.'

"When the Hospital Corps was organized in 1887, it was recognized that its members would be required to do work that was not attractive to enlisted men and which required special qualifications. To secure a suitable class of men to do such work, non-commissioned officers of the Hospital Corps were given pay considerably in excess of most non-commissioned officers of the line. At a later date the pay of privates was likewise proportionately increased. This principle was lost sight of in the legislation of 1908, when the pay of the line was increased. In the meantime special grades of non-commissioned officers have been made in other branches of the service and various ratings established whereby the opportunities for promotion of intelligent men have been increased and opportunities for a substantial increase of pay have been provided. Opportunities for extra-duty pay are provided in other branches of the service, but are denied to Hospital Corps soldier.

"Bills are now pending in Congress which provide the following grades and rates of pay for the Hospital Corps: Sergeants major (new grade) 30, at \$75 per month, with the increased pay for service as now authorized for sergeants, first-class; sergeants, first-class, 300, pay to be increased from \$50 to \$65 per month; sergeants, pay to be increased from \$30 to \$36 per month; corporals, \$24 per month, (no increase); privates, first-class, pay to be increased from \$18 to \$21 per month; privates, \$16 per month, (no increase.)

"These bills were proposed and introduced without any prompting on the part of this office, but are in accordance with its ideas, and it is believed that if the measure were given the support of the Secretary of War it would become a law.

"Such a law would undoubtedly be for the benefit of the service by increasing the desirability of the Hospital Corps and attracting thereto a better class of men; and the additional higher grade contemplated would provide a more adequate compensation for a limited number of specially skilled men, such as pharmacists of exceptional ability, X-ray experts, anesthetists, and others of a class who can now command in civil life a higher rate of pay than is afforded them in the service.

"In consideration of the special functions of the mobile organizations, there is required for duty with them a certain number of men having qualifications different from those generally required for Hospital Corps soldiers. I therefore recommend that there be allowed for each ambulance company 1 horseshoer at \$30 per month, and 1 farrier, 1 saddler, and 15 wagoners, each at \$21 per month." and for each field hospital 1 artificer and 8 wagoners, each at \$21 per month."

In explanation of the last paragraph it should be said that the Army organization provides field service, hospitals and ambulance companies which have as important accessories, ambulances and other wagons with the necessary horses and mules. Organizations of the line provided with similar transportation, have farriers, horseshoers, wagoners, etc., who receive higher rates of pay than the privates. We believe that members of the Hospital Corps who perform similar duties with our field organizations should receive similar rates of pay. It is our

intention to make provision for these in the Hughes-Bacon Bill as reintroduced at the regular session of Congress and our committee is working toward that end.

In this connection it is of interest to quote from the annual Report of the Brigadier General Tasker H. Bliss, U. S. Army, Commanding the Southern Department:

"The condition of the Hospital Corps at the present time is a matter of very serious concern. The number of men present for duty is altogether too small to permit the efficient performance of the work that regulations, orders and customs of the service seem to require to be done. The service is so arduous for the really good men, and so unattractive, and the pay is so small that the application for transfer to the Corps of a superior man is now an extremely rare occurrence. There are very few applications for authority to re-enlist, while there is a constant depletion due to desertions and discharges.

"The medical and sanitary service could be performed in a much more satisfactory and creditable manner than at present were the hospital quota increased by fifty percent. and its quality could be improved by offering a larger stipend."

Our committee scarcely expected any action at the special session of Congress recently closed, fully realizing that the tariff and currency legislation would preclude the consideration of our bills. We have promise of a hearing early in the present regular session and we urge upon all pharmacists the importance of calling the attention of their representatives in Congress both Senators and Representatives to the national importance of the Hughes-Bacon Bills as bearing upon the efficiency of our Army and the need for the prompt passage of this legislation.

W. B. DAY...

Scientific Section

Papers Presented at the Sixty-First Annual Convention

THE PHARMACOGNOSY MUSEUM.

E. N. GATHERCOAL, CHICAGO.

A museum, according to Webster, is a collection of natural, scientific or literary curiosities. The object of a museum, according to the above definition, would be to arouse and satisfy curiosity, and such is the prime object of all museums. However, the term museum has taken on a broader meaning so as to include among its functions the opportunity for instruction and research, the preservation of historical material and of such articles as are rare in nature and commerce.

Pharmacognosy in a broad sense is the scientific treating of the physical characteristics of medicinal substances, therefore a pharmacognosy museum may be defined as a collection of such natural, scientific and literary articles as are medicinal substances or relate to the same, said collection being designed to arouse and satisfy curiosity, to instruct and give opportunity for research, to preserve rare and historical material. In the most restricted sense, however, pharmacognosy considers only crude animal and vegetable drugs and under this definition only such drugs are included in the pharmacognosy museum. Within these limits every curator of such a museum places his own definition upon the term.

The object of this paper is to present more or less comprehensive answers to the following questions:

(1) What is the value of a pharmacognosy museum to the college of pharmacy? To the teachers? To the students? To the alumni?

(2) How much money should be spent for this museum by the college? How much time given by the teachers to its upbuilding?

(3) What should be the scope of this museum, i. e., what articles should be contained in it?

(4) Where should the museum be situated, how arranged and catalogued and under what rules or arrangements should it be open to afford the utmost facility for use?

The answer to the first question may be presented in two ways: First, the museum of the average college of pharmacy should be subordinate to the library, to the equipment of the laboratories and to the quality of the teachers. That is, out of the definite sum that is allotted for expenditure by the college, high grade

teachers should be provided first, well-equipped laboratories next, a modern pharmaceutical library third, and the museum fourth. Second, the value of the museum to the college is very great. No student should be expected to learn the physical characteristics of a drug, chemical or medicine without having the opportunity of seeing, tasting and smelling the article. No teacher should attempt to present the description of any article of pharmacognosy without being fully familiar with its commercial appearance. The museum is the place to learn the appearance of a drug in a way that it will be remembered. For research work in pharmacognosy the value of the museum is unquestioned. To the average



Collection of Rare, Foreign and Powdered Drugs, University of Illinois, School of Pharmacy.

pharmacist, the alumnus, the museum gradually becomes naught but a pleasant memory, largely because it is so situated as to be unavailable for quick and easy use. Where the museums are accessibly located, the alumni often find them of great value for reference. As an advertisement a museum is without doubt an asset to the college. The prospective student in his inspection of the school lingers longest over the orderly array of specimens and cases here presented.

In answer to the next question as to what shall be the scope, the size of the museum, I assume that the ideal of each curator or teacher who chances to read this item: the museum under Dr. Tschirch at the University of Berne with its 50,000 catalogued articles. However, the ideal must give place to the real. Beginning with a college of pharmacy without any collection of drugs that could

by any courtesy be named a museum: one hundred dollars a year for ten years judiciously expended by a capable, earnest curator would provide a fine nucleus for a good museum. A museum when once established largely grows without any serious expenditure of time or money. Little gifts each of relatively small value to the donor are being constantly received. Specimens of drugs often rare and therefore valuable in the museum are received from time to time for purposes of identification. The residue of samples obtained for inspection from the custom's service may be added to the museum. Samples of fine chemicals and galenicals prepared in the class room find their place in the museum. Col-



Collection of Official Drugs, University of Illinois, School of Pharmacy.

lections of medicinal chemicals, inorganic and organic, of pharmaceuticals, of alkaloids, active principles and volatile oils are oftentimes presented to the museum by manufacturers of these respective classes of drugs. Crude drugs may be purchased in small quantities, pound or half pounds, from drug importing firms or foreign drug dealers, if the statement is made with the order that the drugs are for museum samples. But one of the most important means of supplying the museum with its choicest specimens is through the collection by friends in our own and in foreign countries of items suitable for the museum.

What shall be included in the museum? The pharmacognosy museum may be divided in a general way into the Crude Drug or Pharmacognosy Proper Division, the Chemical Division and the Pharmaceutical Division.

There will be criticism, I know, against including the chemical and pharmaceutical museums under the general title of Pharmacognosy, however, I defend the title as a good one to apply to the whole College of Pharmacy Museum.

Crude Drug Division.—A crude drug is generally understood to be one consisting of the whole or a part of a plant or animal which has undergone but little change other than drying. Under such a definition the ethereal oils obtained by distillation, the fixed oils obtained by pressure and subsequent purification and the alkaloids and active principles would not be included in the crude drug division,



Fresh Drugs in Alcohol and Crude Drugs, University of Illinois, School of Pharmacy.

but the balsams, oleoresins, resins and gums which have exuded naturally or after incision of the plant and even evaporated plant juices should be included.

The number of crude drugs that have been used by man is legion. From the earliest civilization until recent times they have been much more extensively used than chemical substances. Within the last century chemicals as medicines have become more popular.

The crude drugs fall into a number of groups, the most important of which is the Official Crude Drugs. The official group includes all the crude drugs defined in the current U. S. P. and probably should include the drugs of the National Formulary as well. Whether this group should include drugs not official in the United States but that are defined in foreign pharmacopœias is a question, though in the museum in which I am personally interested we have included

in the Officials not only those drugs defined in the current U. S. P., but also those that have been named in all the revisions of the U. S. P. since the original issue in 1820, and those official in the current pharmacopœias of Europe. Thus our Officials group has become quite large, including upward of 600 titles.

Unofficial Crude Drugs.—The second great group of crude drugs is often designated the Unofficials. This term ordinarily is restricted to those drugs in common use in one's country but not recognized in the national pharmacopœia. However, in our museum we have included in the Unofficials those drugs found in commerce in North America and Europe, but not named in the pharmacopœias of the United States or Europe.

In the large dispensaries and codexes there is described a long list of unofficial drugs, while an examination of one of the more comprehensive American or European drug price lists reveals the fact that here is named a large number of crude drugs included in neither pharmacopœia nor dispensatory. In fact it seems impossible to find a limit to the Unofficial Group.

Native Drugs of Foreign Countries.—Collections of drugs in common use in countries beyond North America and Europe are of value and interest. Thus the native drugs of China form a very extensive and interesting collection, as do also similar collections from Burma and the East Indies, from India, from several districts of Africa and from South America. Such collections fairly complete are difficult to obtain except from a native or resident of the locality.

Drugs in Original Packages.—The containers in which drugs enter commerce and "original packages" of drugs are always items of interest and instructive value. They may be obtained, usually without cost, from jobbers and importers.

The commercial varieties of a single drug make an interesting collection, such as opium, acacia, cinchona, rhubarb, etc., which enters commerce from different countries or localities, which is of several grades of quality or which occurs in several commercial forms.

Adulterated drugs are often found in commerce, especially in the customs houses and in the store rooms of importers, wholesalers and manufacturers. A sample preserved from each lot of adulterated drug met with will soon form a most valuable collection.

Drug Adulterants.—Substances that are or have been employed for adulterating drugs form an exceedingly interesting portion of the crude drug museum. Specimens of such adulterants may be had by garbling the adulterated drug.

Crude drugs preserved in a fresh state in alcohol or by other means are of especial use for the histological study of drugs. A collection of such fresh material can be gradually accumulated and eventually becomes of great value.

A collection of powdered drugs is a necessity in any well-organized pharmacognosy museum. Powdered drugs have largely replaced whole crude drugs in commerce and the pharmacognocist must be familiar with the gross and microscopic appearance of drugs in powdered form.

An herbarium of drug-yielding plants forms an important portion of the

pharmacognosy museum. Such an herbarium should be given first place. The drug plants native to the locality of the museum can be increased by purchase, exchange or travel so as to include specimens of the plants yielding all the more important drugs.

There always forms in the museum a collection noteworthy because of the historical interest of the articles included, such as amulets, charms, drugs used in former times but now neglected, drug samples of great age, drugs at one time possessed by a famous pharmacognocist or pharmacist.

Pictures and lantern slides of drugs and of drug-yielding plants, of drug containers, of the process of drug collection and of drug cultivation, etc.; portraits of pharmacognocists of note; manuscripts and books relating to pharmacognosy that because of age or rarity or especial value should be preserved—all of these may be gathered into still another section of the crude drugs division.

Chemical Division.—The chemistry division of the pharmacognosy museum is arranged in a general way similarly to the crude drug division. A chemical may be defined as a substance possessing a definite molecular composition. Thus this division of the museum would contain all those medicinal substances to which have been ascribed chemical formulas.

The articles in the chemical museum naturally fall into a number of groups, which may be designated somewhat as follows:

Inorganic Medicinal Chemicals.

Organic Medicinal Chemicals.

The Elements.

Ores and Chemicals as found in Nature.

Exhibits illustrating the Preparation of Medicinal Chemicals.

Adulterated Chemicals.

Chemical Reagents.

Chemical Apparatus.

The Inorganic and Organic Sections would include, first, those chemicals official in the pharmacopœias of the U. S. and Europe, and, second, those Unofficials mentioned in the dispensaries and price lists. The special collections are of great interest and value, especially where they are fairly complete, nicely arranged and well exhibited.

Pharmaceutical Division.—The pharmaceutical division of the pharmacognosy museum is of especial interest to the pharmacy student and pharmacist because the items contained therein are largely the products of his own skill; articles which he has presented to the museum and of which he possesses an intimate knowledge.

There might be included in the pharmaceutical museum the following sections:

Official Galenicals.

Unofficial Galenicals.

Alkaloids and Active Principles.

Ethereal and Fixed Oils.

Disinfected Surgical Supplies, including

Cottons, Gauzes, Bandages, Ligatures and Plasters.

Adulterated Pharmaceuticals.

Pharmaceutical Apparatus—

Modern, Ancient, Rare, and Historical.

Pictures, Portraits, Books, Manuscripts, Prescriptions.

Finally, a very short discussion of the fourth point—the location, preservation and arrangement of the museum.

The whole museum may be gathered together and located in one room or it may be located in various rooms throughout the college building. The plan of locating it all at one place, usually a room in connection with the library so that the librarian may also look after the museum, has several advantages, the principal ones of which are: the more impressive appearance made by such an arrangement, the increased facility of use, the advantages presented in cataloging, the assurance of safety which the constant presence of the curator implies.

There are, however, advantages in having the exhibits scattered in the various laboratories and lecture halls, under direct charge of the teachers, especially for the smaller colleges of pharmacy. Thus, much of the formality and inaccessibility of the formal museum is lost: students and teachers, especially, will use the various exhibits much more extensively if they are very conveniently located. Like the dictionary, if it is at your elbow you use it much more often than if it is in the other room. Again the exhibits may often be much better displayed because of the abundance of well lighted wall space in a number of rooms, whereas they would be dark and crowded in a single room. Further, in my opinion, the teachers in each department give more readily of their time and attention to their respective divisions of the museum than if the whole museum was placed in the exclusive charge of one person.

The arrangement of the museum is largely one of personal choice on the part of the curator, though the following points should be observed:

Display each article with such a lighting that it may be studied in detail to the best advantage.

Preserve materials that may deteriorate against deleterious influences, especially sunlight, dust and insects.

Arrange the exhibits in such a way that, given its catalogue number a visitor may easily find any article.

Arrange and label at least the more important exhibits such as the official and unofficial crude drugs, the inorganic and organic chemicals and the official and unofficial galenicals so that any article may be readily found without the catalog numbers.

In the museum of the University of Illinois School of Pharmacy, we have used in the crude drug division for the Officials half-gallon, glass-stoppered, wide-mouth bottles, each bearing a single-line paper label on the neck of the bottle with

hand-painted plain square letters about one-half inch high. Each drug is labeled with its pharmacopœial name, the abbreviated name of the pharmacopœia in which it is defined if other than the U. S. P., and the date of the revision in which it was last official.

The Unofficials are in similar bottles with the label bearing, however, only the botanical name of the plant yielding the drug.

Each of these exhibits is arranged alphabetically on open wall shelving in the roomy pharmacognosy laboratory. These exhibits are accessible to any student or visitor during the time the laboratory is open and upon request at any time the college building is open. The samples of many of the U. S. P. drugs are renewed annually.

The rare foreign drug exhibit is contained in screw-cap glass jars with a several line label stating the botanical source of the drug, the country from whence obtained, etc.

The exhibits of adulterated drugs, drug adulterants and commercial varieties are in quart glass-stoppered bottles arranged on open shelving.

The powdered drugs are in half-pint screw cap glass jars in glass front wall cases.

The fresh crude drugs in alcohol or formaldehyde are contained in pint and quart glass-capped jars.

The original packages are mostly exhibited in large glass front wall cases in the pharmacognosy lecture hall.

The herbarium of drug-yielding plants is in a regular herbarium case.

The walls of the laboratory bear many framed prints in color of drug plants.

In the Chemistry Division the inorganic and organic chemicals are displayed in glass-stoppered bottles on shelving in the laboratory, the elements are in a special small case, the apparatus in large glass front wall cases in the chemistry lecture hall.

In the Pharmaceutical Division the galenicals are mostly in pint cork-stoppered bottles, the alkaloids and active principles in slender footed display bottles, and the other displays in various wall cases in the large pharmacy.

In addition to these displays the college possesses portraits in oil of its deceased teachers and of a number of prominent pharmacists of the U. S. and Europe. Hanging from the walls of the lecture halls and library are photographs of every graduate and teacher of the college since the first graduating class fifty-two years ago. In the library are many old and rare books on materia medica, pharmacy and chemistry.

Some day if opportunity offers we may gather this scattered museum into one room, yet we may suffer disappointment if we do so, for the present arrangement is very satisfactory and affords abundant chance for growth.

THE ANALYSIS OF VANILLA EXTRACT.

CHARLES H. LAWALL AND LEROY FORMAN.

Vanilla extract is defined by the U. S. Department of Agriculture standards as "the flavoring extract prepared from the vanilla bean, with or without sugar or glycerin and contains in 100 cc. the soluble matters from not less than 10 gm. of the vanilla bean."

The vanilla bean is, according to the same authority, "the dried cured fruit of *Vanilla planifolia*."

The tincture of vanilla of the U. S. P. is a preparation conforming to the foregoing standards and the process described in that work is taken as a type process for the preparation of a standard preparation for purposes of comparison by many authorities. Inasmuch as there is nothing said in the standards about the grade or geographical origin of the vanilla beans, it logically follows that a multitude of sins are committed under the name of vanilla extract. The only commercial variety of vanilla bean which is not derived from the *Vanilla planifolia* is the inferior Tahiti bean which comes from a species called *Vanilla pompona*, so that the manufacturer may legally use any grade of Mexican, Bourbon or other variety of bean and make an extract true to the name "vanilla extract," and, to tell the real truth of the matter, there is no way of telling from the composition of the finished article what kind or grade of beans have been used, except by the flavor and aroma, characters not determinable by analytical procedure. Even the inferior Tahiti beans may be used without fear of detection, so the judging of a vanilla extract, after all, depends largely upon the exercise of the critical faculties of taste and smell.

There are certain factors, however, which, when ascertained, aid in arriving at a conclusion as to the genuineness of the product, and give some idea as to its quality. Of these, the principal ones commonly taken into account in judging of an extract are:

- 1 Percentage of alcohol.
- 2 Percentage of residue upon evaporation.
- 3 Percentage of ash.
- 4 Percentage of vanillin.
- 5 Percentage or relative amount of resins and character of same.
- 6 Character of color.
- 7 Presence or absence of such foreign substances as coumarin, acetanilide, etc.

The percentage of alcohol is of importance on account of the fact that if too little be used in extracting the beans the product is deficient in resins and consequently inferior in its flavoring value and aroma. Too much alcohol is also productive of an inferior product. The 60 percent alcoholic menstruum of the U. S. P. tincture is about the upper limit for a first class product and by far the greater number of manufacturers use a 50 percent. alcohol or even slightly lower. The percentage of alcohol in the finished product therefore ranges in high grade extracts from 35 to 55 percent. by volume and the majority are in the neighborhood of 40 percent. Some few commercial extracts of wide reputation are slightly below 35 percent., but they are always more or less turbid from the partial precipitation of resinous matter.

The alcohol may be readily estimated by taking a measured volume of 25 cc. of the extract and diluting it with about 60 cc. of water, placing it in an Erlenmeyer flask connected with a well cooled condenser and distilling off exactly 50 cc. for determination of the alcoholic strength by taking its specific gravity and referring to the appropriate table in the appendix of the U. S. P.

The percentage of residue upon evaporation is usually determined in routine practice more for the sake of observing the character of the residue and for purposes of comparison than for any real value which it possesses as there is no restriction as to the amount of sugar or glycerin which may be used, either of which, of course, increases the amount of residue in proportion to the amount present. It is customary to estimate the residue in 5 cc. of the extract by drying to constant weight upon the water bath.

The percentage of ash, which may readily be ascertained by igniting the residue after its determination, is of value in detecting the use of fixed alkali such as sodium or potassium carbonates or hydroxides, which are sometimes though rarely used to aid in extracting the resinous matter from the beans with a lower percentage of alcohol than would be otherwise possible. The percentage of ash varies somewhat in genuine extracts but we have never seen one which contained more than 0.50 percent by weight.

The percentage of vanillin may vary from 0.10 percent to 0.25 percent in a genuine vanilla extract, which is quite a wide variation when one takes time to consider it. As the value of the extract is largely dependent upon the amount of this constituent present it is customary to estimate it, which can be very readily done by a shaking out process.

The official method of the A. O. A. C. provides for the dealcoholizing of the extract as a preliminary step by repeatedly evaporating to a small volume at a temperature below 70° C. In a large number of analyses made by this method and also by a method simply based upon the removal of the alcohol at water bath temperature, we have been unable to detect any appreciable difference in the results and believe that the amount of vanillin lost by volatilization during concentration is negligible. A simple and satisfactory method is as follows —:

Measure 25 cc. of the extract into a shallow evaporating dish and concentrate to about one third of its volume upon the water bath. Add hot water to make up the original volume and observe the character and amount of resinous matter which precipitates at this stage of the procedure. Then add lead acetate T. S., drop by drop, until no further precipitation is produced. Filter while still warm through a plaited filter into a separatory funnel, washing the residue on the filter with small portions of hot water, being careful not have more than 50 cc. of total filtrate. Add to the liquid in the separatory funnel 25 cc. of ether and agitate thoroughly. When the liquids have separated, draw off the lower aqueous portion and transfer the ether (now containing most of the vanillin) to a tared glass capsule.

Place the aqueous liquid again in the separator, add a fresh portion of 25 cc of ether and repeat the operation, adding the ether to that in the glass capsule. Repeat this procedure a third time, using 15 cc. of ether for the final extraction. The combined ether extractions, when evaporated to dryness at room temperature, leave a varnish like film of nearly colorless vanillin, which upon standing

for a few hours, usually crystallizes in fan shaped radiating crystalline masses throughout the film.

The percentage of vanillin by this method in a high grade extract will be in the neighborhood of 0.20 percent. An extract containing over 0.30 percent is looked upon with suspicion as containing added vanillin. Some cheap extracts contain over 1 percent of vanillin to make up for the deficiency in aroma due to resins, etc. It sometimes happens that when a single bottle of extract of vanilla (holding about 1 fl. oz.) is the only sample available, the procedure as above outlined for alcohol, vanillin, etc., must be modified. Excellent comparative results, agreeing within 0.01 percent as a rule, in the vanillin estimation, have been obtained by the following procedure:

Estimate the alcohol as previously directed, using an asbestos mat between the burner and the flask. Allow the residue from the alcoholic determination to cool in the flask. Then transfer it to the separator without filtering, using water to rinse out the flask. Shake out the liquid in the separator with two portions of 25 cc. each of chloroform and evaporate the chloroform in a tared glass capsule. The residue will be almost pure vanillin, agreeing closely with the results obtained by the use of the official method or the modification previously described.

After shaking out with chloroform, the liquid in the separator may be transferred to a graduated cylinder and an aliquot portion taken for the determination of the residue and the balance used for the tests of the resins to be subsequently described. Thus all of the principal characters may be ascertained in a 30 cc. sample, using 25 cc. for the alcohol, vanillin, resins and residue. The remaining 5 cc. may be used for the caramel test also subsequently described in this article.

The percentage of resins is rarely determined on account of the difficulty of collecting them upon a filter. However, upon dealcoholizing and diluting as directed under determination of vanillin and then passing through a filter, the portion which adheres to the filter may be used for certain identifying tests for the detection of foreign resins, such as color reactions with acids, specific tests for rosin, etc.

An arbitrary factor called the lead number, which is largely influenced by the percentage of normal resins present, is sometimes ascertained by estimating the amount of lead acetate precipitated from a solution of known strength under carefully standardized conditions.

This is a complicated and tedious operation, only of value in doubtful cases and will not be described here.

The character of the color is an important factor. Any caramel color at all is evidence of fraud. The former tests for caramel, such as fullers' earth test, paraldehyde test, amyl alcohol test, etc., were all unsatisfactory. A test which has recently appeared in literature and which upon careful investigation has been found to be extremely reliable is given herewith. Prepare a reagent as follows:

Tannic acid.....	5.00 gm.
Sulphuric acid.....	3.75 cc.
Water q. s. to make.....	250.00 cc.

Take equal parts of the above reagent and of extract of vanilla in a test tube

and heat the mixture to boiling. Stand it aside for 12 hours or over night and observe the character of the precipitated residue at the end of that time. A genuine extract of vanilla will show a flocculent, brownish precipitate which shows no tendency to adhere to the bottom of the test tube. Any caramel present will be indicated by a blackish brown sediment adherent to the bottom of the test tube. In applying this test the best results are obtained when specimens of known composition (of both genuine and caramel colored goods) are simultaneously tested.

Coumarin, the odorous principle of the tonka bean, is frequently present in cheap or imitation vanilla extracts, either through tonka beans having been used or by the addition of coumarin itself. The odor of coumarin is so distinctive, even when present in small proportions in combination with vanillin, that it is not always necessary to test for it. Where its presence is suspected it may readily be detected by redissolving the previously estimated vanillin in ether, transferring to a separatory funnel and shaking out with three or four portions of 2 percent ammonia water. This shaking out removes the vanillin completely and upon again evaporating the ethereal solution in a glass capsule any coumarin present will be left as a residue and may be weighed and identified by its color and its melting point of 67° C. (vanillin has a melting point of 80° C.).

Acetanilide, which has sometimes been found as an adulterant of vanillin, would also be left as a residue from this second ethereal solution with the coumarin, and it may easily be detected by treating the coumarin residue with petroleum benzine, which entirely dissolves coumarin but leaves behind any acetanilide, which in its turn may be identified by its characteristic chemical tests and its melting point of 112° C.

While there is little that is new or original in the foregoing communication apart from the procedure directed for the examination of the sample where only a limited amount is available, it is offered as being of interest to many pharmacists who have neither the time nor opportunity to familiarize themselves with the analytical procedures described in works on food analysis but who would eagerly avail themselves of points offered in an article of this kind.

OREGON BALSAM.

O. A. BEATH AND L. E. SAYRE.

Since the time that Dowzard expressed his opinion that Oregon Balsam was a mixture of colophony and oil of turpentine, the question of its origin has been frequently asked.

Mr. Rabak, a pupil of Professor Kremer's, of the University of Wisconsin, undertook to determine the actual source of this oleoresin. His investigation proved quite conclusively that Oregon Balsam was collected from a species of fir or possibly several species. Samples of twigs and cones yielding this product were identified officially as *Pseudotsuga mucronata* (Sudworth) and, as to synonym, *Pseudotsuga Douglasii* (Carrière). For details concerning the examination of the resin, the author's paper must be consulted (Pharm. Rev., Aug., 1904, 293-299).

Further investigation was made by Mr. Beath in 1912 under the supervision of Professor Kremers. A sample was secured, accompanied with twigs and cones and was identified as belonging to the specie, *Pseudotsuga taxifolia*.

The oleoresin was obtained by wounding the body of the tree. It was milky white and had the same general appearance as a sample observed at the U. S. Forest Products Laboratory. This latter came from the Douglas Fir (*Pseudotsuga taxifolia*).

The following report is a summary of the analysis made by Mr. Rabak and Mr. Beath:

OLEORESIN.

	Oregon Balsam (commercial) (Rabak)	Abies amabilis (Rabak)	Pseudotsuga taxifolia, (Beath)
Sp. Gr.....	0.985	0.969	.....
(a) _D	+2° 30'	0	+1.48°
Acid No.....	103	44	100
Color	Pale yellow	Pale yellow	Milky appearance*

VOLATILE OIL.

Yield	25%	40%	15% ?
Sp. Gr.....	0.882	0.852	0.8705
(a) _D	-34° .37'	-12° .17'	-46° .47'

RESIN.

(a) _D .....	.....	0	+19° 6'
Acid No.....	.....	70	129

During the past year, the investigation has been carried on by Mr. Beath, who, with the aid of the Department of Pharmacy in matters of correspondence, etc., has led to a further penetration of the subject and has added somewhat to the material formerly contributed. Through the firm of Faxon & Gallagher, of Kansas City, communication was affected with persons and firms whose correspondence is appended to this article.

The object was to collect as many samples of Oregon Balsam as possible, accompanied with as much information as could be secured.

The following firms were written to relative to information as to the purchasing of Oregon Balsam at first hand:

Oregon Wood Distilling Co., Linnton, Oregon; D. M. Dunn Co., Portland Oregon; Heitshu, Grant & Co., Portland, Oregon; Fisher, Thorsen & Co., Portland, Oregon; W. P. Fuller Co., Portland, Oregon; Rasmussen & Co., Portland, Oregon; Blumauer-Frank Co., Portland, Oregon; Stewart & Holmes Drug Co., Seattle, Washington; Lehn & Fink Drug Co., New York City; National Aniline Co., New York City; McKesson & Robbins, New York City.

The following are excerpts from the various answers received:

" * * * Regret that it is impossible for us to give you the exact knowledge you require, as we have been endeavoring to secure this information for some time, especially on account of the present price in this market for Oregon Balsam which is \$2.00 per gallon.

"McKESSON & ROBBINS."

" * * * In reply would state that we are very large handlers of this article and have a shipment now on the way from the Pacific Coast. At the present time, however, this market

* Sample of Douglas fir (*Pseudotsuga taxifolia*) observed at the Forest Products Laboratory had the same appearance as that of the sample examined.

is pretty bare of this article, and the only holder of same is asking about \$2.00 per gallon. Our price to arrive is \$1.25 per gallon, in barrels, and \$1.35 per gallon, in cans.

"We have made inquiries of a number of Oregon jobbers, but none of them are in a position to offer us any, and it was only by accident that we ran across a holder of the article. * * *

NATIONAL ANILINE & CHEMICAL CO."

" * * * wish to advise you that any of the wholesale druggists in the states of Washington and Oregon will be able to furnish the information required by you. LEHN & FINK."

" * * * if you will kindly refer your inquiry to—

"Oregon Wood Distilling Co., Linnton, Oregon;

"D M Dunn Company, Portland, Oregon;

"Heitshu Grant Co., Portland, Oregon;

"Fisher Thorsen Co., Portland, Oregon;

"W. P. Fuller Co., Portland, Oregon;

"Rasmussen & Co., Portland, Oregon,

"no doubt you will gather information and prices from some of these sources.

"BLUMAUER-FRANK DRUG COMPANY."

" * * * Oregon Fir Balsam applies to the Northwest, as this section in early years was known as Oregon. We buy all of our Fir Balsam locally and could supply you with any quantity you require. We assume from the tenor of your letter, however, that you would only desire a small quantity, which would amount to very little, as it is cheap.

"STEWART & HOLMES DRUG CO."

" * * * as we do not carry this material, have referred your letter to the Oregon Wood Distilling Co., of this city, who will no doubt be able to fill your requirements.

"RASMUSSEN & CO."

" * * * We have today sent you by mail ¼ lb. of Fir Balsam in compliance with yours of the 24th. Please accept with our compliments. STEWART & HOLMES DRUG CO."

" * * * have to advise that we do not handle the Oregon Balsam Fir mentioned, and have taken the liberty of referring the inquiry to the Oregon Wood Distilling Co., who have a plant near this city, and we believe are in position to supply goods of this character.

"W. P. FULLER & CO."

" * * * we are mailing you under separate cover, a sample of Oregon Balsam Fir. Please examine this sample and let us know in what quantity you can use same. On receipt of your reply, we will quote prices. FISHER, THORSEN & CO."

" * * * In respect to Oregon Balsam Fir will state that the inclemency of the weather has made it impossible for the gatherers to get any of this article for the last two months and there has been positively a veritable famine on this product, the demand far exceeding the supply, and for that reason the price is now \$30.00 a barrel, f. o. b. shipping point. It will be impossible for us to guarantee delivery but expect to have some Balsam in the course of the next week or so, at which time we will advise you definitely. HEITSHU GRANT & CO."

It will be noted that several of the letters received have indicated that the Oregon Wood Distilling Company should be able to furnish a satisfactory explanation as to where Oregon Balsam could be secured first hand. This company did not make any reply to our inquiry and as a consequence, our report lacks the testimony of a firm purported to produce Oregon Balsam commercially.

The attempt to settle the origin of Oregon Balsam has involved considerable time and patience, as is the case of all subjects of this class. There seems to be a trade secret connected with it that is not easy to penetrate. For over twenty years, the subject has been one of considerable interest. It would appear that practically all that could be said about its origin has been written. To advance the investigation the thing remaining to be done was to fathom the source of supply by coming into direct contact with the producers of the article. While the author has not been able to do this, he has endeavored to keep the subject alive, hoping by this means to multiply the inquiries into the problem, believing that if a persistent effort is kept up in the direction indicated, the final solution as to the actual source of Oregon Balsam will finally be reached. The present inquiry, however, has only given results relating to Oregon Balsam as furnished in the Kansas market of today and the results of correspondence. The aim being to secure, if possible, information leading up to the original source of the article in question.

HOW MUCH SHOULD COMPRESSED TABLETS VARY IN WEIGHT?

C. H. BRIGGS.

In the manufacture of compressed tablets it is impossible to make every tablet of any particular lot weigh exactly the same as every other tablet. It is quite possible that a drug decision may be issued which will fix a legal standard for the maximum amount of variation which is allowable in the weight of compressed tablets, and the question naturally arises, How much variation should be allowable?

Before going into a discussion of the variation in the weight of tablets, I would first call your attention to the other methods of dispensing medicines in order that we may compare the variation in the individual doses by these methods with the variation in individual tablets.

The several methods of dispensing medicines are quite familiar to all of us. They may be classified roughly as powders, liquids, gelatine capsules, pills and tablets.

Powders.—In the early recollection of the writer, there is a very vivid picture of the family doctor seated at a table and preparing powders by measuring out portions from several bottles by means of his pen knife or spatula. As to the accuracy of this method of putting up prescriptions, there can be little doubt that there were great variations in the amounts of the different ingredients,—variations amounting to 100 percent. or more. It is to be hoped that this practice has entirely gone out of vogue and that the modern physician uses more accurate methods for dispensing.

The usual method of preparing powders in the drug store consists of spreading out the properly weighed and mixed material as evenly as possible and dividing it into the requisite number of powders with the spatula. Is there any druggist present who is willing to guarantee that the powders prepared in his pharmacy by this method will not vary more than 10 percent., or even 20 percent. in weight? And yet this is the approved method of dispensing powders.

Liquids.—The two principal methods of giving liquids is by teaspoonfuls and by drops. How much variation do you suppose there is in teaspoonfuls as measured by different individuals, or even by the same individual at different times? It is safe to say that one man's conception of a teaspoonful may be twice that of another. A test carried out by the writer to determine the variation in a teaspoonful of water as measured by ten different persons using the same teaspoon showed a variation of 71 percent. A still larger variation might be expected if different teaspoons were used.

The other method of dispensing liquids, by drops, is used for more concentrated and more active solutions. It might naturally be expected that this method of dispensing would be very accurate, and yet we all know that there is a big variation in the size of drops. The size of a standard drop has been well defined. However the difficulties of specifying and preparing a dropper that would deliver

a standard drop were so many that the Committee of Revision of the U. S. Pharmacopoeia has refused to recognize a standard dropper.

The size of a drop depends on the consistence of the liquid and size and kind of surface from which it is dropped. A pipette with a large opening will deliver twice as much water to the drop as one with a small opening. Here then again we have another variation of 100 percent. in this means of dispensing liquids.

Capsules.—Happy is the druggist who has a prescription to fill calling for capsules for these do not vary in size. He has only to weigh out the proper amount of material and fill it into the proper number of capsules. But, alas! he must divide the powder as before in the case of dispensing powders or he must fill the capsules full until the material is all used, and guess at the amount in each. Have you ever weighed the contents of ten capsules put up in your store and noted the variation in the weight of individual capsules? Don't do it. Send a prescription for capsules to your nearest competitor and weigh ten of his capsules individually, and then you will have something to talk about.

But enough of powders, liquids and capsules. How about the variation in the weight of compressed tablets? Here the pharmacist can be excused from responsibility for the accurate weight of these rests largely with the pharmaceutical manufacturers who make the bulk of all pills and tablets.

Tablets can be divided into two classes according to the method of manufacture; namely, compressed tablets and tablet triturates. The several steps in the manufacture of compressed tablets are, first, the milling and mixing of the various ingredients until the mixture is entirely uniform; second, the conversion of the powdered material into fine granules that will feed properly in the machines; third, the compressing of the granulated material into tablets by the tablet machines. The last step is the one that controls the size of the tablets. The tablet machine first measures a quantity of the granulation and this is then compressed into a tablet by a punch and die. The size of the tablets can be controlled readily by the operator by regulating the size of the measuring chamber, but the variation in the weight of the individual tablets depends on the accuracy with which the machine measures the granulation and the uniformity of the latter.

In preparing a lot of tablets, the operator first adjusts his machine until it will deliver ten or twenty tablets that will weigh exactly the required number of grains. He is then ready to run out the whole lot, but it is quite necessary that samples be taken at frequent intervals and the weight checked, in order to see that the machine stays properly adjusted. If at the end of the operation the tablets be counted and the actual yield be compared with the theoretical, the amount of variation can be calculated. In looking over the records for several large lots of tablets taken at random from our files, the writer finds a variation of two per cent. or less from the theoretical yield. On one lot the material for 2,000,000 tablets was made into 2,002,594 tablets, while another lot of material for 3,000,000 tablets actually gave 3,010,404, which is a variation of 0.1 percent and 0.3 percent. respectively.

When we compare the accuracy with which this material has been divided into the required number of doses with the crudeness with which a thousand gallon

lot of elixir gets divided into the required number of doses by the many consumers, the slight variation in the yield of the tablets is entirely lost sight of.

Now let us consider the variation in the weight of the individual tablets themselves. It would be an endless and entirely impracticable task to attempt to weigh individually all of any large lot of tablets. Ten tablets were taken at random from each of ten different lots that had been made by different machines and the tablets were weighed separately. The maximum variation was found to be nine percent. from the average, and only seven tablets in the hundred to vary more than five percent. from the average. This variation is certainly very much less than with any of the other methods of dispensing medicines. Does it not seem, therefore, that an occasional variation of 10 percent. or even 15 percent. in the weight of one tablet from the average weight of 100 tablets should be legally allowable? Such a variation would be considered small by the other methods of administering medicines.

In conclusion the writer wishes to emphasize the following:

1st. That the methods of dispensing powders, liquids, and capsules present wide variations in the individual doses.

2nd. That tablets are by far the most accurate means of dispensing medicine.

3rd. That the average weight of a large number of tablets should contain the exact amount of the ingredients claimed by the label.

4th. That a permitted variation of 10 percent. or 15 percent. in the weight of individual tablets would not be excessive as a legal standard.

FROM THE LABORATORIES OF PARKE, DAVIS & CO., DETROIT, MICH., JULY 12, 1913.

CUNILA MARIANA L., A SUBSTITUTE FOR SPIGELIA.

W. W. STOCKBERGER, WASHINGTON, D. C.

During the last few months several crude drug dealers have submitted to the writer for verification commercial samples representing recent shipments of what was supposed to be pinkroot. Upon examination the larger number of these samples proved to be spurious. The sophistication, however, was not *Ruellia*, the usual adulterant, but a new one which was identified as *Cunila Mariana* L.

Virginia is given as the type locality of this plant, known locally as American, mountain, or Maryland dittany, but it is found also in the Ohio valley and the States bordering on the Southern Appalachians. It is of interest to note that within its range of distribution are included those areas in which both *Spigelia marilandica* and *Ruellia ciliosa* are most abundant.

By the gross characters of its roots *Cunila* may be readily distinguished from *Spigelia*. The dry roots of the latter are very friable and break readily with a fairly smooth and usually whitish fracture, while roots of *Cunila* do not break readily but when sharply bent the cortex splits off from the tough woody part in a manner strongly suggestive of *Ruellia*. The microscopical characters of the root as seen in cross section readily differentiate *Cunila* from both *Spigelia* and

Ruellia, but further mention of them is unnecessary since good descriptions of the anatomy of all three plants are readily available in the literature.¹

An effort was made to trace the source which supplied this new substitute, but aside from the mere statement that a large shipment from Kentucky had reached the crude drug markets of the East, nothing was learned. It is probable, however, that more of this root will be collected and marketed and it may be possible eventually to determine the exact locality in which it is being collected.

It is an open question whether the wholesale adulteration of pinkroot which has been so much in evidence during recent years is due to carelessness, ignorance or cupidity on the part of the collectors. Manufacturers using this drug certainly can not afford to jeopardize the purity of their preparations by using the false or adulterated pinkroot, and a concerted effort to drive the spurious drug out of the markets is highly desirable.

Some definite results might follow if the large dealers in pinkroot were to furnish to local buyers for distribution among collectors, a leaflet containing a good picture of the spigelia plant and a warning against the unsatisfactory methods of collection so frequently pursued.

THE COMMERCIAL POSSIBILITIES IN GROWING MEDICINAL PLANTS.

F. A. MILLER, M. S., INDIANAPOLIS.

The commercial possibilities in growing medicinal plants are now recognized by the governments of England, Austria and the United States. The International Congress of Applied Chemistry, a society whose able efforts toward industrial development are now universally recognized, is taking active steps in the investigation of drug plant cultivation through an international committee. Universities, private institutions, and individuals have been induced to broaden their field of investigations to include medicinal plants.

From scattered, disconnected and poorly planned investigations of a minor character this work is gradually being organized with a determination that insures success. The dignity with which this movement is now being advanced removes all chances for doubt as to the practical value of drug growing. The success of such an undertaking will of necessity depend upon the commercial possibilities presented. The work in the United States has now reached a stage where these possibilities must be carefully considered.

The early history and evolution of the cultivation of medicinal plants within the U. S. and other countries has been treated elsewhere in an able manner by several authorities and need not be repeated here. It might be well to add, however, that most of the early work on drug growing was not exhaustive. It gave

¹Holm, Th., Medicinal Plants of North America, No. 5. *Cunila Mariana* L. Merck's Report, vol. 16, pp. 188-189, 1907.

Stockberger, W. W., Pinkroot and Its Substitutes, *Pharmaceutical Review*, vol. 25, pp. 2-21, 33-47, 66-84, 97-107, 1907.

Mansfield, W. M. Ruellia as a Spigelia Substitute. *Druggists Circular*, vol. 53, pp. 110-114. 1909.

us little in the way of methods and in the behavior of medicinal plants under varied conditions. With the exception of a few forms such as cinchona, coca, and opium, little was accomplished upon commercial productions and improvement. Of greater value to the progress of this work would be a careful interpretation of the progressive stages through which some of the valuable economic plants have passed in being brought to their present high state of development. Some of them are as old in cultivation as history itself. Still they are subject to improvement and, rich as some of them are in established varieties, other more valuable ones are being discovered and isolated which surpass their parents in many characteristics. Instead of attempting to solve the more practical phases of the question of drug growing as has been done in modern agriculture we have been busy suggesting long cumbersome lists of probable forms for cultivation and repeating antiquated methods of collecting, curing and packing which are of little practical value and have been handed down from early generations rather than evolved from actual investigations. The methods used have been in opposition to the principles of agriculture. No improved varieties of known cultural requirements were at hand and little effort has been made to produce them. The behavior of active principles under varied soil and climate conditions are imperfectly understood. Supplies of authentic seeds and plants of the more valuable forms are either unknown or extremely rare. And finally the greater number of requests for information upon the commercial possibilities of drug cultivation are from people not versed in the requirements of crude drugs. Not only are they deficient in this respect but they usually have a false impression as to the profits to be derived from such an undertaking. It is in this respect that the greatest care must be exercised in order that the interest now aroused may not be lost through an exaggeration of commercial possibilities. This has already been done to a certain extent and a portion of the recent literature dealing with this phase of drug growing invites discussion and some friendly criticism. The time is now current for the accumulation of practical data and its circulation under the most conservative and carefully guarded statements. There is a demand for information bearing directly upon immediate possibilities in drug growing. This demand should be met by information based upon actual practice and not upon theory and supposition. If this is impossible then a clear confession of our ignorance upon the subject should be in order.

The unfortunate error of one investigator in calculating the productivity of digitalis should serve as a caution to all those engaged in experimental drug growing. The estimated return of 4,606 dollars per acre was sufficiently attractive to engage the immediate attention of the daily press and of prominent trade journals. It created no little feeling and enthusiasm among florists by appearing in one of their most popular journals. This publication is noted for its practical information upon plant culture and is read almost exclusively by commercial growers. In view of the difficulties to be overcome in establishing drug growing it is unfortunate that information of this kind should find its way to practical men. The yield of 100 pounds produced upon 1,120 square feet as given by Prof. Newcomb does not differ greatly from that obtained by myself which was 101 pounds upon 1,089 square feet for *Digitalis gloxinoides*. This form is probably one of the heaviest producers of the purpurea strains and would not be repre-

sentative for the official purpurea. The yield of 101 pounds was also obtained from 80 percent of the maximum number of plants which could be accommodated upon this size plot. This is probably a more nearly perfect stand than could be obtained upon a large scale where an acre or more was involved. That it would not be safe to calculate even the yield alone upon a basis of the above figures is indicated by the fact that only 288 pounds were obtained from one-fourth acre planted with a mixture of several varieties of the purpurea strains.

Kraemer in his fourth edition of *Botany and Pharmacognosy* includes a brief chapter of thirteen pages upon the cultivation of medicinal plants. However brief this chapter may appear there are over seven pages of the thirteen which are devoted strictly to plant names, both common and technical and including probably three hundred different species. The practical value of the publication of such a list in a general chapter upon drug cultivation is in doubt when we consider the very questionable virtue of many of the drugs mentioned. The great majority of these lesser important and questionable drugs are not only still abundant in the wild state but are marketed at extremely low prices and are used by pharmaceutical manufacturers in very small amounts. These conditions together with the growing tendency of the medical profession to reduce the number of drugs used would seem to justify the elimination of many of them from publications supposed to serve a practical purpose. It is said that the average practitioner will use less than twenty vegetable drugs. A few who may be called exceptions and those not of the modern school of medicine may use as many as thirty or forty. Even this liberal figure, however, would not seem to demand a list of three hundred or more as a matter of choice. In number alone such lists as those of Kraemer and of Schneider in "*Pharmaceutical Plants and Their Culture*" might serve to suppress, rather than arouse interest in drug growing. They not only seem discouraging in this respect but are also confusing and impractical. In "*Pharmaceutical Plants and Their Culture*," page 10, the author states that there is no plausible reason why such common but nevertheless very desirable drugs as taraxacum, chicory, mallow, burdock, horehound, milk weed, sambucus, stramonium, rosemary, and many others, should not be very profitably cultivated on a large scale. If cultivated upon a large scale and at the same time profitably these drugs must be held in considerable demand by pharmaceutical manufacturers. This condition certainly does not exist for more than two or three and probably not for more than one of the forms mentioned. Little difficulty has been experienced during the past years in obtaining sufficient quantities of such drugs at very moderate prices. The same is true for a large number of plants mentioned in the latter part of the same publication. This is given up to brief notes upon eight hundred and sixty-nine forms, classified as medicinal and poisonous. It is believed that for all practical purposes at least eight hundred of these forms might well be omitted.

Turning to another phase of the situation it has been found that doubtful comparisons have been made of American grown and foreign drugs. Some of these comparisons have been decidedly too liberal in certain important instances. The production of *Cannabis Indica* in the United States furnishes an example. The advancing price of the foreign drug has made it desirable that the United States produce its own supply. This appeared to be one of the easiest problems in drug

growing, especially in view of the statements of several authorities. These statements are to the effect that American grown cannabis is equally as active physiologically as the imported drug. These broad statements together with requests for the home grown drug have undoubtedly had a stimulating effect upon its production. Few cultural difficulties were encountered and consequently many samples of the drug soon found their way from one part of the country to another. An examination of many of these samples has failed to substantiate the statements of the above authorities. In many instances the samples were also very inferior from a physical standpoint. Samples of this drug produced by the United States Department of Agriculture in South Carolina which so far seem to represent the best American grown product, have tested 75 percent as active as good imported drug. Drug produced in Indiana from foreign seed does not test over 65 percent when compared with the drug from which the seeds were taken and some test as low as 40 percent. In view of this situation it does not seem fair to commercial interests to recommend at this time the raising of this drug upon a large scale. It has also been found that belladonna varies greatly in percentage of alkaloids when grown in this country, and it is very probable that many sections of the country will not be suitable for its commercial production. The possibility of using the entire herb instead of the leaves in an effort to simplify its commercial production may be questionable in view of the great difference in the alkaloidal content of these parts. Samples taken from the same plot assayed as follows: leaves 0.445 percent, leaves and stems 0.300 percent, stems 0.065 percent.

Information in the form of cultural directions may also be made too general. As late as May 10th a request was received for information upon the planting of one acre of digitalis. The impression had been gained that this drug could be started by open field sowing on or about this date. Such cultural directions for digitalis have been published from reliable sources upon two occasions and may or may not have been responsible for this impression. However, it should be generally recognized among investigators that digitalis is not a plant that can be propagated upon a large scale by this method. The same may be said of henbane a drug that is probably in greater need of cultivation and improvement than any other. Immediate results would be very desirable at this time when the quality of the imported supply is extremely poor and the botanical source of the drug is questionable. Repeated failures with the commercial production of this drug have been experienced in England and still the technical difficulties of its cultivation have not been overcome. Such instructions as those of Turner, *Pharmaceutical Journal*, 86, 390, to the effect that henbane is not difficult to grow where the grower has a knowledge of general agriculture and Farwell, *Bulletin of Pharmacy*, 19, 258, that belladonna, henbane, digitalis and aconite can be grown as easily as a field of potatoes are somewhat too general for application. The cultivation of henbane in this country upon an experimental scale has resulted in such complete failure that efforts to continue its investigation have been almost abandoned. I do not agree with Schneider that from a cultural standpoint it can be associated with stramonium, cannabis, tobacco, and belladonna or that to make the culture profitable, only the flowering herb must be used. In the first place the culture of stramonium, cannabis and tobacco are ex-

tremely simple and the propagation of belladonna now fairly well developed. Much difficulty has been experienced, however, in the seeding and transplanting of henbane and in the elimination of insects from the growing plants. In the second place it is extremely doubtful whether any biennial forms can be grown profitably in this country if the second year product is demanded. In my estimation such a demand cannot be based upon strictly economic and scientific principles. The henbane situation for the past three years has demonstrated that conditions may arise which will make it not only advisable but probably necessary to pursue a vigorous search for pharmacopœial substitutes. I have demonstrated repeatedly that much of the commercial henbane is not from *Hyoscyamus niger* of the second year's growth and further-more first year leaves of biennial henbane have been tested which yielded 0.089 percent of alkaloids. This figure is only suggestive but should be an incentive to further investigations upon the production of an annual crop of this drug. As yet however, the uncertainty of the plant under cultivation does not warrant an attempt at commercial productions. The experimental stage has not been passed, and so long as this condition exists little can be said for prospective growers in the nature of direct and specific recommendations.

The foregoing conditions apply not only to henbane but in my estimation to most of the important drug plants now under investigation within the United States. The mere fact that a form is grown experimentally or for garden or decorative purposes does not signify that it can be produced successfully upon a commercial scale. The production of a few specimen plants does not involve field conditions and is no indication of the ease and rapidity with which the same form may be grown commercially. Commercial possibilities have been suggested upon these grounds and the much talked of "profit in weeds" has resulted in more talk than profit. It is now time to reduce the work on drug cultivation to an exact science, and to determine the commercial possibilities of the most promising forms in the same manner as has been done for agricultural and other economic forms. When this has been accomplished there will be ample time for recommendations to practical growers. Until then all inquiries should be met with a clear statement of the uncertainty of immediate commercial possibilities together with an idea of the exacting nature of the requirements for the various classes of medicinal plants.

BOTANICAL DEPARTMENT, ELI LILLY & COMPANY, INDIANAPOLIS, Aug. 4, 1913.

A BIBLIOGRAPHY OF THE DETERIORATION OF DRUGS AND PHARMACEUTICAL PRODUCTS.

E. G. EBERHARDT AND F. R. ELDRED, INDIANAPOLIS, IND.

The term deterioration is here restricted to the decrease of therapeutic value by decomposition or loss of active constituents. It is only in recent years that the matter of the deterioration of drugs and their preparations has received any considerable attention. At least practically all of the systematic work on the subject is of comparatively recent date. The older results were mostly inci-

dental to work along related lines, principally that of standardization. A study of the subject discloses the need of accurate and decisive work as there is still much of uncertainty and diversity of opinion. The importance of the subject and the great advances made in the matter of standardization justifies the hope that the near future will see a marked increase of our knowledge in this field.

We do not presume to offer this as a complete bibliography of the subject, but we have tried in the time at our disposal to make it sufficiently so to give a very fair review of the field. Many references could be seen in abstract only but were considered definite enough to merit inclusion.

It is our purpose to continue the bibliography and to publish additional references after a sufficient interval.

Aconite, The Assay of,—A. B. Stevens,—Bull. Phar., 1911, Vol. 25, p. 237. Also Phar. Jr., Vol. 87, p. 33.

Properly kept the drug does not deteriorate. Chemical assay will detect deterioration.

Aconite, The Effects of Medicinal Doses of, upon the Pulse Rate,—R. D. Rudolph and E. C. Cole,—Am. Jr. Med. Sci., 1912, Vol. 144, p. 788.

Tinctures on the market are usually inert. A large loss of activity observed in aconitine solution in four months.

Alkaloidal Extracts, The Stability of,—H. M. Webster,—Chem. Drugg., 1908, No. 1487, p. 172, through Chem. Absts. Vol. 2, p. 2969; also Proc. A. Ph. A. Vol. 57, p. 73.

Difference found in extracts after two to twenty-five years did not exceed limits of experimental error.

Alkaloidal Fluidextracts and Tinctures, On the Permanence of,—W. L. Scoville,—Proc. Am. Ph. Assn., 1910, Vol. 58, p. 874.

A series of preparations was assayed at intervals of three months during one year. Tabulated results are given.

Alkaloidal Stability of Certain Standardized Preparations of the Br. Pharmacopœia,—W. A. H. Naylor and C. Huxtable,—Pharm. Jr., 1902, Vol. 69, p. 134.

Show from 1% to 5% of depreciation in eight months.

Alkaloidal Tinctures, Stability of,—Farr and Wright,—Phar. Jr., 1894, p. 123, through Proc. A. Ph. A., Vol. 43, p. 622.

The only notable loss observed was in tinctures cinchona and green hellebore and then not exceeding 5% average.

Astringent Preparations, Permanence of,—Wilbur L. Scoville,—Jr. A. Ph. A., 1912, Vol. 1, p. 334.

Tannin estimation made in the fluidextracts of a number of drugs at intervals during the three years show marked changes.

Belladonna Leaves, The Quality of,—A. B. Lyons,—Proc. A. Ph. A., 1886, Vol. 34, p. 110. Concludes that leaf kept in pressed packages for several years shows no evidence of loss.

Belladonna Extract, Keeping Qualities of,—Holger Thaysen,—Schweiz. Wochschr., Vol. 50, p. 605; also Apoth. Ztg., 1912, p. 528; through Chem. Absts. Vol. 7, p. 681.

Alkaloids remain unchanged.

Calcium Sulphide Pills and Tablets,—M. R. Schmidt & H. Engelhardt,—Proc. A. Ph. A., 1910, Vol. 58, p. 1005.

No noticeable deterioration in three year old preparations.

Cannabis Indica, Notes on,—E. M. Holmes,—Phar. Jr. 1902. Vol. 68, p. 342.

Suggests advisability of storing as tincture instead of the drug, to avoid deterioration.

Cannabis Indica and its Galenical Preparations, Physiological Assay of, with Notes on some of the Commercial Products Supposed to Represent the Active Principles of the Drug.—L. W. Famulener and A. B. Lyons.—Proc. A. Ph. A., 1903. Vol. 51, p. 240.

The drug loses activity especially when powdered, likewise the powd. ext. The solid and fluidextracts are permanent.

- Cherry-Laurel Water, The Stability of,—H. Ribaut,—Bull. Sci. Pharmacol. Vol. 17, p. 583; through Chem. Absts. Vol. 5, p. 2895.
HC.N. content decreases irregularly with time.
- Cinchona, Note on the Use of Fl. Ext., for Making Wine of Cinchona,—G. Allard & A. Nourrisson,—Jr. Pharm. Chim. Series 7, Vol. 6, p. 21; through Chem. Absts. Vol. 7, p. 1260.
The alkaloidal strength of the fluid extract diminishes with time.
- Coca Leaves, Notes on the Alkaloids of,—A. B. Lyons,—Am. Jr. Phar., 1885. Vol. 57, p. 466.
States the leaves rapidly deteriorate.
- Coca, A Lecture on, delivered at the Phil. Coll. Pharm., Dec. 1, 1887, by H. H. Rusby,—Am. Jr. Phar., 1888. Vol. 60, p. 199.
Attention is called to the changes occurring during importation.
- Coca and Cocaine Studied Historically,—Sharpe,—Pharm. Jr. Vol. 82, p. 185.
The drug is readily affected by dampness and rendered inert.
- Commercial Crude Drugs, The Variation in Activity of,—F. H. Carr & W. C. Reynolds,—Pharm. Jr., 1908. Vol. 80, p. 543.
Attention is called to the influence of enzymes, in many cases causing loss of activity.
- Digitalis, Activity of Leaves and Stability and Standardization of Tinctures,—Gordon Sharp and F. W. Branson,—Phar. Jr., 1912. Vol. 59, pp. 131, 173. (Abst.) Jr. A. Ph. A. Vol. 1, p. 1431.
Of a number of tinctures, part were found deteriorated at 20 months and nearly all after 28 months.
- Digitalis and Ergot Preparations, Reliability of,—Jr. Am. Med. Assn., 1912. Vol. 58., p. 705
Editorial advocating dating of the preparations named.
- Digitalis and Its Preparations, Deterioration of,—Drug. Cir., 1912. Vol. 56, p. 737.
Answer to a query.
- Digitalis and Its Preparations, The Keeping Properties of,—Jr. Am. Med. Assn., 1913, Vol. 61, p. 202.—Editorial.
- Digitalis and Some of Its Preparations, Observations on the Keeping Properties of,—R. A. Hatcher & C. Eggleston,—Jr. Am. Pharm. Assn., 1913. Vol. II, p. 876, also Am. Jr. Phar. Vol. 85, p. 203.
Leaves of good quality in many instances do not deteriorate with age. When they do it is with exceeding slowness. The same is true of preparations containing 50% or more of alcohol.
- Digitalisblätter, Die Physiologische Wertbestimmung der,—Dr. C. Focke,—Arch. d. Pharm., 1903. Vol. 24, p. 128.
Moisture and air are the prime factors causing deterioration.
- Digitalisblätter, Wertbestimmung der,—H. Ziegenbein,—Arch. der. Pharm., 1902. Vol. 240, p. 454.
Activity is reduced by storage for several years, 40% to 60%.
- Digitalis, Factors Relating to the Standardization of,—Worth Hale,—Proc. Am. Ph. Assn., 1909. Vol. 57, p. 769.
The paper discusses in a general way the variability of the drug and its preparations.
- Digitalis, Infusion of, Deterioration dependent on Acidity,—J. Löwy,—Phar. Ztg., 1906. Vol. 51, p. 1074; through Proc. A. Ph. A. Vol. 55, p. 663.
Infusion loses half its activity in 24 hours at room temperature. Neutralization prevents the change.
- Digitalis, Infusion of, Preservative Effect of Small Percentages of Alcohol,—C. Focke,—Pharm. Ztg., 1909. Vol. 54, p. 757; through Proc. A. Ph. A. Vol. 58, p. 90.
5% alcohol renders it stable within reasonable limits, with 10% alcohol deterioration in nine months is not over 5 to 10%.
- Digitalis, The Alteration of Infusions of, through the action of Micro-organisms and the Preservation of Infusions.—A. Hoger,—Giorn. Farm. Chem. Vol. 61, p. 19; through Chem. Absts., 1912. Vol. 6, p. 913.
Addition of 5% alcohol acts as a preservative and does not impair activity.

- Digitalis, Its Cultivation, Collection and Preparation**,—Edwin L. Newcomb,—*Am. Jr. Ph.*, 1912. Vol. 84, p. 201.
Reviews opinions as to influence of drying on preventing deterioration.
- Digitalis, Keeping Properties of**,—Brissemoret & Joanin, —*Jr. Pharm. Els-Lothr.*, 1911, p. 221; through (abst.) *Phar. Era*, 1912. Vol. 45, p. 13.
Dried leaves kept their activity for 8 to 11 years. Tincture begins to deteriorate after 13 months and is nearly worthless after 15 months.
- Digitalis Leaves, Value of Air-tight Preservation**,—Caesar and Loretz,—*Phar. Ztg.*, 1904. Vol. 49, p. 791; through *Proc. A. Ph. A.* Vol. 53, p. 630.
Preserved unimpaired for one year.
- Digitalis, Method of Collection, Preservation and Dispensing**,—A. Wolff,—*Phar. Zentralh.*, 1903. Vol. 44, p. 585; through *Proc. A. Ph. A.* Vol. 52, p. 659.
It is suggested the thoroughly dried and powdered drug be preserved compressed in tablet form, protected from air.
- Digitalis Powder, Commercial, and Its Preservation**,—A. Joanin,—*Bull. Sci. Pharmacolog.* Vol. 17, p. 707; through *Chem. Absts.*, 1911. Vol. 5, p. 3717; also *Proc. A. Ph. A.* Vol. 59, p. 181.
The drug should be dried so as to contain not over 2% of moisture, powdered and kept protected from moisture.
- Digitalis Preparations, Are Druggists Paying Attention to Deterioration of**,—*Jr. A. Ph. A.* Vol. 1, p. 1453.
A communication to the Editor by Wm. Gray.
- Digitalis Preparations, On the Importance of Determining the Potency of**,—Joseph H. Pratt, —*Bost. Med. & Surg. Jr.*, 1910, Vol. 163, p. 279.
A review of clinical and experimental evidence showing wide variations of activity in different samples.
- Digitalis Preparations, The Efficiency of**,—*Med. Rec.*, 1907, Vol. 71, p. 356.
Editorial.
- Digitalis, Report of A. Ph. A. Committee on Drug Market**,—*Jr. Am. Phar. Assn.*, Vol. 1, p. 500.
Assays of powder over eighteen months old showed no appreciable change.
- Digitalis, Some Points as to Time of Gathering of the Leaves and the Keeping Properties and Standardization of the Tinctures, etc.**—Gordon Sharp & J. Lancaster,—*Phar. Jr.*, 1911, Vol. 86, p. 102.
Tincture begins to deteriorate after thirteen months. Leaves eight and eleven years old were still potent.
- Digitalis, Standardization and the Variability of Crude and of Medicinal Preparations**,—Worth Hale,—*Bull. No. 74, Hygienic Lab., U. S. Public Health & Mar. Hosp. Service*—1911.
A study of the drug and a number of its preparations as to potency and stability.
- Digitalis, Strophanthus and Squill Preparations, Keeping Qualities of**,—Alexander Goodall,—*Phar. Jr.*, 1912, Vol. 89, p. 130; (abst.) *Jr. Am. Ph. A.*, Vol. 1, p. 1435; also *Am. Drug.*, Vol. 60, p. 353.
Tincture Digitalis was found to deteriorate after one year. Of samples of tinctures of strophanthus and squill some were found to deteriorate after three years.
- Digitalis, The Physiological Activity of Acetic Fluidext. of**,—Pearson,—*Am. Jr. Ph.*, 1913, Vol. 85, p. 245.
The acetic menstruum quickly destroys potency.
- Digitalis, The Physiological Standardization of, from the Point of View of the Pharmacist**,—Robt. R. Hallaway,—*Phar. Jr.*, 1909, Vol. 83, p. 801.
Concludes that six months is a safe time limit for the tincture.
- Digitalis, The Variability of**,—Hale,—*Proc. Am. Ph. Assn.*, 1910, Vol. 58, p. 925.
Excessive drying of drug not required. Preparations seem to deteriorate little if made with 70% alcohol.

Digitalis, Tr., Its Potency and Keeping Properties,—Alexander Goodall,—Br. Med. Jr., 1912, Vol. I, p. 887; through Am. Jr. Med. Sci., Vol. 144, p. 299, 1912; also Chem. Absts., Vol. 7, p. 536.

Tinctures retain activity for about one year, after 18 months some are under standard, and after 22 months all of them.

Digitalis, Tincture of, Necessity of Protection from Light,—C. Focke,—Phar. Ztg., 1904, Vol. 49, p. 543; through Proc. A. Ph. A., Vol. 53, p. 599.

If kept in the dark deterioration amounts to 10% to 17%. If exposed to light, from 33% to 50% in one year.

Digitalis, Tincture,—Moran,—Med. Chronicle, 1911-12, Vol. 55, p. 1.

Tinctures tested from four to twenty years old. A tincture of *Digitalis* should retain its activity for two or three years. (Seen in reference only.)

Digitalis, Ueber die Bestimmung des Pharmakologischen Wirkungswertes der Blätter von,—Arnold Holste,—Arch. Exp. Path., 1911, Vol. 66, p. 161.

No change apparent in relative activity after approximately one year.

Digitalis, Ueber den Wert der Frischen Fol., und ihre Konservierung,—M. Winckel,—Münch. Med. Wochenschr., 1911, Vol. 58, p. 575.

Permanence is claimed for powdered drug in tablet form, prepared by preventing the action of enzymes in the fresh leaf.

Diluted Hydrocyanic Acid, The Deterioration of,—Virgil Coblenz and Otto May,—Proc. Am. Phar. Assn., 1908, Vol. 56, p. 879.

Experiments to determine the influence of light, alkali, acid, alcohol and acetanilid on decomposition.

Drug Deterioration—Texas State Jr. of Med., 1912, p. 159; through Jr. A. Ph. A. 1913, Vol. II, p. 82.

Editorial in support of dating preparations.

Drug Extracts of Various Kinds, Report of Committee of Pharm. Chemists Appointed for the Investigation of, to Determine their Rate of Deterioration. 1908.

A compilation of reports of investigations from a number of manufacturing laboratories.

Drug Extracts, Stability of,—A pamphlet containing report on deterioration from the laboratories of a number of manufacturing pharmacists,—1907-8.

Drugs, Short Notes on the Deterioration of, and Suggestions for the Prevention thereof,—J. S. Hill,—Phar. Jr., 1904, Vol. 72, p. 652.

Brief general discussion of agencies causing deterioration.

Drugs, Some Experiences in the Testing of, by Bio-Chemical Methods, with Special Reference to *Digitalis*, Squill and *Strophanthus*,—Wm. Martin,—Pharm. Jr., 1909, Vol. 83, p. 149.

Digitalis drug if properly prepared and stored, retains activity for many years and the tincture for nine or twelve months. Tinct. Squill begins to deteriorate sooner than *digitalis*, but the change is slower. Tinct. *Strophanthus* remains unimpaired for many years.

Drugs, The Bio-Chemical Standardization of,—W. E. Dixon and G. S. Haynes,—Proc. Therap. Soc., 1905; through Pharm. Jr., Vol. 75, p. 754.

The variability of commercial tinctures may be due to deterioration. Standard tinctures were unchanged after eight months.

Drugs, The deterioration of,—Jr. Am. Med. Assn., 1912, Vol. 59, p. 959.

Communication from the Council on Pharmacy and Chemistry of the A. M. A., recommending the dating of certain preparations.

Drugs, The Preservation of,—Linwood A. Brown,—Bull. No. 150, Ky. Agr. Exp. Sta. of the State Univ.

Discusses the storage of crude drugs and various pharmaceutical preparations.

Ergot,—R. Kobert,—Central. f. Gynäkol., 1886, Vol. X, p. 306.

Concludes that Ergot more than a year old has no action on the uterus. (Seen in reference only.)

Ergot,—Kehrer,—Arch. f. Exp. Path. u. Pharm., 1908, Vol. 58, p. 366.

Within one year the activity sinks to 1/7 of the original strength and in two years to 1/5. (Seen in reference only.)

- Ergot, An Experimental Study of the Pharmacology of,—Wood & Hofer,—Arch. Int. Med., 1910, Vol. 6, p. 388.
A fluid extract exposed to air deteriorates extremely rapidly. Under the most favorable conditions the loss of strength approximates 10% a month.
- Ergot; A Symposium,—Jr. Am. Phar. Assn., 1912, Vol. 1, p. 653.
A discussion of various phases of the subject at the meeting of the N. Y. Branch of the Am. Phar. Assn., May 13, 1912, by H. H. Rusby, C. E. Vanderkleed and Cornelius De Jonge.
- Ergot, Enzymes in,—J. Schindelmeyer,—Apoth. Ztg., 1909, Vol. 24, p. 837; through Chem. Absts., Vol. 4, p. 1083; also Proc. A. P. A., Vol. 58, p. 157.
As complete and rapid drying prevents deterioration, this may be caused by enzymes, the presence of two being demonstrated.
- Ergot, Experiments on Deterioration of,—Meulenhoff,—Nederl. Tijdschr. v. Pharm. (abst.) Phar. Rundsch., 1900, Vol. XXVI, pp. 738-772.
Believes that ergot under suitable conditions retains considerable activity for five years. (Seen in reference only.)
- Ergot, How long does Liquid Extract of, Retain its Pharmacological Activity,—Phar. Jr., 1908, Vol. 80, p. 82.
By clinical trial no deterioration was apparent after one year. It is not necessary that ergot preparations be kept longer than twelve months.
- Ergot, Intravenous Injection of,—Sollman and Brown,—Jr. Am. Med. Assn., 1905, Vol. 45, p. 229.
Comparisons were made of eleven different preparations of ergot, both fresh and old. Age of drug seems to make no difference.
- Ergot; Its Production and Collection in Russia,—D. A. Ruffman and T. Maben,—Pharm. Jr., 1908, Vol. 80, p. 247.
Effect of age on ergot is discussed.
- Ergot Preparations, A New and Reliable Method for the Preservation of,—Paul S. Pittinger and Chas. E. Vanderkleed,—Jr. Am. Phar. Assn., 1912, Vol. 1, p. 799.
Contact with air is the most potent cause of deterioration. A vacuum method of storage will preserve for a considerable time.
- Ergot, Preservation of,—Dragendorff,—(abst.) Proc. Am. Phar. Assn., 1877, Vol. 25, p. 119.
The oxidation of the fat causes deterioration; would retain activity if fat were removed.
- Ergot, Fluidext., Relative Strength of Fresh and Old Samples of,—C. C. Haskell and C. R. Eckler,—Jr. Am. Phar. Assn., 1912, Vol. 1, p. 412.
Properly kept fluid extract retains activity for two to two and one-half years. after which deterioration becomes apparent, amounting to 50% in four or five years.
- Ergot, Stability of Pressed,—John Moss,—Yearbook of Phar., 1885, p. 410; through Proc. Am. Phar. Assn., 1886, Vol. 34, p. 371.
A sample of ergot, pressed to remove oil, retained its potency for six and one-half years.
- Ergot, Stability of when Deprived of Fixed Oil,—Hermann Werner,—Phar. Ztg., 1881, p. 397; through Proc. Am. Phar. Assn., 1882, Vol. 30, p. 142.
Ergot so treated kept its virtues unimpaired for two years or more.
- Ergot, Standardization of,—H. C. Wood and C. A. Hofer,—Univ. of Pa. Med. Bull., 1909, Vol. 21, p. 347.
Of twelve fluid extracts examined two were active. Both drug and fluid extract deteriorate rapidly.
- Ergot, The Chemical Assay of Fluidextract of,—J. R. Rippetoe,—Am. Jr. Phar., 1910, Vol. 2, p. 119.
There is marked difference between fresh and old preparations.
- Ergot and Its Fluidextracts, The Keeping Qualities of,—H. C. Wood, Jr.,—Am. Jr. Phar., 1911, Vol. 83, p. 172.
Fluidextract deteriorates rapidly, from 1.3% to 3.5% per week, according to conditions. Should not be kept longer than one year.

- Ergot, The Physiological Standardization of,—C. W. Edmunds and Worth Hale,—Bull. No. 76, Hygienic Lab., U. S. Pub. Health and Mar. Hosp. Service, 1911.
Fluidextracts vary greatly. Preparations should be marked with date of manufacture.
- Ergot, The Rate of Deterioration of Fluidext. of,—Wood,—Proc. Am. Ph. Assn., 1910, Vol. 58, p. 883.
Fluidextract under the most favorable conditions loses 45% to 50% in the first year.
Under unfavorable conditions the same loss occurs in three months.
- Extracts, Belladonna and Henbane, Variation of Alkaloid on Keeping,—G. Ortlieb,—Phar. Ztg., 1903, p. 162; through Proc. Am. Phar. Assn., Vol. 51, p. 621.
Alkaloidal value diminishes on keeping.
- Extracts, Variation of Alkaloids in Some,—Jean Fricotel,—Bull. Sci. Pharmacolog., 1908, Vol. 15, p. 687; through Chem. Absts., Vol. 4, p. 234; also Proc. A. Ph. A., Vol. 57, p. 73.
Moist extracts show decrease in alkaloid after eight months in conium, belladonna, stramonium, opium and aconite.
- Fluidextracts, Value of Glycerin as Solvent and Preservative,—Richard Firlas,—Apoth. Ztg., 1909, Vol. 24, p. 721; through Proc. Am. Phar. Assn., Vol. 58, p. 85.
Alkaloid diminishes more rapidly in fluidextracts made without glycerin.
- Folia Belladonna, F. Hyoscyami u. F. Stramonii, Ueber die Aufbewahrungsdauer von,—R. Gaze,—Apoth. Ztg., 1912, p. 402; through Phar. Zentrallh., Vol. 53, p. 1406.
The powdered drugs were kept in glass-stoppered bottles at room temperature and assayed at intervals during two years showing no loss.
- Galenical Preparations Containing Alkaloids, Stability of,—Dohme & Engelhardt,—Proc. Am. Phar. Assn., 1910, Vol. 58, p. 782.
All fluidextracts tested keep their alkaloidal strength well, excepting those of coca and physostigma.
- Galenical Preparations of the U. S. P., Detailed Investigations of Certain, with Special Reference to their Stability,—Dr. M. Clayton Thrush,—Pharm. Era, 1912, Vol. XLV, p. 750.
A general discussion of results obtained by others with conclusions by the author.
- Galenical Preparations, The Stability of,—Dohme,—Am. Drug., 1909, Vol. 55, p. 37.
A number of products of various ages were assayed. No appreciable deterioration found except in powd. ext. physostigma, fluidextracts of coca and aconite and tincture aconite.
- Galenicals, Deterioration of,—Phar. Era, 1912, Vol. 45, p. 741. Editorial.
- Galenicals, The Potency and Keeping Properties of Some, as Determined by Physiological Tests,—Alexander Goodall,—Phar. Jr., 1912, Vol. 89, p. 130.
Tincture digitalis not reliable after one year. Tr. strophanthus retains activity at least three years. Tr. squill may deteriorate after two years.
- Heart Tonics, The Pharmacological Assay of,—Houghton & Hamilton,—Proc. Am. Ph. Assn., 1909, Vol. 57, p. 773; also Am. Jr. Phar., Vol. 81, p. 461.
An investigation of the potency of preparations of digitalis, squill, convallaria and strophanthus, showing loss with age in digitalis.
- Hydrastis, Ausscheidungen in Extractum Fluidum,—C. Linde,—Arch. d. Phar., 1898, Vol. 236, p. 698.
The precipitate deposited in fluidextract consists principally of berberin and hydrastin.
- Hydrastis, Extractum, Fluidum,—Kunze,—Apoth. Ztg., Vol. 28, p. 223; through Chem. Absts., 1913, Vol. 7, p. 2089.
A specially prepared sample changed from 2.86% hydrastine to 2.19% in one year.
- Hydrastis, Fluid Extract of,—L. Derlin,—Apoth. Ztg., Vol. 25, p. 190; also G. Fromme Ibid, Vol. 25, pp. 250, 274, 303; through Chem. Absts., Vol. 4, p. 1894.
The alkaloidal content of five samples out of six did not change more than .1% within six to twelve months.
- Hydrogen Dioxide at Present on the Market, The Quality of Medicinal,—Kebler,—Proc. Am. Ph. Assn., 1910, Vol. 58, p. 903.
Investigation extending over one year showing progressive loss of strength.
- Hydrogen Dioxide Solutions, Examination of,—L. F. Kebler, L. E. Warren and E. A. Rudiman,—Bull. 150, Bu. Chem., U. S. Dept. Agriculture.

- Hydrogen Peroxide,—C. B. Jordan,—Proc. Ind. Phar. Assn., 1912; also Jr. Am. Phar. Assn., Vol. 2, p. 344.
Shows result of keeping under various conditions.
- Hydrogen, Peroxide of,—A. R. L. Dohme and H. Engelhardt,—Am. Jr. Phar., 1910, Vol. 82, p. 69.
Discusses various means of preservation.
- Hydrogen, Peroxide of,—Pharm. Era, 1913, Vol. 46, p. 1.
Editorial discussion giving number of conclusions.
- Hydrogen Peroxide, Preservation by Acetanilide and Time Sale Limit,—Ph. Era, 1913, Vol. 46, p. 12.
A symposium of replies to queries sent out by the Era.
- Hydrogen Peroxide, Production, Past and Present,—J. S. Brewer,—Jr. Am. Phar. Assn., 1912, Vol. 1, p. 1002.
A general discussion of the subject.
- Hydrogen Peroxide, Solution of, containing Acetanilide,—C. H. LaWall,—Am. Jr. Phar., 1906, Vol. 78, p. 582.
Calls attention to decomposition of acetanilide when used as preservative.
- Hydrogen Peroxide Solution, Permanence and Acidity of,—L. W. Andrews,—Trans. Am. Inst., Chem. Eng., Vol. 2, p. 238; through Chem. Absts., 1911, Vol. 5, p. 759.
Samples of poor keeping qualities lose 10% to 50%.
- Hydrogen Peroxide Sol., Reliability of the Commercial Sorts,—Robert C. Purcel,—Proc. Pa. Phar. Assn., 1912, p. 143; through Proc. Am. Phar. Assn., Vol. 51, p. 610.
Shows deterioration in 6 months on four samples.
- Hydrogen Peroxide, The Preservation of,—J. H. Walton and R. C. Judd,—Orig. Com. 8th Int. Cong. Appl. Chem. (Appendix), Vol. 26, p. 621 (Abst.)
A study of the influence of various factors on decomposition.
- Indian Hemp, Experiments on the Cause of the Loss of Activity of,—C. R. Marshall,—Phar. Jr., 1909, Vol. 82, p. 418.
Oxidation is the cause of loss of activity. Cannabis and preparations should be stored in hermetically sealed containers.
- Ipecac, A Study of, and Review of its Literature,—R. R. D. Cline,—Southern Phar. Jr., Vol. 4, pp. 11 and 56.
If kept in a cool dry place the drug retains its activity. The pharmaceutical preparations often deteriorate enormously.
- Ipecac, Ext. Liquidum, B. P.,—J. W. Thompson,—Phar. Jr., 1900, Vol. 64, p. 54.
Finds liquid extract unchanged after 6 and 7 months.
- Ipecacuanha, Stability of the B. P. Liquid Extract,—H. Wippell Gadd,—Chem. and Drug., 1901, p. 21; through Proc. Am. Phar. Assn., Vol. 49, p. 574.
The assay remains unchanged after four months in liquid extract, wine and vinegar of ipecac.
- Ipecacuanha, The B. P. Preparations of,—R. Glode Guyer,—Phar. Jr., 1899, Vol. 63, p. 622.
Deterioration noted in liquid extract and other preparations.
- Jodtinktur, Ueber die Haltbarkeit der,—L. Johannessen,—Pharm. Zentralh., 1913, vol. 54, p. 221.
Determinations of free I and acidity (HI) at intervals of one week in different tinctures. KI increases stability.
- Medicinal Plants, Retrogression of Active Substance in, by the Action of Enzymes,—P. Lami,—Bull. Chim. Farm., 1911, Vol. 50, p. 835; through Chem. Abst., Vol. 6, p. 1809.
Suggests prevention of change by sterilization with hot ethyl or methyl alcohol vapors and subsequent drying.
- Medicinal Plants, Sterilization and Drying of,—E. Bourquelot,—Jr. Pharm. Chim., Series 7, Vol. 3, p. 149, through Chem. absts., 1911, Vol. 5, p. 2412.
Loss of active substance by enzyme action amounted to 31% in aconite leaves, 21.7% in digitalis, 10% in aconite root, 26.4% in colchicum bulbs.

- Medicinal Plants, Sterilization of. Abst. of a lecture delivered before the Academy of Medicine, Paris, by Prof. E. Bourquelot,—Phar. Era, 1912, Vol. 45, p. 599.
Alkaloid is lost through the action of ferments.
- Mutterkornwirkung, Beiträge zur Kenntniss der,—A. Grünfeld,—Arb. d. Pharmakol. Inst., Dorpat, 1892, Vol. 8, p. 108. (Seen only in reference.)
Concludes that under ordinary conditions Ergot is worthless after 6 months.
- Mutterkorns, Geburtsklin. Untersuch. u. d. Haltbarkeit. des,—A. Bishofsberger,—Diss. Bern., 1897. (Seen only in reference.)
The effects of one and two year old drugs was compared clinically, showing a moderate decrease of activity in the older drugs.
- Narcotic Extracts, Study of Some,—E. Carlinfanti,—Bull. Chim. Farm., Vol. 51, p. 777; through Chem. Absts., 1913, Vol. 7, p. 1400.
Assays of extracts of aconite, belladonna, hyoscyamus and nux vomica show practically no change in two years.
- Nitroglycerin in Tablets, Comments on Some Official Standards and Tests,—Henry L. Bernegau,—Am. Jr. Ph., 1907, Vol. 79, p. 555.
A number of lots of tablets showed no loss in nine months.
- Nitroglycerin Tablets, Digitalin Tablets and Fluidextract Ergot, Physiologic Assay of,—C. H. Edmunds and Geo. B. Roth,—Jr. Am. Med. Assn., 1908, Vol. 51, p. 2130.
Nitroglycerin tablets lost none of their strength in two years. Fl. Ext. Ergot showed variation in strength. One sample apparently had deteriorated when retested after three months.
- Opium, The Keeping Qualities of Powdered,—L. Debordeaux,—Jr. Phar. Chim., Series 7, Vol. 6, p. 491; through Chem. Absts., 1913, Vol. 7, p. 680.
Shows increase in insoluble morphine with age; also a decrease in total morphine apparently due to oxidation.
- Pepsin and Pepsin Preparations, Systematic Observations on,—C. T. Nixon,—Proc. Am. Phar. Assn., 1910, Vol. 58, p. 1264.
Alcoholic preparations lost 10% activity in three weeks, 20% in five weeks, and were practically inert after one year.
- Pepsin, Conservation of the Activity of, in Elixirs of Pepsin,—E. Thibault,—Jr. Pharm. Chim., Series 7, Vol. 1, p. 480; through Chem. Absts., 1911, Vol. 5, p. 1823.
Claims that pepsin is weakened by prolonged contact with alcohol stronger than 10%.
- Pepsin, Effect of Alcohol is Solution of,—Eugene Thibault,—Jr. Pharm. Chim., Series 6, Vol. 15, p. 161; through Proc. Am. Phar. Assn., 1902, Vol. 50, p. 1081.
Shows marked diminution of peptic activity after prolonged contact with weak alcohol.
- Pepsin, Lactated, Elixir of,—W. A. Pearson,—Proc. Am. Phar. Assn., 1909, Vol. 57, p. 905.
Tests made as to amylolytic and proteolytic activity. A preparation containing 15% alcohol shows only about one-half the theoretical pepsin strength after a few weeks.
- Pepsin, Pancreatin and Combinations of these Ferments, Laboratory Studies of,—A. Zimmerman,—Jr. Ind. and Eng. Chem., 1911, Vol. 3, p. 750.
Pepsin and pancreatin with the proper degree of acidity can be kept in the same solution for at least two and one-half years, without injury to either.
- Pepsin Solutions, Effects of Hydrochloric Acid on,—Liebmann & Johannssen,—Ugeskrift for Lager, 1911, No. 25; through Phar. Zentrallh., Vol. 53, p. 263; also Phar. Era, 1912, Vol. 45, p. 313.
The presence of HCl causes loss of peptic activity proportionate to the acidity and the time of standing.
- Pepsin, Stability of Peptonizing Power of Liquid Preparations of,—A. Petit and A. L. Petit,—Jr. Phar. Chim., Series 7, Vol. 1, p. 150; through Proc. A. Ph. A., Vol. 58, p. 393; also Chem. Absts., Vol. 4, p. 2977.
Experiments extending over more than six years show that elixirs and wines retain digestive power for years practically undiminished.
- Pharmaceutical Preparations, Causes of Deterioration to be Avoided,—Leon C. Fink,—Bull. Phar., 1898, p. 105; through Proc. Am. Phar. Assn., Vol. 46, p. 652.
Deterioration may be avoided by proper care to avoid the influence of air, moisture, cold, heat and sunlight.

Pharmaceutical Preparations, Influence of Enzymes in the Production of,—M. Winckel,—Schweiz. Wochschr., Vol. 47, p. 705; through Chem. Absts., 1910, Vol. 4, p. 1085.

On the influence of the elimination of enzyme action in conserving digitalis and ergot.

Pharmaceutical Preparations, Note on the Loss of Strength of Some, by long Storage,—R. A. Cripp,—Ph. Jr., 1907, Vol. 78, p. 519.

Shows the results of tests at intervals on Acet. Scillae, Liq. Ammon. Fort., Liq. Ammon. and Tr. Quin. Ammon.

Phosphorized Oil, The Permanence of,—Hugo Korte,—Phar. Ztg., Vol. 53, p. 655; through Chem. Absts., 1909, Vol. 3, p. 98.

Under some conditions the phosphorous content diminished rapidly. Light seems to exert more influence than air.

Report of Analysis of Preparations under the Food and Drug Law,—L. E. Sayre,—Trans. Kansas Acad. Sci., Vol. 22, p. 100.

To answer the question as to what constitutes deterioration, Prof. Sayre proposes to define it as a deviation from the professed standard * * * as may be determined by microscopical, chemical and macroscopical examination.

Sanguinaria, Assay of Fluidextract of,—H. B. Meade,—Jr. Am. Phar. Assn., 1912, Vol. 1, p. 134.

The alkaloid content fell from 2.58 gm. per 100 cc. on Feb. 21 to 2.23 gm. on June 1.

Sarsaparillen, Ueber die Pharmakologische Bedeutung und die Biologische Wertbestimmung der, und ihnen verwandter Drogen.—Ber. d. Deut. Phar. Gesell., 1912, Vol. 22, p. 205,—R. Kobert,—Quillaja, p. 215; Senega, p. 218; Sarsaparilla, p. 227.

Testing the haemolytic effect on various kinds of blood, the author finds thirty year old quillaja bark practically unchanged. Thirty year old senega is only 1/5 the strength of fresh root, and Honduras and Vera Cruz sarsaparillas of the same age about 1/5 and 2/3 respectively.

Sirupus Ferri Iodati,—P. Bohrisch,—Pharm. Zentralh., 1913, Vol. 54, pp. 343, 371.

A general discussion as to preparation and preservation, with assays on 19 samples, fresh, at six months and twelve months.

Solanaceous Extracts, Keeping Properties of,—Ribaut,—Bull. d. Sci. Pharm., 1908, Vol. 15, p. 495; through Phar. Jr., 1908, Vol. 81, p. 588; also Proc. Am. Phar. Assn., Vol. 57, p. 74.

Loss observed after four years: Ext. Belladonna leaves, 3% to 45%; Ext. Hyoscyamus, 69%; Ext. Stramon. leaves, 8% and 31%; Ext. Bellad. root, 1% to 12%; Ext. Hyoscyamus seed, 25%.

Spirit of Nitrous Ether, Inquiry into Causes of Change,—E. H. Farr and R. Wright,—Trans. Br. Phar. Conf., 1901, p. 447; through Proc. Am. Phar. Assn., Vol. 50, p. 749.

Deterioration is extremely rapid under ordinary conditions of storage.

Spirit of Nitrous Ether B. P., Progressive Deterioration in Containers,—S. F. Burford.—Chem. and Drug., 1908, p. 108; through Proc. Am. Phar. Assn., Vol. 50, p. 749.

Loss observed at intervals of 30 days during six months, when it had lost 82%.

Spirit of Nitrous Ether, The Keeping of, and a Suggestion for a Change in Formula,—Linwood A. Brown,—Am. Drug., 1911, Vol. 59, p. 215.

Gives results of assays made at intervals of two weeks on twelve different samples stored under varying conditions.

Spirit of Nitrous Ether, Deterioration of,—F. L. Shannon,—Jr. Am. Phar. Assn., 1910, Vol. II, p. 83.

Results are given on seven samples kept under average conditions and assayed at intervals of three months during fifteen months.

Spirit of Nitrous Ether, Preservation of,—G. E. Show,—Phar. Jr., 1903, Vol. 71, p. 236.

Properly stored, there is but slight loss. Under unfavorable conditions the loss in 14 days is from 12½% to 99%.

Standard Pharmaceuticals, Deterioration of Some,—H. E. Barnard,—Ph. Rev., 1908, Vol. 26, pp. 308, 321.

Experiments show an increase in strength with age in spirit of camphor and tincture of iodine and decrease in strength in lime water and ammonia water.

Strophanthus, Tr.,—Robert A. Hatcher,—Jr. Am. Med. Assn., 1907, Vol. 48, p. 1177.

No deterioration found in tincture even after sixteen years. The seeds do not undergo deterioration in keeping for several years.

Strophanthus, Tincture of,—A. R. Cushny,—Br. Med. Jr., 1912, Vol. II, p. 685.

Tinctures of *digitalis*, *squill* and particularly *strophanthus*, deteriorate rapidly after dilution with water.

Sydenham's Laudanum, The Preparation and Preservation of,—M. Debourdeaux,—Jr. Pharm. Chim., Series 7, Vol. 6, p. 544; through Chem. Absts., 1913, Vol. 7, p. 2093.

After storing, showed a loss of 6% of its morphine which was not found in the precipitate. After one year there was an additional loss of 10%. A 3½ year old tincture had lost 17%, and one 20 years old, 44%.

Tinctures, Do they Deteriorate with Age?—Drug. Cir., 1913, Vol. 57, p. 389; reprinted from the Chem. Drug.

A discussion of various preparations as to stability.

Tincture Iodine,—H. Wastenson,—Svensk. Farm. Tidskrift., Vol. 17, pp. 68, 81, 113; through Chem. Abst., 1913, Vol. 7, p. 1952.

Increase of HI determined in a number of tinctures at intervals during eight weeks. KI retards deterioration.

Tincture of Iodine,—E. H. Gane,—Am. Drug., 1904, Vol. 44, p. 39.

Impurities in alcohol cause deterioration. With good alcohol the loss is about 1% of I in one year.

Tincture of Iodine,—C. H. LaWall,—Proc. Am. Phar. Assn., 1907, Vol. 55, p. 156.

The U. S. P. VIII tincture is a stable preparation under practically all conditions.

Tincture of Iodine,—L. F. Kebler,—Jr. Am. Phar. Assn., 1913, Vol. II, p. 514; also Jr. Ind. Eng. Chem., Vol. 5, p. 484.

Attention is called to the preservative effect of KI and the variation in samples examined. The limit of permissible variation is discussed.

Tincture of Iodine, Alteration on Standing,—C. Courtot,—Jr. Pharm. Chim., Series 7, Vol. 1, pp. 297, 354; through Chem. Absts., 1911, Vol. 5, p. 564.

Three experimental tinctures were examined monthly for one year. The iodine decreased from 67.5 gm. per liter to 54.6, 54.6 and 58.4 gms. respectively.

Tincture of Iodine, Changes in, on Storage, etc.,—Th. Budde,—Apoth. Ztg., Vol. 27, p. 203; through Chem. Absts., 1912, Vol. 6, p. 1493; also Pharm. Ztg., 1912, Vol. 57, p. 176; through Jr. Am. Phar. Assn., Vol. 1, p. 881.

Loss amounts to 20% in 9 months retarded by addition of KI or NaI, but noticeable nevertheless after six months.

Tincture of Iodine, D. A. B.—V. Weiblit,—Phar. Ztg., Vol. 57, p. 734; through Chem. Absts., 1913, Vol. 7, p. 535.

Free iodine content with age increases materially. Limits of variation are needed.

Tincture of Iodine, Influence of Light and Air,—C. Hugenholtz,—Phar. Ztg., 1907, Vol. 52, p. 222; through Proc. Am. Phar. Assn., Vol. 55, p. 697.

Deterioration is greater if kept in full bottles protected from light.

Tincture of Iodine—Influence of Temperature and Light, etc.—C. Courtot,—Jr. Pharm. Chim., Series 7, Vol. 2, p. 344; through Chem. Absts., 1911, Vol. 5, p. 2525.

Changes shown in tinctures of the French Codex 1908. Light has no influence, but temperature affects change.

Tinctures of Iodine, Observations on Commercial,—Agnes Dunning and L. E. Sayre,—Am. Drug., 1909, Vol. 55, p. 211.

An investigation of the effect on different kinds of stoppers. With cork stoppers there is progressive concentration.

Tincture of Iodine Therapeutically Considered,—C. Courtot,—Jr. Pharm. Chim., Series 7, Vol. 1, p. 439; through Chem. Absts., 1911, Vol. 5, p. 1492.

There is concentration with age by evaporation.

Tincture of Iodine, The Stability of Free Iodine in,—Droste,—Pharm. Ztg., Vol. 57, p. 166; through Chem. Absts., 1913, Vol. 7, p. 215.

The alkalinity of glass container responsible for loss.

Tincture of Iodine, U. S. P. VIII,—Theo. D. Wetterstroem,—Proc. Ohio State Pharm. Assoc., 1908, p. 52; through Proc. Am. Phar. Assn., Vol. 57, p. 115.

KI retards change. Strength increases by evaporation.

Tinkturen, Ueber die Zweckmässigkeit von Perkolation oder Maceration zur Herstellung von,—J. Herzog,—Ber. d. Deutsch. Phar. Ges., 1906, Vol. 16, p. 359.

Discusses the influence of air, light and temperature on tinctures.

Tinctures and "Alcoolatures," A Comparative Study of the Active Principles in Some,—E. Dejean,—Jr. Pharm. Chim., Series 6, Vol. 29, p. 274; through Chem. Absts, 1909, Vol. 3, p. 1909.

Attention is called to loss of alkaloid in drugs during drying and the resulting lack of activity in tinctures made from them as compared with "mother tinctures" from green plants.

Wild Cherry Bark, Valuation of,—A. B. Stevens,—Proc. Am. Phar. Assn., 1896, Vol. 44, p. 215. Differences in assay point to deterioration.

Wild Cherry Bark,—A. B. Stevens,—Proc. Am. Pharm. Assn., Vol. 47, p. 184.

Deterioration shown by assays at intervals of one year.

Wild Cherry, Deterioration of Syrup of,—J. Graham French,—Proc. Penna. Pharm. Assn., 1912; through Am. Jr. Pharm., 1913, Vol. 85, p. 82.

Hydrocyanic acid disappears within 3 or 4 months.

THE PHARMACIST WHO THINKS.

The pharmacist who stands around and *thinks* is a better business man than the one who spends every working hour in detail work. The profitable business is made by successfully utilizing the labor of others. A man's powers for personal effort are limited; he must depend upon others to help him. His task is to derive a profit from the labor of those he employs. To do this he must have leisure to plan, to watch, to oversee and direct. He must not occupy his mind so that he cannot do this. The minute that a business man permits the details of his business to master him, he loses the mastery of his business. He ceases to progress. Instead of being the driver of the engine, he becomes only a wheel in the machine. He loses the power to guide and bends his efforts simply to keep it moving.—*The Spatula*.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-First Annual Convention

A VOLUMETRIC METHOD FOR THE ESTIMATION OF MERCURY IN SOME OF ITS COMPOUNDS AND PREPARATIONS.

CHARLES H. LAWALL, PHILADELPHIA.

The estimation of mercury in its salts and compounds is accurately accomplished by several methods of accepted value, such as the sulphide precipitation method and the electrolytic method. Both of these methods, however, are open to certain serious objections, such as regards special apparatus and familiarity with the technique in the electrolytic method or of tediousness and the necessity of working with hydrogen sulphide in the other method. Some time ago a volumetric method was tried based upon the fact that mercury in certain of its compounds, combines with potassium sulphocyanate in molecular proportions, and the results have been so uniformly satisfactory that the method has been adopted as a means of estimating such of the compounds of mercury to which it is applicable in the U. S. P. IX.

Those to which it is applicable are all compounds except the halogen salts. The procedure is very simple, as is illustrated by the following as applied to metallic mercury.

"Weigh accurately about 0.4 gm. of mercury, dissolve it in a mixture of 10 cc. of nitric acid, warm the solution gently until red fumes cease to be evolved and the solution is colorless, and add 150 cc. of distilled water. Then add 2 cc. of ferric ammonium sulphate T. S. and titrate with tenth normal potassium sulphocyanate V. S. to the production of a permanent red color. Each cubic centimeter of tenth normal potassium sulphocyanate V. S. used corresponds to 0.01003 gm. of mercury."

The end point is very satisfactory and the entire operation consumes but a small fraction of the time required by either of the other methods and shows satisfactory results when employed in comparison with them.

The application of the method to such compounds as the oxides of mercury, both red and yellow, is very simple, as they only require to be dissolved in nitric acid as in the foregoing detailed method, using 0.5 gm. of the sample instead of 0.4 gm. as there directed.

Such preparations as the Mass of Mercury and Mercury with Chalk may also be assayed by simple solution of a weighed amount of the preparation in nitric acid and the dilution with water and titration as stated above.

It is believed that this method will fill a long felt want among analysts who frequently have occasion to determine percentages of such mercury compounds as can be determined by this method.

A PHARMACOPŒIA FOR THE PHYSICIAN AND THE DISPENSING DRUGGIST.

H. L. CHAMBERS, M. D., UNIVERSITY OF KAN.

In my former paper¹ it was shown that the physicians now in actual practice are not reading the Pharmacopœia, an effort was made to show *why* they are not reading it, and arguments were adduced to show that they never will read it in its present form.

Considering the Pharmacopœia as it is now, the work of the physician as it is now and making allowance for the changes in his work that are sure to come in the next few years, it is impossible to believe that its study would have much cultural value for the physician, or that it would make his work in any appreciable degree more safe or more successful. It is equally impossible to see how such study could benefit the retail druggist, by making his work easier, safer, more effective, or more remunerative. One may now well inquire whether it is worth while to make any further attempt to get the physicians to read *the* Pharmacopœia, or to read *a* pharmacopœia. Personal interviews with acquaintances do not give any encouragement to efforts toward securing a wider reading of the present volume, but do give more or less enthusiastic support to the idea of a radical modification of its subject matter. The more recent the schooling, the more indifferent to the Pharmacopœia was my observation on the practitioners whom I interviewed. One who is fresh from Rush did not recognize it as a useful book at all, and gave expression to the idea that it has no place in fundamental education, but expects to read it in later years as part of the finishing process. Another whose fundamental medical education was acquired in Baltimore and New York, with side trips to Germany and Philadelphia, does not believe the present work meets any important want in present day medical education, but is not so shameless about his neglect of it as is the very recent Rush graduate.

Interviews with druggists of the younger and liver (pronounced liver) sort convince me that they are not satisfied with the subject matter of the present Pharmacopœia, and that they would favor any change that would better meet the needs of their work as druggists, or would tend to bring themselves and the practitioners nearer together again. They argue with apparent soundness that reading the same well designed book would do much to promote mutual understanding and mutual helpfulness. The public interest would also be conserved by such a condition of things in the respect that better service would be rendered.

Various schemes have been proposed as tending to correct inadequacies as we now have them, but the medical profession has not had sufficient interest to take a very active part in the discussions. Personally, I should like to place my influence in favor of a multiple pharmacopœia—not the original notion of multiple district or hospital pharmacopœia, with one national one, but multiple pharmacopœias each of which shall be national, and at least one of which should

¹JOURNAL for May, 1913, p. 572.

eventually become international. I ask for this on the ground that the material that should go into a pharmacopœia, is so varied and so extensive that one volume cannot well contain it. Also on the ground that its completeness which is essential, would tend in many cases to cover up and obscure the very information any given searcher would want, and hence for this reason, its information should be classified and separated.

Since the U. S. P. is used as a guide in the administration of the various Pure Food and Drugs Laws, it seems important that we have an authoritative book of standards and tests by which to standardize and test the various foods and drugs. Personally, I see no objection to including many articles that are not used as either food or medicines. Fuels, paints, lubricants, and illuminants might very well be included in this book of standards. Eventually all substances whose chemistry has any scientific, economic, or commercial importance would be recognized and standardized in this book, and the book itself would logically become an international one, at least in so far as the substances in common use are concerned.

In this scheme the second pharmacopœia would be the book of chief interest to real pharmacists, since it would have to do only with pharmacy. It should discuss the source, identification, collection, preparation and preservation of medicinal substances. It should be so full and explicit in all the lines mentioned that any competent pharmaceutical chemist could produce as good preparations as any other. We should then hear no more of the "active principle of calomel," of the "special potency" of somebody's blue iron (?) or of the superiority of some other man's viburnum, because this particular pharmacopœia would tell every manufacturing pharmacist how to get good calomel and blue iron (?) and would be so minute in its directions about the selection, care, manufacture and preservation of viburnum that all good houses would have products containing whatever merit may be found in the drug at its best. With such a set of pharmacopœias as is here contemplated in actual existence, it would be easier to cut the humbug out of some present day pharmacy and to teach the medical profession to order preparations according to their merit.

The third pharmacopœia should be one designed for the guidance of the physician and the dispenser, and since they both are in relation to the patient, and are supposed mutually to assist and to check each other, this volume should contain the matters necessary for the guidance of both. It should contain little or no information which is to be found in either of the other volumes, for the reason that such information is not of common use to either the physician or the dispensing pharmacist and would only make their particular pharmacopœia cumbersome; e. g., the doctor prescribes and the druggist dispenses morphine sulphate in some combination, and neither of them is interested in the natural history of the poppy or the political history of opium, and neither of them will make any tests to determine whether the stuff dispensed is what was really ordered. *ergo* leave out the natural history and the tests.

I pause here and open the present Pharmacopœia at random,—happening on pages 176 and 177. The article beginning on the left hand page tells how to make Fluidextract of Colchicum Seed and the one beginning on the right hand page tells how to make Fluidextract of Conium. Neither article contains a

single thing of interest to a physician or dispensing pharmacist. Neither of these men will attempt to make either preparation, for neither has the personal skill nor the apparatus.² Is it not high time to abandon the erroneous notion that the dispensing druggist does or can manufacture the preparations that he uses? It seems to me that the articles cited above have the same relation to the work of the dispenser that a carefully prepared and scientifically correct article on the preparation of steel and the manufacture of hæmostatic forceps would have to the minor surgery that I undertake. If you agree with me, as I think you must, that the present Pharmacopœia is of almost no use at all to the physician and to his dispensing pharmacist, let us ask what would be of use to them. There are five points concerning each preparation that I think are of vital interest and importance to these men, and I mention them serially but not necessarily in order, for their order of relative importance will vary with the different drugs. They are: 1. Preservation. 2. Incompatibility. 3. Physiological action (including toxicology). 4. Therapy. 5. Synergism.

1. No physician desires his prescriptions compounded with dead or deteriorated drugs, and no self-respecting pharmacist is one whit behind the doctor in his effort for active and accurate preparations. Hence, the importance of directions for the preservation of the preparations and the suggestions of tests, the more obvious the better, whereby one may detect deterioration. 2. Both are alike interested in incompatibility, and their pharmacopœia should mention the chemical and physiological incompatibles. 3. Before one should prescribe or another dispense any drug, he should have an accurate idea of what it will probably accomplish when properly exhibited. The physiological, or toxicological action of a drug, seems to me to be the real focus of its study and should be given large room in the pharmacopœia of the men who are responsible for the application of drugs to patients. It necessarily includes full discussion of the amount, manner, and frequency of the dosage, size, age, sex, and other special conditions of the patient. It is important for the dispenser, because he is supposed to act as a check on the prescriber. Also, (pardon me while I feel gently over a sore spot) the dispenser, who usually prescribes more or less for common and trivial ailments, will do this more safely and successfully if he knows more physiological action. 4. This book should discuss therapy for the reason that this is the end or aim of the whole line of study. The physician will have the greater interest in this part of the book, but the dispensing pharmacist will be a better and safer helper and checker if he, too, reads the section along with the one on physiological action. A little more knowledge on these points would probably steady and mayhap save morally whole the druggist when he is tempted to prescribe for conditions not well understood by him; i. e., a little more learning may be expected to increase his sense of responsibility and lessen his own confidence, thereby making him safer. 5. The synergism of drugs is rarely discussed in any serious or systematic way, but should have due consideration in the doctor's and dispenser's pharmacopœia. If a drug acts more kindly or effectively in combination than alone, say so, and say why. A better disseminated information on this line would save us all from

²The editor can not assent to this as a statement of fact so far as it relates to the fairly qualified pharmacist.

the temptation to try out the wonderful "special" preparations that each house puts out—those whose promise always so far outruns their performance. In practice, the ideas of synergism and correction are often allowed to crystallize into ready made prescriptions, and I suppose every large hospital in the world has its prescriptions mainly made up and carried in stock. For routine work they are made to answer whether they *exactly* fit the case or not. I am not favorable to this sort of thing in private practice, but do think that some study along this line would improve both the prescribing and the dispensing.

Allow me to make some suggestions about how the proposed book should be arranged.

1. The classification should be made on the active portions of the drugs; e. g., there should be a careful article on tannic acid, and under this in smaller type there should be short paragraphs on blackberry, kino, catechu, gambir, etc., giving the special features and uses of each. 2. The arrangement should be alphabetic, the unimportant drugs being mentioned merely to refer to the page of the subsidiary paragraph as indicated above. 3. There should be a long section of the book devoted to therapeutics, in which little or no mention is to be made of any special disease. The classification here should be by *indications* and the arrangement alphabetical. Let me suggest a few topics: To destroy bacteria, on the skin, in the tissues, in the alimentary canal, in the nose and throat, in the dejecta, in a room, etc., to raise blood pressure, to lower blood pressure, to lessen motor excitability, to lessen sensory excitability, to improve nutrition, to lower body temperature, to lessen perspiration, to produce sleep, etc. with perhaps more specific directions for drug combat of a few special bacteria and protozoa like streptococcus pyogenes, bacillus of tuberculosis and the organism of malaria. 4. The substances treated should include all those used in the practice of medicine in the United States. When a preparation is not controlled by tests that guarantee its constancy, say so, and when its chief claim to confidence is its mystery or its advertising, say that. 5. The style of the book throughout should be dogmatic on all matters that are well established and well known. On those well established and not so well known there should be some citation of important or fundamental papers. On matters of importance that are still in doubt there should be considerable of experience quoted and arguments epitomized, so that the reader may be allowed to assist in finding the correct conclusions.

Let me claim in conclusion that this scheme would make everybody happy by giving to each the help and inspiration to thought and growth beyond anything the present pharmacopoeia can do; viz, the chemist would have his authoritative book of standards and tests tending soon to establish a uniform nomenclature, so that "pure white lead," e. g. would be the same everywhere, the manufacturing pharmacist would have in his book the alleged private information that so many houses now claim to keep so carefully guarded, and the physician and the dispensing druggist would have in their book the information that would enable them to work with more certainty and satisfaction to themselves and to give better service to the public.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

PHARMACY LAWS PROPOSED, ENACTED OR AMENDED DURING 1912-1913.*

FRANK H. FREERICKS.

AMENDMENT TO CONNECTICUT PHARMACY LAW.

Section 1. Section twelve of chapter 216 of the public acts of 1909 is hereby amended to read as follows: Said commission shall have power to investigate all alleged violation of the pharmacy law and all laws relating to the dispensing or sale of drugs, medicines, intoxicating liquors under a druggist's license or poisons, or the practice of pharmacy, which may come to its notice, and when there appears reasonable cause therefor, and on reasonable notice to the person accused of such violation, to take and hear testimony with reference thereto; to bring the same to the notice of the proper prosecuting authorities, or said commission may further examine into all cases of alleged abuse, fraud, or violations of the laws relating to the sale of intoxicating liquors and incompetence and may suspend the license of any licensed pharmacist or assistant pharmacist, and may revoke the license of any person convicted of violating any provision of this act.

Sec. 2. Section sixteen of chapter 216 of the public acts of 1909 is hereby amended to read as follows: Nothing herein shall prevent a practicing physician from compounding or dispensing his own prescriptions; or prevent the sale of insecticides; or prevent the sale of patent or proprietary medicines which do not conflict with the act concerning the sale of narcotic drugs; or prevent the sale of any drugs, medicines, or poisons at wholesale; or prevent any person from becoming a partner in or the owner of a pharmacy conducted by a licensed pharmacist; or prevent any keeper of a country store from keeping for sale and selling such domestic remedies as are usually kept and sold in such stores, except the following, viz.: Opium, morphine, and all other derivatives of opium, preparations containing opium in excess of two grains per ounce or morphine in excess of one-fourth grain per ounce, carbolic acid stronger than 10 percentum solution, prussic acid, oxalic acid, strychnine, arsenic, cyanide of potassium, chloral hydrate, chloroform, cobalt, sugar of lead, mercury in any form, belladonna and its preparations for internal use, and nux vomica and its preparations provided such keeper shall not compound medicines, and provided that when sold in such stores all medical preparations recognized by the United States Pharmacopoeia and National Formulary shall be of standard strength, and shall be prepared by a licensed pharmacist, and shall be sold only in original packages bearing the label of a licensed pharmacist.

Approved June 6, 1913.

*Continuation of the report of the secretary of the Section on Education and Legislation. See Journal for Dec., 1913.

DEFEATED ILLINOIS PHARMACY BILL.

Section 1. That it shall be unlawful for any person not a registered pharmacist within the meaning of this Act to open or conduct any pharmacy, dispensary, drug store, apothecary shop or store, for the purpose of retailing, compounding or dispensing drugs, medicines or poisons, and any person violating the provisions of this section shall be liable to a penalty of not less than twenty nor more than one hundred dollars for every such violation: Provided, however, that nothing in this Act shall prevent any person or persons owning a drug store or pharmacy, who shall employ and place in active and personal charge of the same, a registered pharmacist, and that nothing herein contained shall apply to nor in any manner interfere with the practice of any physician, or prevent him from supplying to his patients such articles as may seem to him proper, nor with the exclusive wholesale business of any wholesale druggist: Provided, that nothing contained in this Act shall apply to the sale of patent or proprietary preparations which do not contain cocaine, alpha or beta eucaine, morphine, opium, heroin, chloroform, cannabis indica, chloral hydrate or acetanilid or any salt or compound or any derivatives or preparations of the foregoing substances, when sold in original and unbroken packages.

Sec. 4. Any person shall be entitled to registration as a registered pharmacist who is of the age of twenty-one years or over, of good moral character and temperate habits, and who shall have passed a satisfactory examination before the board of pharmacy.

Every applicant for examination as a registered pharmacist must furnish proof of four years' experience under a registered pharmacist in compounding drugs and medicines in drug stores where the prescriptions of medical practitioners are compounded. Actual time of attendance, but not to exceed two years, at any recognized school of pharmacy, college of pharmacy or department of pharmacy of a university, may be accredited on the above required service under a registered pharmacist: Provided, that applicants are able to show by proper certificate from the school of pharmacy, college of pharmacy or department of pharmacy of the university which they have attended that their school work was satisfactory.

Every applicant for examination as a registered pharmacist who was not registered by said board of pharmacy as an apprentice or as an assistant pharmacist prior to the taking effect of this amendatory Act must furnish proof of having graduated from a school of pharmacy, college of pharmacy, or department of pharmacy of a university that is recognized by said board.

The board of pharmacy may, in its discretion, grant certificates of registration as a registered pharmacist to such persons as shall furnish with their applications satisfactory proof that they are graduates from a school of pharmacy, college of pharmacy or department of pharmacy of a university that is recognized by said board and that they have been registered by examination in some other state: Provided, that such other state shall require a degree of competency equal to that required of applicants in this state.

Every applicant for registration as a registered pharmacist shall pay to the secretary of the board the sum of ten dollars at the time of filing the application.

The payment of said sum of money, as aforesaid, shall entitle the applicant to take a second examination, in case he failed in the first, but no more: Provided, said second examination is taken within six months after the first; and upon the payment of an additional five dollars, in case the applicant passes a satisfactory examination, the secretary of the board of pharmacy shall issue to him a certificate as a registered pharmacist.

The state board of pharmacy shall make rules to establish a uniform and reasonable standard of educational requirements to be observed by schools and colleges of pharmacy or pharmacy departments of universities, and said board may determine the reputability of such schools, colleges and departments of pharmacy by reference to their compliance with such rules.

Sec. 5. Any person shall be entitled to registration as a local registered pharmacist and shall be deemed a registered pharmacist within the meaning of this Act who is of the age of twenty-one years or over, of good moral character and temperate habits, and who shall have passed a satisfactory examination before the board of pharmacy.

Every applicant for examination as a local registered pharmacist must furnish proof of four years' experience under a registered pharmacist in compounding drugs and medicines in drug stores where the prescriptions of medical practitioners are compounded. Actual time of attendance, but not to exceed two years, at any recognized school of pharmacy, college of pharmacy or department of pharmacy of a university, may be accredited on the above required service under a registered pharmacist: Provided, that applicants are able to show by proper certificate from the school of pharmacy, college of pharmacy, or department of pharmacy of the university which they have attended that their school work was satisfactory.

Every applicant for examination as local registered pharmacist who was not registered by said board of pharmacy as an apprentice or as an assistant pharmacist prior to the taking effect of this amendatory Act must furnish proof of having graduated from a school of pharmacy, college of pharmacy, or department of pharmacy of a university that is recognized by said board.

Every applicant for registration as a local registered pharmacist shall pay to the secretary of the board the sum of ten dollars at the time of filing the application. The payment of said sum of money, as aforesaid, shall entitle the applicant to take a second examination in case he failed in the first, but no more: Provided, said second examination is taken within six months after the first; and upon the payment of an additional five dollars, in case the applicant passes a satisfactory examination, the secretary of the board of pharmacy shall issue to him a certificate as a local registered pharmacist. Said certificates shall be operative in and apply to the village, town, city, place or locality for which granted, and no other.

Provided, that no local registered pharmacist certificate shall be granted under this section for any village, town, or city, the population of which exceeds 500, according to the federal census next preceding.

Provided, further, that any and all persons holding registered pharmacist time service certificates heretofore issued may have the same renewed from year

to year in the same manner and under the same conditions as are provided herein for the renewal of registered pharmacist certificates.

Sec. 2. No person shall sell at retail any drug, medicine or poison without affixing to the box, bottle, vessel or package containing the same a label bearing the name of the article distinctly shown, with the name and place of business of the registered pharmacist from whom the article was obtained: Provided, that nothing in this section shall apply to the sale of patent or proprietary preparations which do not contain cocaine, alpha or beta eucaïne, morphine, opium, heroin, chloroform, cannabis indica, chloral hydrate or acetanilid, or any salt or compound or derivative of the foregoing substances, when sold in original and unbroken packages, nor with the dispensing of prescriptions of licensed physicians, licensed dentists or licensed veterinarians, nor with the sale of paris green or lead arsenate or other poisonous substances or mixtures of poisonous substances in unbroken packages, for use in the arts or insecticide purposes: Provided, that they bear a label with the name or names of such poisonous substances and the word "poison" printed thereon in prominent type and the names of at least two readily obtainable antidotes with directions for their administration. Every proprietor or manager of a drug store or pharmacy shall keep in his place of business a suitable book or file, in which shall be preserved for a period of not less than five years, the original of every prescription compounded or dispensed at such store or pharmacy, numbering, dating and filing them in the order in which they were compounded, and shall produce the same in court or before any grand jury whenever thereto lawfully required. Said book or file of original prescriptions shall at all times be open for inspection by duly authorized officers of the law. Any person failing to comply with the requirements of this section shall be liable to a penalty of \$5 for any and every offense.

Sec. 12a. No person shall sell any drug, medicine, medicinal preparation or ointment containing any morphine, opium, heroin, chloroform, cannabis indica, chloral hydrate or acetanilid, or any salt or compound or any derivative or preparation of such substances without affixing to the bottle, box, vessel or package containing the same and upon the outside wrapper of the package as originally put up, a label distinctly displaying the name and quantity in grains or minims in each ounce of each of the substances mentioned in this section, their salts, compounds or derivatives, with the name and place of business of the manufacturer: Provided, that nothing contained in this section shall apply to the dispensing of the prescriptions of licensed physicians, licensed dentists or licensed veterinarians. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor and on conviction shall be punished by a fine of not less than twenty dollars and not more than one hundred dollars for each offense.

Sec. 12b. It shall be unlawful for any person to prescribe for, sell, retail, give away, or furnish to any habitual user of the same, knowing him to be such, any morphine, opium, heroin, chloroform, cannabis indica, chloral hydrate, or acetanilid, or any salt or compound of said last named substances, or any preparation containing said last named substances, or their salts or compounds: Provided, any licensed physician may, in good faith, prescribe or furnish for the use of any habitual user of said drugs who is under his professional care such

substances as he may deem necessary for his treatment when such prescriptions are not given or substances furnished for the purpose of evading the provisions of this Act. Any person violating the provisions of this section shall be deemed guilty of a misdemeanor and on conviction shall be punished by a fine of not less than twenty dollars and not more than one hundred dollars for each offense.

Sec. 13. Any person who shall willfully make any false representation to procure registration for himself or any other person or who shall make false representation as to his registration as an apprentice, assistant pharmacist or registered pharmacist shall be deemed guilty of a misdemeanor and on conviction shall be fined not less than fifty dollars nor more than one hundred dollars for each and every offense.

Sec. 14a. It shall be unlawful for any druggist or other person to retail, sell or give away any cocaine, alpha or beta eucaine, or any salt or any compound, or derivative of any of the foregoing substances, or any preparation or compound containing any of the foregoing substances, or any of their salts or compounds, or derivatives, except upon the written prescription of a duly registered physician, licensed dentist or licensed veterinarian, which prescription shall contain the name and address of the person for whom prescribed (or if prescribed by a licensed veterinarian shall state the kind of animal for which prescribed and the name of the owner thereof) and the date the same shall have been filled, and shall be permanently retained on file by the person, firm or corporation, where the same shall have been filled and it shall be filled but once, and of it no copy shall be given to any person, and the original bill shall at all times be open to the inspection of the prescriber, to the state board of pharmacy, and all officers of the law; except, however, that such cocaine, alpha or beta eucaine, or any salt, or any compound, or any derivative of the foregoing substances, or any preparation or compound containing any of the foregoing substances, or any of their salts or compounds, or derivatives, may lawfully be sold at wholesale upon the written order of a licensed pharmacist, or licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist: Provided, that the wholesale dealer shall affix or cause to be affixed to the bottle, box, vessel or package, containing the article sold, and upon the outside wrapper of the package as originally put up, a label, distinctly displaying the name and quantity of cocaine, alpha or beta eucaine, or any salt or compound, or derivative of any of the foregoing substances, sold, and the word "Poison" with the name and place of business of the seller, all printed in red ink. And, provided, also, that the wholesale dealer shall, before delivering any of the articles, make or cause to be made in a book kept for that purpose, an entry of the sale thereof, stating the date of sale, the quantity, name and form in which sold, the name and address of the purchaser, and the name of the person by whom the entry is made; and the said book shall be always open for inspection by the proper authorities of the law, and shall be preserved for at least five years after the date of the last entry made therein.

It shall be unlawful for any person to have in his or her possession at any one time any cocaine, alpha or beta eucaine, or any salt or any compound, or any derivative of any of the substances mentioned in this sentence, unless it was

obtained by means of a prescription of a licensed physician, licensed dentist or licensed veterinarian: Provided, that the above provision shall not apply to registered pharmacists, licensed physicians, licensed dentists, licensed veterinarians, jobbers, wholesalers and manufacturers of drugs and medicines, or retail druggists or hospitals.

Sec. 15b. It shall be the duty of the board of pharmacy to procure full sets of weights, balances and measures used in compounding drugs, medicines and poisons, which it shall cause to be tried, proved and sealed by the state or United States standards, under the direction of the secretary of state, or bureau of standards of the United States government. The board of pharmacy shall have the power to inspect all weights, balances and measures used by retail druggists in compounding drugs, medicines and poisons, and shall have the power to enforce the keeping and use of proper weights and measures. Any person or persons failing to keep and use standard weights, balances and measures, as provided by the board of pharmacy, shall be guilty of a misdemeanor and upon conviction thereof shall be fined not less than ten (\$10) nor more than fifty dollars (\$50) for each and every offense.

NOTE—This bill was amended before its final defeat by striking out wherever they appear, the words "acetanilid, chloroform, Cannabis Indica, heroin, chloral hydrate, morphine and opium."

KANSAS PHARMACY LAW, AS ENACTED AFTER AMENDMENT.

Section 1. It shall be hereafter unlawful for any person within the State of Kansas to open or conduct any drug store, pharmacy, retail store, shop or other place of business for retailing, dispensing or compounding medicines or poison, or to retail, except as is provided in chapter 70 of the General Statutes of Kansas of 1909, any drug, or medicinal preparation or any article containing the same for medicinal use, or dispense or compound any medicine or poison, unless such person be a registered pharmacist or under the supervision of a registered pharmacist within the meaning of this act. And it shall be unlawful for any person to compound or dispense any physician's prescriptions unless such person be a registered pharmacist or an assistant registered pharmacist within the meaning of this act, except as hereinafter provided. The term "medicine," as used in this act shall include all medicines and preparations, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of diseases of man; provided, none of the provisions of this act shall apply to or be construed to affect in any way the sale of patent or proprietary medicines or flavoring extracts, nor in any way interfere with, limit or repeal the provisions of chapter 70 of General Statutes of 1909.

SEC. 2. Any person who may desire a certificate as a registered pharmacist, shall apply for examination to the board of pharmacy, and shall pay the secretary of the board the sum of five dollars. If the board shall find that he has had practical experience for four years in compounding physicians' prescriptions, in the general duties of pharmacy, and has had at least one year of high school work or its equivalent, and otherwise duly qualified, they shall duly register him and issue him a certificate as registered pharmacist. In case of failure to pass a satisfactory examination, second examination may be granted within six months without further payment.

SEC. 3. Pharmacists registered as herein provided and dispensers of medicine shall have the right to keep and sell, under such restrictions as herein provided, all drugs, medicines and poisons authorized by the National Formulary, the United States Pharmacopoeia and other standard pharmaceutical and medical works of recognized utility; provided, that nothing herein contained shall be so construed as to shield any apothecary or pharmacist who violates or in any way abuses this trust for the legitimate and actual necessities of medicine, from the utmost rigor of the law relating to the sale of intoxicating liquors, morphine, cocaine or chloral, and upon the conviction of any violation of the prohibitory law, or of this law, his name shall be stricken from the register, and in addition thereto shall be fined not less than one hundred dollars nor more than three hundred dollars, and not less than thirty days nor more than ninety days in jail, or both such fine and imprisonment. It shall be unlawful for any person, on and after the passage of this act, to retail any articles enumerated in schedules A, B and C, except as provided in sections 1 and 4.

Schedule A. Arsenic and its preparations, corrosive sublimate, white precipitate, red precipitate, biniodide of mercury, cyanide of potassium, hydrocyanic acid, chloroform, strychnine, and all other poisonous vegetable alkaloids and their salts, and essential oil of bitter almonds, or opium and its preparations, excepting paregoric and other preparations of opium containing less than two grains to the ounce; or other habit-producing drugs, or preparations containing same having same effect.

Schedule B. Aconite, belladonna, colchicum, conium, nux vomica, henbane, cantharides, creosote, digitalis, and their pharmaceutical preparations; croton oil, sulphate of zinc, sugar of lead, mineral acids, carbolic acid, oxalic acid, permanganate of potassium, formaldehyde, and all other virulent poisons, except poison fly-killers, lye, ammonia, Paris green, arsenate of lead, wood alcohol, London purple, commercial poison for rats, mice and bed-bugs, and denatured alcohol when sold in sealed packages and plainly labeled "Not for Medical Use, Poison," may be sold through the regular channels of trade.

Schedule C. Oil of savin, oil of tansy, ergot and its preparations, cotton root and its preparations, and all other active emmenagogues or abortives.

SEC. 4. Articles enumerated in schedules A and B shall not be sold without distinctly labeling the box, vessel or paper in which said poison is contained; also the outside and inside wrapper or cover, with the name of the article, the word "poison," and the name and place of business of the seller. Nor shall it be lawful for any person to sell or deliver any poison enumerated in schedules A and B unless upon due inquiry it be found that the purchaser is aware of its poisonous character and represents that it is to be used for a legitimate purpose; nor shall it be lawful for any registered pharmacist or assistant registered pharmacist to sell or deliver any articles included in schedules A and B without, before delivering the same to the purchaser, causing an entry to be made in a book for that purpose stating the date of sale, the article sold, the quantity thereof, the purpose for which it is represented by the purchaser to be required, the name of the dispenser, and the name and address of the purchaser, signed by himself; such book to be always open for inspection by the proper authorities, and to be

preserved for at least five years. No article in schedule C shall be sold except on the prescription of a legally qualified physician. The provisions of this section shall not apply to the sale of poisons in not unusual doses and quantities upon the prescription of licensed practitioners of medicine. All prescriptions of practicing physicians shall be filed and retained by the dispenser, serially numbering, dating and filing the same. Said serial number and date and signature, together with proper directions, shall be placed upon package or container in which said medicine is dispensed. Failure to keep prescription files in accordance with the provisions of this act shall be prima facie evidence of violation of this law. The prescription files of the pharmacist shall be open to inspection by the proper authorities at all times.

SEC. 5. Nothing hereinbefore contained in this act shall prohibit any practitioner of medicine from compounding his own prescriptions and administering or supplying to his patients such articles as may be fit, proper and necessary, provided drugs and medicines dispensed by him shall comply with the Kansas food and drug law and be subject to inspection as provided in said law; and it is also further provided that it shall be lawful for retail dealers to sell the usual domestic remedies and medicines in unbroken packages, not including any article enumerated in schedules A and B of this act, in case such dealer shall procure a license from the board of pharmacy, at a fee of \$2.50 annually, not as a registered pharmacist but as a registered dealer; and said annual fee to be paid within thirty days from the expiration of said license, otherwise said annual fee to be five dollars.

SEC. 6. Every proprietor or conductor of a drug store or pharmacy, and everyone who dispenses from a private stock of drugs, shall be responsible for the quality of all drugs, chemicals and medicines he may sell or dispense; and should he knowingly and fraudulently adulterate or cause to be adulterated such drugs, chemicals or medicinal preparations, he shall be deemed guilty of a misdemeanor.

SEC. 7. That the State Board of Pharmacy is authorized and directed to make and publish uniform rules and regulations not in conflict herewith, which rules and regulations may include, if necessary for the proper execution of this law, the collection and examination of medicines and drugs kept for sale, offered for sale or for dispensing, or sold in the state of Kansas, by any pharmacist, or kept in stock by any physician, merchant or dispenser. Samples thus collected may be submitted for analysis to the drug laboratory established under the Food and Drugs Act, Section 4, Chapter 266, Laws of 1907, and the results of the analysis may be published in the bulletin of the Board of Health, which said rules and regulations shall be published in the official state paper of the state.

SEC. 8. Any person who shall violate any of the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not to exceed fifty dollars, or imprisonment in the county jail for not more than six months, or both in the discretion of the court.

SEC. 9. The original Sections 8103, 8104 and 8105 of the General Statutes of Kansas for the year 1909 are hereby repealed. All acts or parts of acts in conflict herewith are hereby repealed.

SEC. 10. This act shall take effect and be in force from and after its publication in the statute book.

MASSACHUSETTS PHARMACY LAW AMENDMENT.

(Chap. 705.)

An Act to Provide for Registering and Licensing Stores for Transacting Retail Drug Business.

Section 1. The term "drug business" as used in this act shall mean the sale of opium, morphine, heroin, codeine or other narcotics, or any salt or compound thereof, or any preparation containing the same, or cocaine, alpha or beta eucaine, or any synthetic substitute therefor, or any salt or compound thereof, or any preparation containing the same, and the said term shall also mean the compounding and dispensing of physicians' prescriptions.

Section 2. No store shall be kept open for the transaction of the retail drug business unless it is registered with and a permit therefor has been issued by the board of registration in pharmacy as herein provided.

Section 3. The board of registration in pharmacy shall, upon application, issue a permit to keep open a store for the transaction of the retail drug business to such persons, firms and corporations as the board may deem qualified to conduct such a store. The application for such a permit shall be made in such manner and in such form as the board shall determine. A permit issued as herein provided shall be exposed in a conspicuous place in the store for which the permit is issued and shall expire on the first day of January following the date of its issue. The fee for the permit shall be one dollar.

Section 4. No such permit shall be issued for a corporation to keep open a store for the transaction of the retail drug business, unless it shall appear to the satisfaction of the said board that the management of the drug business in such store is in the hands of a registered pharmacist.

Section 5. The said board may suspend or revoke a permit issued hereunder for any violation of the law pertaining to the drug business or the sale of intoxicating liquors or for aiding or abetting a violation of any such law; but before suspending or revoking any such permit the said board shall give a hearing to the person firm or corporation holding the permit, after due notice to such person, firm or corporation of the charges against him or it and of the time and place of the hearing. At the hearing, such person, firm or corporation may appear with witnesses and be heard by counsel. Witnesses at all hearings shall testify under oath and any member of the board may administer oaths to witnesses. Any person so sworn or affirming who willfully swears or affirms falsely respecting any matter upon which his testimony is required shall be deemed guilty of perjury. The board shall have power to require the attendance of persons and to compel the production of books and documents. Three members of the board shall be a quorum for such a hearing, but no permit shall be suspended or revoked unless upon the vote of three or more members of the board.

Section 6. For the purpose of enforcing the provisions of this act the board may expend a sum not exceeding one thousand dollars annually.

Section 7. Whoever violates any provisions of this act shall be punished by a fine of not less than five nor more than one hundred dollars, or by imprisonment for not more than thirty days or by both such fine and imprisonment.

Section 8. This act shall take effect on the first day of January, nineteen hundred and fourteen.

Section 9. All acts and parts of acts inconsistent herewith are hereby repealed. (Approved May 27, 1913.)

This bill as passed is the result of several conferences between representatives of the Board of Pharmacy, your Association, the Liggett stores people and the Watch and Ward Society. This is the first measure which has ever been enacted into law which gives the Board of Pharmacy actual supervision over drug stores. It will be possible for the Board under the provisions of this act to close a drug store for any infringement of law pertaining to the sale of drugs or intoxicating liquors. Your committee believes this to be a long step in the right direction.

MINNESOTA PHARMACY LAW AMENDMENT.

Section 1. Creation of State Board, Employment of Attorney, and When Violators shall be Deemed Guilty of a Misdemeanor.—That Section 2327, Revised Laws of 1905, be amended to read as follows:

2327. The state board of pharmacy shall consist of five registered pharmacists of the state, appointed by the governor, each for the term of five years and until his successor qualifies. Vacancies shall be filled by like appointment for the unexpired term. No person connected with any school or college of pharmacy shall be a member of the board, and, if a member become so connected, his membership shall cease. The Minnesota state pharmaceutical association may recommend five names for each appointment to be made, from which list the governor may select. The board shall elect annually one of its members as president, and a registered pharmacist, who may or may not be a member, as secretary. It may employ an attorney and other necessary assistants, and make rules for the conduct of its business. It may, by its duly authorized representative, enter and inspect any and all places where drugs, medicines and poisons are sold, given away, compounded, dispensed or manufactured. Any person refusing to permit or otherwise preventing such duly authorized representatives from entering such places, shall be guilty of a misdemeanor. It shall enforce and obey the provisions of this subdivision, and report its proceedings to the governor annually, with such information and recommendations as it deems proper, giving the names of all pharmacists registered during the year, and the items of its receipts and disbursements.

Sec. 2. Examinations and Fees.—That Section 2329, Revised Laws of 1905, be amended to read as follows:

2329. The board shall meet at least once in every three months to examine applicants for registration and transact its other business, giving reasonable notice of all examinations, by mail, to known applicants therefor. The secretary shall record the names of all persons registered by the board, together with the grounds upon which the right of each to registration was claimed. The fee for examination shall be five dollars. All registered pharmacists and assistants, while employed as such, shall be exempt from service as jurors. On hearing, the board may revoke any certificate of registration obtained by false representation or other fraud, or when the holder is addicted to the liquor or drug habit so as to unfit

him for the practice of pharmacy, and may refuse registration to any person so addicted.

Sec. 3. Qualifications of Applicants.—That Section 2331, Revised Laws of 1905 be amended to read as follows:

2331. An applicant for a certificate as assistant shall be eighteen years old, or over, and have had two years' practical experience in drug stores where physicians' prescriptions are usually compounded. Provided, however, if he be a graduate of a school of pharmacy whose course includes twelve months of laboratory work, but one year's experience shall be required. If upon examination, the board finds him qualified, he shall be registered. His certificate shall entitle him to act as an assistant to a registered pharmacist and to compound and dispense drugs and medicines during the temporary absence of the registered pharmacist.

Sec. 4. Registration of Pharmacists From Other States, and Fees.—That Section 2332, Revised Laws of 1905, be amended to read as follows:

2332. The board, without examination, upon receipt of a fee of twenty-five dollars, may grant registration to any pharmacist licensed or registered by the board of pharmacy, or a similar board, of another state.

Sec. 5. Annual Fees to be Paid.—That Section 2334, Revised Laws of 1905 be amended to read as follows:

2334. Every person registered by the board, while continuing in business, shall annually pay to the secretary a renewal fee, to be fixed by the board, and not to exceed three dollars for a pharmacist and two dollars for an assistant. A person who has once been registered and has defaulted in the payment of fees may be reinstated within two years of such default, without examination, upon payment of arrears. Every certificate and renewal shall expire at a time therein prescribed, not later than one year from its date.

Sec. 6. Definition of Drugs and Exceptions.—That Section 2335, Revised Laws of 1905 be amended to read as follows:

2335. Exceptions as to sale. Drugs, medicines and poisons, for the purposes of this subdivision, shall include all substances commonly kept in drug stores and used in compounding medicines or sold for medicinal purposes. Nothing in the subdivision, however, shall prevent a physician from compounding prescriptions for use in his practice or furnishing to his patients such articles as he deems proper, or interfere with the making or vending of proprietary medicines, with any exclusively wholesale business, or with the sale by general retail dealers of the following articles: Alum, blue vitriol, borax, carbonate of ammonia, carbonate of soda, castor oil, copperas epsom salts, glauher salts, glycerin, gum arabic, gum camphor, licorice, logwood, rolled sulphur, saltpetre, senna leaves, sublimed sulphur, water of ammonia, or paris green in sealed packages distinctly labeled "paris green, poison." Nor shall any dealer whose shop is more than two miles from a drug store be thus prevented from selling any commonly used medicine or poison which has been put up for such sale by a registered pharmacist.

Sec. 7. Physician's Prescriptions Required for Certain Drugs.—That Section 2337, Revised Laws of 1905, be amended to read as follows:

2337. No person, otherwise than on a physician's written prescription, shall sell at retail aconite, belladonna, digitalis, or nux vomica, or their preparations,

the oils of bitter almonds, cedar, pennyroyal, savin, or tansy, arsenic or any of its preparations, mercury or opium, or any of their poisonous preparations, carbolic acid, chloral hydrate, chloroform, creosote, croton oil, cyanide of potassium, hydrocyanic acid, lead acetate, morphine, the mineral acids, oxalic acid, strychnine, wood-naphtha or any other commonly recognized poison, without affixing to the package or receptacle containing the same a label conspicuously bearing the word "poison," and the name and business address of the seller, and satisfying himself that such poison is to be legitimately used. Any person who fails to comply with any requirement of this section shall be guilty of a misdemeanor.

Sec. 8. Register to be Kept For Sale of Poisonous Drugs.—That Section 2338, Revised Laws of 1905 be amended to read as follows:

2338. No person, either on his own behalf or while in the employ of another, except upon the written prescription of a physician, shall sell or give away arsenic or its preparations, (other than paris green), aconite, belladonna, or nux vomica, or their preparations, cyanide of potassium, hydrocyanic acid, morphine, mercury or its poisonous preparations, opium or the tincture thereof, the oils of pennyroyal, savin or tansy, or strychnine, without first recording, in a book kept for the purpose, the name and address to whom and the amount and kind of poison delivered. Every person who shall violate any provision of this section, give a false name to be recorded as aforesaid, or having custody of any such record book, shall refuse to produce it on demand for the inspection of any officer, shall be guilty of a misdemeanor.

Sec. 9. Penalty for Violation by Druggist.—That Section 2339, Revised Laws of 1905 be amended to read as follows:

2339. Every proprietor or manager of a place where drugs are sold shall be responsible for the quality of all drugs, chemicals, and medicines sold by him, except proprietary medicines and other articles sold in the original packages of the manufacturers. Every person who, by himself or through another, shall willfully adulterate any drug, medicinal substance, or preparation authorized, or recognized by the United States Pharmacopeia, or National Formulary, or used or intended to be used in medical practice, or shall mix with any such article any foreign or inert substance for the purpose of weakening its medicinal power and effect or of cheapening it, or who shall sell the same knowing it to be so adulterated or mixed, shall be guilty of a misdemeanor, the minimum punishment whereof shall be a fine of fifty dollars.

Sec. 10. Punishment For Sale by Other Than Druggist.—That Section 2340, Revised Laws of 1905, be amended to read as follows:

2340. No person, not a registered pharmacist, or a dealer employing and keeping such a pharmacist in active charge of his place of business, shall retail, compound or dispense drugs, medicines, or poisons, or keep or conduct a place of retailing, compounding, or dispensing drugs, medicines, or poisons, or falsely assume or pretend to the title of a registered pharmacist. No registered pharmacist or other person shall permit the compounding or dispensing of prescriptions or the vending of drugs, medicines, or poisons in his place of business, except under the supervision of a registered pharmacist or assistant. Every person violating any provision of this section shall be punished by a fine of not less than

fifty dollars, except in cases where the death of a human being results from such violation, when the person offending is guilty of a felony.

Sec. 11. Annual Fees May be Turned Over to State Pharmaceutical Association.—That the state board of pharmacy may each year turn over to the state pharmaceutical association for the advancement of the science and art of pharmacy, out of the annual fees collected by it, such sum, as it may deem advisable, but not to exceed one dollar for each pharmacist and one dollar for each assistant pharmacist, who shall have paid his renewal fee during such year. Said association shall annually report to said board on the condition of pharmacy in the state.

Approved April 28, 1913.

(To be continued)

THE TRADE-MARK EVIL OF MEDICINAL COMPOUNDS.*

CORNELIUS OSSEWARD, PH. G., SEATTLE, WASH.

In this practical age, in which the spirit of mercantilism dominates and absorbs all thought and action, it is not inappropriate for us, in fact it has become a necessity to give our attention to the conditions created by this all absorbing thought of commercialism.

I think it therefore not out of place or time to present to the Association facts which are of such vital importance to ethical pharmacy, facts which have not been looked into as thoroughly as their importance demands, facts which may not be pleasant reading, but that should nevertheless have our undivided and careful attention and consideration.

I refer to the trade-mark evil pertaining not to the definite substances, but to the compound preparations, the mixtures, the ready-made prescriptions, placed on the market under the various trade names.

Much has been written about the so-called patent medicine houses or proprietary houses, but why has there not been more discussion about our ethical pharmaceutical houses?

A careful analysis of the conditions existing will show you clearly that these very ethical pharmaceutical houses are today the greatest offenders in placing on the market compound preparations, mixtures of all kind, ready made prescriptions to be poured from their bottles into your prescription bottles, and this is called the art of dispensing?

Is it any wonder then that we hear the remarks made: "What need for any education in pharmacy? Any one can be a dispenser, no knowledge is required to pour from one bottle into another bottle."

Let us look into these conditions created by these houses and not deny the existence of these evils because their recognition is disagreeable.

In looking over the proceedings of the American Pharmaceutical Association for several years past, we find many articles in regard to dispensing pharmacy.

*Read at the 60th Annual Meeting, Denver, 1912.

Vol. 46, page 438. Mr. Beal, then chairman of this section, in his address said:

"It has not been uncommon of late years to learn from various sources that dispensing pharmacy has about reached the end of its existence as a separate calling, and that forces are now at work which must produce its speedy disintegration, and eliminate it from the list of recognized occupations whereby men may gain a livelihood.

"The question which this prediction suggests is one of supreme importance and may well challenge our serious consideration." Furthermore, he says, "That dispensing pharmacy is at present in a very unsettled and unsatisfactory condition we all agree, but as to the causes of these conditions or as to the remedies which should be adopted for its improvement, there is a wide difference of opinion."

Ex-President Oldberg in his address to this Association, Vol. 57, page 426, of the proceedings says "The chief cause of the degradation of the retail drug business is the ruinously excessive number of drug stores," and he might have added that the excessive desire of the manufacturing pharmaceutical houses to monopolize everything pertaining to pharmacy, even dispensing, under the successful system of trade-mark mixtures has been and is today the greatest hindrance of a more liberal use by the physicians of U. S. P. and National Formulary preparations.

In other words, instead of having the proprietary houses only to flood the market with these compounds, we have now in addition also every ethical pharmaceutical house to prescribe for the physician and to dispense for the pharmacist.

Do you wonder that dispensing pharmacy is in an unsettled and unsatisfactory condition? Let us consider for a moment the results of flooding the market with these many compounds.

What good has been obtained from these trade-mark compounds? Has pharmacy been improved, has there been more scientific knowledge obtained in placing these mixtures on the market?

These are fair questions to ask, but the only benefit derived, as far as I can judge, is by these manufacturers in the shape of dividends at the close of the year.

The disadvantages, however, are many, and of such far reaching consequences, as far as ethical and scientific pharmacy is concerned, that this Association cannot afford to ignore the importance of these unscientific methods.

First, by flooding the market with these various compounds, these ready-made prescriptions, it has caused many physicians to overlook their materia medica and therapeutics, which has not been to the benefit of their patients.

Second, it is, I believe, the direct cause of the physicians doing their own dispensing.

Third, it has encouraged substitution, for the greatest number of these ready-made prescriptions are nothing more or less than substitutions for some popular proprietary remedy.

Fourth, and last but not least, I believe is the most serious result and the one cause which should have our careful attention, for in this case neither the pharmacist nor the public at large is getting a square deal.

Think of the multiple compounds each manufacturer controls through this system of trade-mark compounds, a similar product to replace that of his many competitors.

Look on your shelves today—a dozen one-pint bottles of the so-called ethical cough mixtures from as many different ethical pharmaceutical houses all practically the same, and which could for all practical purposes be done away with or replaced by our National Formulary preparation of Syrup White Pine Compound.

Every one of these cough mixtures have as their most active constituent either morphine, codeine or heroin, the only important difference being the name: Syr. Tolu and Heroin Co.; Expectorozone; Elixir Pinus Co.; Elixir Pinus Co. with Morphine; Elixir Pinus Co. with Codeine; Elixir Pinus Co. with Heroin; Sedatole; Pruno Codeine; Creo Terpin Co.; Red Spruce Codeine Expectorant; Cerose; Heroterpine; Codeine Cough Sedative; Glycerole Heroine Co.; Syr. Cocillana Co.; Anodyne Pine Expectorant; Anodyne Pine Expectorant with Heroin, and many others of a similar nature.

And this pertains only to the cough mixtures; other compounds, too many to mention, are found in every drug store to be dispensed as called for.

Now the important question arises, what condition are these compounds or complex mixtures in after standing on your shelves for an indefinite time through the various changes of temperature, especially in our warm climates?

Does it seem reasonable to expect that these complex mixtures will remain unaltered under these changeable conditions?

Some of these manufacturers admit themselves that changes are liable to occur, for on the bill head of a certain firm may be found the following notice in red ink:

"We cannot undertake to accept for credit or exchange broken or open packages where stoppers (caps or corks) have been removed or seals broken, but will exchange any of our preparations, in original or unbroken packages, which may have undergone changes from causes impairing their efficacy."

I ask you in all candor is the public getting freshly prepared medicine when we positively know that these compounds which are prescribed have been standing on our shelves for in many cases one or two years, as is the case in many of our small pharmacies, under various conditions of climate.

Again, do the physicians know these conditions? I fear not, for I am sure if they did, they would not trust themselves in prescribing these complex mixtures so freely.

Can we wonder that so often the physician does not get the results which he might reasonably expect had such mixture been recently dispensed (by dispensing I mean the several ingredients of which the mixture was composed) mixed when it was prescribed.

At the last meeting of the American Medical Association the house of delegates adopted the following revised principles of medical ethics relating specifically to the practice of pharmacy which reads:

Section 4. By legitimate patronage, physicians should recognize and promote the profession of pharmacy; but any pharmacist unless he be qualified as a physician, who assumes to prescribe for the sick, should be denied such countenance and support.

Moreover, whenever a druggist or pharmacist dispenses deteriorated or adulterated drugs, or substitutes one remedy for another designated in a prescription, he thereby forfeits all claims to the favorable consideration of the public and physicians.

A curious fact which I could not help but notice while looking up some data

as regards these trade-mark compounds was that no reference was made in any of the numerous articles in regards to the possibility of deterioration of these compound mixtures before being prescribed and dispensed.

The only mention I did find was in a pamphlet published by the Council of Pharmacy and Chemistry of the American Medical Association. It is a booklet of about a hundred pages, and is too long to read at this time, but with your permission I want to read a few lines pertaining to our subject.

"The physician is not supposed to be a pharmacist, and if he were, he has neither time nor inclination to examine all the products he is asked to prescribe, or to inquire into the standing of those who exploit them.

"The number has become so great that the attempt to separate the good from the bad is bewildering, and no one individual is courageous enough even to try. The result of it all is that the educated, thinking physician who is honest with himself and with his patient refuses to prescribe any proprietary mixture; he classifies them all as secret nostrums and lets it go at that.

"Ready-made combinations of remedies may be valuable in many cases, *but to say that such combinations of drugs in fixed proportions fit any large share of the cases for which they are specially recommended by their makers is to say that the services of the physician are to a great extent superfluous.*

"*Machine prescribing is quite incompatible with high ethical standards and professional attainment in medicine.*

"Prescribers should know the virtue of each individual drug they use. They cannot attain that knowledge from the effects produced by mixtures.

"Whenever a physician specifies in the prescription a certain make of preparation, he takes upon himself the responsibility for that preparation. Any reputable pharmacist will, of course, dispense precisely what is ordered, but he cannot be held responsible for a product the composition and character of which are not fully known.

"Only the manufacturer knows what materials were used, the proportions employed, and the method of preparation. Manufacturers have their own formulas and processes, which are not known to the dispenser. The date *when the preparation was made and the manner in which it may have been kept since that date can not be known.* The preparations ordered by prescribers to be those made by some specified discoverer or manufacturer are almost all of the class known as proprietary specialties, those for which special superiority is claimed without any tangible evidence in support of that claim. Such preparations are, wholly or partially, secret nostrums subject to no verification or control, and when dispensed, may be right or wrong, old or new.

"*They usually pass through several hands before they reach the dispensing pharmacist who must accept them unless they bear unmistakable external evidence of being in bad order.*

"Pharmacists freely admit that there are many medical products which can be more successfully made in manufacturing laboratories having facilities which the dispensing pharmacist cannot have; but the claims so often put forward by the manufacturers that only a few medicinal preparations can be as well made with the facilities generally found in reputable retail pharmacies is as grossly exaggerated and ridiculous as the claim of the maker of any proprietary preparation that he possesses some valuable secret by which he alone is enabled to produce the remedy in proper condition.

"*Medicines are most reliable when fresh. The most active and important generally deteriorate more rapidly than others.*

"*Any preparation, therefore, that can be made by any competent pharmacist should clearly be made by the dispenser in order that he may be able to dispense a fresh product.*

"*Then only can he with justice be held responsible for it.*

"*Any preparation about which the maker fails to tell the whole truth should not only be suspected; it should never be used.*

"In view of the widespread acclaim with which the movement, generally referred to as the propaganda in favor of U. S. P. and National Formulary preparations, has been received, it is of vital importance that it shall not be misdirected or misunderstood.

"Properly interpreted it means the application of correct ethical principals to the prescribing and dispensing of medicines, and proper and mutual relations between physician and pharmacist.

"So far as it concerns the physician it means that he will permit neither self-interests, nor the love of ease, nor the plausible tongue of the detail man of the manufacturer of medicine to lure him away a hair's breadth from the path of duty to himself, his profession, and his patients.

"To the pharmacist it means that he must do all in his power to render effective service, and respect to the fullest extent the rights of the physician and the sick.

"Will the pharmacist meet these demands upon him in the right spirit? Will he do his

full duty because he sees it to be right, or will he support the reform movement solely in consideration of assurances of an increased prescription business?

"But pharmacists have the right to expect equally honorable treatment from the medical profession. They have the right to expect that physicians shall not deprive the pharmacist of his legitimate and honorable occupation and his means of livelihood.

"Physicians cannot keep such a complete stock of medicine in their office that they do not find it necessary to write occasional prescriptions. Pharmacists who can and do keep a complete supply, who are able to judge of the quality of drugs and medicines, who renew their stock frequently enough to have all remedies fresh and reliable, and who have all the necessary facilities for accurate dispensing, cannot live on the meager profits of such occasional prescription."

From this it is plain that the American Medical Association, through the Council of Pharmacy and Chemistry, realize the possibility of inactive, deteriorated, or stale mixtures being dispensed. It is also plain that the greater majority of the medical profession has not and does not realize this danger, and it is also a fact, I believe, that if they did realize or understand the possibility of getting stale, deteriorated, or less active drugs when prescribing these compounds, these ready-made prescriptions, that they would not so freely prescribe them, at least not without first obtaining some information in regards the age of these particular compounds.

A WORKMAN'S PARADISE.

According to the *Literary Digest*, William D. Hawood pictures the working quarters of the mill hand, after the Industrial Workers of the World shall have gained control of the machinery of government, as follows:

"There will be a wonderful dining-room where you will enjoy the best food that can be purchased; your digestion will be aided by sweet music, which will be wafted to your ears by an unexcelled orchestra. There will be a gymnasium and a great swimming-pool and private bathrooms of marble. One floor of this plant will be devoted to masterpieces of art, and you will have a collection even superior to that displayed in the Metropolitan Museum in New York. A first-class library will occupy another floor.

"The roof will be converted into a garden. There beautiful flowers will fill your eyes and their sweet perfume your nostrils. The workrooms will be superior to any ever conceived. Your work chairs will be morris chairs, so that when you become fatigued you may relax in comfort."

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

THE MAKING OF TABLETS BY THE RETAIL DRUGGIST.

BERNARD FANTUS, M. D., CHICAGO.

Efficiency, elegance, and economy, I take it, are the three points of view from which any class of pharmaceuticals must be judged in the determination of its value. Efficiency, of course, comes first. No matter how expensive the medication, if it produces the desired result better than anything else, it is the one to be chosen. If, however, we have the choice between an elegant and a disagreeable preparation of equal efficiency, common sense will teach us to select the pleasant one. Economy, though the last and least consideration in medicine, is also a matter of importance; for obviously that form of medicament should be chosen that is most economic, both as to original expense and as to trouble of preparation.

Tablets are a dosage form of recent introduction that competes with older and better established dosage forms, such as powders, pills and capsules. Before anything new can replace the old, it must establish its superiority. What claims for consideration have tablets to present? In judging them from the three aforementioned standpoints, we find that there is no question about their efficiency, if they are accurately prepared, excepting in case of volatile substances, such as phenol or creosote, which, of course, will not remain in the tablet, even if they are put into it in proper amount. Compressed tablets made from insoluble substances can, contrary to the statement contained in text books, be made to disintegrate readily enough, if from 15 to 20 percent. of starch be added to the powder; the starch, on becoming moistened, swelling with great force and causing the tablet to fall to pieces. Indeed, well made tablets disintegrate more readily than do pills or capsules. While ordinary tablets are not more pleasant to take than are pills or capsules, they are probably more convenient for administration than are powders. What has, however, decided the present status of the tablet is the economic question. Though introduced by Dr. Robert M. Fuller of New York before the Academy of Medicine on February 21, 1878, (published in "New Remedies," March, 1878, p. 69), in a paper entitled: "Dose-Dispensing Simplified," the simplification was evidently not such that the retail druggist could notice it; for tablets have not as yet established themselves in general pharmaceutical practice. The preparation of tablets in large quantities, on the other hand, does offer economic advantages over other dosage forms to such a degree that tablets are the favorite solid dosage form with the manufacturer, who finds ready market for them among dispensing doctors. The retail druggist has been opposed to

the prescribing of tablets by doctors, for tablets have been considered not suitable for extemporaneous preparation, as they require drying, whether made by the tablet triturate process, in which the drying must be done after the tablet is finished or they be made by compression, when the powder is granulated by being moistened and must be dried before being suitable for compression. Furthermore tablets require a special apparatus, with which druggists as a rule have thus far not equipped themselves. Hence, should a doctor prescribe tablets, the druggist must buy them ready made, which increases the stock of ready made goods that he is forced to carry. The druggist asks why tablets should be prescribed, when freshly made pills or capsules are just as good, if not better, and economically much more favorable to him.

There are, however, three influences at work destined, I believe, to change the relation of the retail druggist to the tablet, they are: First, the use of a solid fat as cohesive and lubricant; second, candy medication; third, inexpensive tablet machines.

The employment of a solid fat as cohesive and lubricant was suggested by A. Schleimer in "The National Druggist" (Feb., 1909, p. 54), who advocates the use of cacao butter in lieu of granulation of the powder and subsequent drying. This brings tablets into the category of extemporaneous preparations. All that is necessary is to add three percent. of cacao butter to the powder, and it is ready for immediate compression in a tablet machine. Having found that cacao butter is liable to become rancid on keeping of some of the tablets made with it, I experimented to find a substitute devoid of this tendency, and found it in paraffin of low melting point. For tablets that are not to be kept for any length of time, cacao butter is preferable, as it melts readily and is digestible. The amount of paraffin however that enters into the composition of each tablet is so small that, in spite of its indigestibility, it seems to me it could not meet with any but theoretic objection. Either of these materials, in form of fine shavings, is added to the extent of three percent. with just sufficient trituration to distribute fairly well. Excessive trituration lessens the efficiency of the lubricating agent. If the tablet has a tendency to stick to the punches, the material can be worked better, if a little talcum, say three percent. is added to the powder by stirring it in with a spatula rather than by trituration. This process renders tablet making no more difficult or time-consuming than the making of pills or capsules. It is true, that there are a few materials that do not lend themselves well to this simple process. These would have to be worked up according to the old process, which is very briefly but with sufficient detail described in a booklet by Frank Edel on "How to Make Tablets," published by the Spatula Publishing Co., Boston, 1896; or, more elaborately, in Joseph R. Wood's "Tablet Manufacture," (Lippincott & Co., Philadelphia, 1906.) This much may be stated with confidence, that a druggist equipped with an inexpensive tablet machine can deliberately cut out of his stock all tablets, excepting those that are very frequently called for.

"Candy Medication" will, I believe, become, in future, the children's medication of choice. Would it not be delightful to give all or nearly all our medicine to children in the form of sweet tablets, similar e. g. to those of phenolphthalein that are now, under various names, used so extensively. As a result of my studies, I

can assure you that this is entirely possible. By taking advantage of the fact that some medicines are practically tasteless, that many of the isolated active principles of drugs are easily disguised, and that modern synthetic chemistry has enriched our resources by the production of a considerable number of tasteless or almost tasteless and yet active substances, it has been possible for me to show that as many as four or five dozen different drugs can be worked up into perfectly delicious, not merely palatable, sweet tablets. To furnish a basis for further discussion and experimentation, I have published a "Candy Medication Formulary" in the Journal of the National Association of Retail Druggists, May 22 and 29, and June 12 and 19, 1913. Since then, it has been my good fortune to have had my attention directed to John Uri Lloyd's "Alcresta" alkaloids, which enable one to give the bitterest alkaloids, even strychnine, in "candy form." Having discussed the subject of sweet tablets in another paper I will refrain from occupying your time for its consideration here, excepting to point out that sweet tablets meet all three requirements first laid down. They contain an active dose for a child; though, in case of some medicaments, even an adult dose could be administered in this form, if desired. It is, however, for children that this form is most especially needed. Most adults can swallow pills or capsules. These sweet tablets are more elegant than any other class of preparations in the drug store. It is true, it has been questioned, whether powders made with sugar would not be taken by children as readily as these tablets. Anyone, who would take the trouble to try, would soon find out that the tablets are much more readily taken than powders of the same composition. You do not find powdered sugar in the confectioner's shop. The confectioner goes to a good deal of trouble to make the sugar more pleasant by attractive shape, color and flavor, all in order to increase the relish with which the sugar would be taken. There is really less necessity of making sugar more attractive to a healthy youngster than there is of making medicine as attractive as possible for the sick child. Why not cultivate relish in medication? There is no question of its being possible for the retail druggist to prepare them economically. Mr. J. B. Galloway of Chicago, who has filled most of my prescriptions for sweet tablets, did not find it necessary to charge more for them than he would for as many pills or capsules.

Other form of candy medication has been thought of. Sir James Sawyer, for instance, published in "The Lancet" of August 12, 1911, p. 435, a process for the production of what he calls "cremulae," or medicated chocolate creams. They are prepared by evaporating a mixture of sugar and of milk to the consistency of paste, into which various medicaments might be incorporated, and which is then covered with chocolate, as in the popular chocolate drop. I have quite a number of years prior to Sawyer's publication, prepared medicated chocolate creams as well as other forms of medicated candy. I have, however, come to the conclusion that no other form would be quite as practical as the sweet tablet, most especially for extemporaneous preparation by the retail druggist.

As to tablet machines, Whitall Tatum Co's "No. 25" Tablet Machine is, surely, within the reach of any druggist. All the tablets in my experiments were prepared with a machine of this type at the pharmacologic laboratory of the College of Medicine of the University of Illinois. Should a more rapidly working ap-

paratus be desired, the J. F. Stokes Machine Co., of Philadelphia, could supply it, in form of their "Eureka" Tablet Machines at a figure by no means prohibitive.

In conclusion, then, I would point out that it will pay pharmacists to equip themselves with a tablet machine, first of all, to be able to discontinue carrying in stock a large number of miscellaneous tablets, by being forced to order a bottle of 100, whenever a dozen or two of tablets are called for; and secondly in order to be able to prepare sweet tablets, a form of "candy medication" that physicians will readily take up with, as soon as they are acquainted with them, and a reliable source of supply has been secured.

DEPARTMENT OF MATERIA MEDICA AND THERAPEUTICS, COLLEGE OF MEDICINE,
UNIVERSITY OF ILLINOIS, CHICAGO.

PERSONAL LIBERTY IN BERLIN.

Americans who prize their "personal liberty" very highly have been in the habit of ridiculing what seem to them the petty regulations of the police forces of large German cities. The frequency with which the American tourist in Germany sees the sign beginning, "It is forbidden," gives him the notion that his movements are unnecessarily restricted. Surely, at least, such regulations as the following, in force in Berlin, will appear ludicrous to the gangsters of our large cities who may carry guns with immunity and rob at their hearts' content:

"Persons may not walk more than three abreast or stop or congregate for any extended period of time.

"Persons with umbrellas or walking sticks must not carry or swing them in any manner likely to imperil the safety of passers-by.

"No windows or doors of houses, flats, shops or restaurants in which music is being played may be kept open.

"No whistling, singing, shrieking, shouting, or loud talking of any kind likely to endanger the quiet of the streets is to be permitted.

"Teamsters in charge of wagons, teams, or trucks loaded with resounding metal of any kind are forbidden to drive in a manner calculated to cause nerve-shattering noises.

"No paper, remains of fruit, cigars, or cigarettes may be thrown into the streets.

"The dragging of clothes of any kind—women's dresses or anything else capable of producing dust—is prohibited.

"Householders are required in winter to keep the footpaths in front of their premises clear of snow and ice between 7 a. m. and 8 p. m. After 8 p. m., if the sidewalks are slippery, sand or ashes must be sprinkled."—*Daily Newspaper*.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

REPORT OF THE HISTORIAN.

CASWELL A. MAYO, NEW YORK.

The most interesting event of the year from an historical point of view has been the formation in Paris of a society devoted to the study of Pharmaceutical history, of which M. Eugene Guitard is the secretary and M. Dorvamt, president. M. Guitard has published a most interesting volume commemorative of the 50th anniversary of the foundation of "L'Union Pharmaceutique," which covers not only the history of that journal, but also covers two centuries of the press in the service of pharmacy. I have pleasure in directing attention to a copy of this volume, which I have received through the courtesy of M. Guitard.

The value of historical study has been recognized for the first time in an international congress by the organization of a section devoted to medical history in the Seventeenth International Congress which has just been held in London. In connection with this congress an exhibit was made by Mr. Henry S. Wellcome of a number of articles connected with the history of medicine, including books, portraits, surgical instruments, etc. This exhibit has been spoken of in terms of the highest praise both in the medical and lay press, and it is intimated that it may eventually form the nucleus of a permanent historical medical museum. Mr. Wellcome has long been a member of the American Pharmaceutical Association and it is not improbable that his interest in the historical aspects of medicine has been stimulated by the work of our own historical section, in which he has always taken an interest.

Another interesting event somewhat nearer home is the recognition of the importance of historical pharmacy by the creation of a Chair of Historical Pharmacy in the School of Pharmacy in the State of New Jersey and the election to the professorship of a former chairman of this section, Otto Raubenheimer.

An interesting and praiseworthy precedent was set at the March meeting of the New York College of Pharmacy, which was devoted to memorial notices of the members of the college who had died during the past year. Complete and sympathetic accounts of the service to pharmacy rendered by the deceased members. These accounts written and read by our honorary president, Thomas F. Main, secretary of the New York College of Pharmacy, were illustrated with lantern slides of portraits of the members. It is with pardonable pride that we point out that these men who had done so much for pharmacy locally were nearly all members of this Association. A copy of the Memorial issue of the Alumni Journal containing these accounts is presented herewith.

Endowments and Scholarships in Pharmacy.—A questionnaire concerning scholarships and endowment in pharmaceutical colleges was sent out by the Historian and the data collected will be deposited with the historical collection for future use. A brief summary being given here.

We learned but of two fellowships, one in the University of Kansas and one in the University of Michigan. Scholarships are maintained in the following schools: University of Kansas, University of Washington and University of California, and in the colleges of Massachusetts, Philadelphia, New York, Brooklyn and Pittsburgh. The Chairman of this section at the request of the Historian, has prepared a history of the funds of the Massachusetts College of Pharmacy, which I shall take the liberty of reading in this connection for the information and inspiration of other institutions.

HISTORY OF THE FUNDS OF THE MASSACHUSETTS COLLEGE OF PHARMACY.

JOHN G. GODDING.

The first Endowment to the Massachusetts College of Pharmacy was for \$2000.00, willed in 1872 by Mr. Charles French, a prominent Apothecary in the North End of Boston, and Vice-President of the Institution from 1839 to 1844. This was used in building the present College structure. In 1896 the College voted to restore this Fund which June 1911 amounted to \$3404.35.

In 1892, Mr. James S. Melvin, another well-known Apothecary, died. He was a Trustee of the M. C. P. for a number of years. He left by will \$1000.00. This has accumulated to \$1455.00.

Miss Mary Jane Aldrich became interested in a clerk in the employ of Mr. S. A. D. Sheppard and a student at the M. C. P., and it is probably through some word or solicitation of Mr. Sheppard's that Miss Aldrich at her death in 1892, willed the College \$7250.00, stipulating that 5 percent of the income should be added each year to the principal. This fund is now \$10,492.80.

Mr. Charles Mead of the type of Messrs. French and Melvin and a former member of the M. C. P. died leaving a will in which the Massachusetts College of Pharmacy was to receive \$2500.00 at the death of the person named in the will, which was in 1896. This now amounts to \$3348.25.

Prof. B. F. Davenport, our first Professor in Analytical Chemistry, donated \$125.00 to be known as Davenport Library Fund, the income to be expended on the Library. This has accumulated to \$365.70. Dr. Davenport attends many of the functions of the College up to the present time.

The funds, each bearing the name of the donor, came in cash and were placed in the hands of three Trustees who had charge of investment and income.

Mr. Warren B. Potter of the firm of Weeks & Potter, well known Wholesale Druggists in former years and a warm friend of Mr. S. A. D. Sheppard, was much interested in the erection of the present College Building and suggested many ways to raise the debt. When he died his entire estate was willed to his wife, Sarah E. Potter, he having expressed his wishes to her as to its disposal.

Mrs. Potter died in 1904. She bequeathed to the Massachusetts College of Pharmacy \$50,000.00 and numbered it among the residuary legatees. The stipulation was that the same should be called "The Warren B. Potter Fund" and that a memorial of this fund in the form of a bronze tablet, suitably inscribed, be fixed in a conspicuous place in the College Building after receiving this bequest. The College placed the bronze tablet designed by Cyrus Dallin in the hall near entrance, at a cost of \$3500.00. The amount received from Mrs. Potter's estate was \$196,699.69, and now amounts to \$203,968.78.

This fund came to the College in railroad bonds, stocks, shares in commercial buildings and industrials. After receiving this fund the College increased the number of Trustees

of Funds to five, one to be elected each year to serve for five years. There was also created a Building and Contingent Fund into which the income from all funds, excepting the one noted, is placed. Up to this time the income from other funds was added to the principal. It also established the rule that all securities purchased or held should be such as are approved by the Savings Bank Commissioner of the Commonwealth of Massachusetts. The Trustees were given time to dispose of such securities as did not meet these requirements which has been done without any loss to the funds. The investments are now principally in railroads, municipal and state bonds and nearly all are registered to the Treasurer of the M. C. P. as to principal.

The total value of funds is \$224,782.88 and the average income is about 4%. The Trustees of the funds meet monthly and have rules for the safe handling of these funds.

The policy of the College is to keep these funds intact, using only the income from the Building and Contingent Fund. From this we cleared the mortgage from our present building (\$30,000.00), erected the Potter Memorial and last June bought land for a new building at a cost of \$40,000.00, paying \$15,000.00 cash.

You inquire what use we propose to make of our income. Besides what has been pointed out we are now intent on paying for the land and have a Building Committee in charge of the plans and requirement of the prospective new building, and a Ways and Means Committee in charge of the raising of funds for the building. These Committees have recently been appointed by President Packard.

With what we can realize from our present property and the hope of receiving assistance from our friends our next aim will be the beginning of a new building.

J. G. GODDING, Treasurer.

PHILADELPHIA COLLEGE OF PHARMACY.

Scholarships.—Twenty-nine scholarships are possible under the awards of the Scholarship Committee. Usually a scholarship is awarded to the student for the three-year course, making seventeen which are awarded each year. They are as follows in the order of their founding:

Peter Williamson Scholarship, 3 lecture tickets.

Robert Bridges Scholarship, 3 lecture tickets.

John M. Maisch Scholarship, 3 lecture tickets.

Thomas H. Powers Scholarship, 3 lecture tickets, 2 laboratory tickets.

*Keasby and Mattison Scholarship, 3 lecture tickets and 2 laboratory tickets.

Edward C. Jones Scholarship, entitles the student to 2 laboratory tickets.

Henry and W. P. Troth Scholarship, 3 lecture tickets and 2 laboratory tickets.

*E. T. Dobbins Scholarship, lecture, laboratory, and recitation tickets.

James T. Shinn Memorial, lecture, laboratory, and recitation tickets.

Class 1884 Memorial, lecture, laboratory, and recitation tickets.

*Thomas S. Wiegand Scholarship, lecture ticket, laboratory and recitation tickets.

The College also allots six scholarships a year to the Philadelphia Board of Education; one to be applied to each of the following schools: Boys' High School, Girls' Normal School, Girls' High School, Northeast Manual Training School, Central Manual Training School, and Southern Manual Training School, making to the Board of Education 18 scholarships in course each year. They must be allotted to graduates of these institutions who have signified over their signature their intention to continue in the practice of pharmacy or its allied branches, and to make it their life work.

The E. T. Dobbins Scholarship is limited to students who are residents of New Jersey.

JOSEPH P. REMINGTON.

It will be observed that the term "scholarship" here is used in its widest sense, including free tuition as a scholarship, though such use of the term is hardly justified from the University School point of view, since in many state universities tuition is free to all residents of the state.

*Awarded after competitive examination.

College Libraries.—In connection with the work of the Historian as a member of the Library Committee of the New York College of Pharmacy, Columbia University, his interest has been aroused in pharmaceutical libraries. He, therefore, sent out in March a questionnaire on pharmaceutical library methods, the answers to which will prove useful to those interested in this particular subject. The answers received from the university schools can hardly be compared with those furnished by independent colleges, for the university school rarely has a separate pharmaceutical library, depending upon the university library. The number of volumes contained in the separate pharmaceutical libraries vary from a few hundred in the younger institutions up to 12,000 in the library of the Philadelphia Library of Pharmacy. This number refers to the bound volumes only, and does not include dissertations and pamphlets.

The New Orleans College of Pharmacy has 300 volumes; the School of Pharmacy of the Medical College of Virginia 500; the California College 971; University of Washington 1000; Iowa University School 1015. The University of Minnesota 1500; University of Pittsburgh 1700; Vanderbilt University 1300; University of Kansas 2837; Illinois 2500; Brooklyn 3500; New York 4500; Massachusetts 7177; Michigan 5500; Philadelphia 12,000. The Pharmaceutical Institute of the University of Berlin has 3300 volumes and 4000 dissertations, showing that our American school libraries as a whole compare fairly well with that of this institute.

The greatest of all pharmaceutical libraries is the wonderful Lloyd Library, which several of us had an opportunity to inspect on our visit to Cincinnati last week. This institution has nearly 39,000 bound volumes and 50,000 pamphlets, housed in two large buildings and maintained at the expense of the founders—Lloyd Brothers. It is difficult to find words in which to adequately express our sense of obligation to Professor Lloyd, our honored ex-president and his brothers for their altruism in founding and maintaining this unique institution.

Greek Letter Fraternities.—A beginning has been made by the Historian of the collation of information regarding the history of the Greek Letter Fraternities in Pharmacy. Letters were sent to all the colleges of pharmacy in the United States for information on this topic, which was followed up by individual correspondence with members of the several organizations. The data collected will be deposited in the archives of the association. The Phi Delta Chi fraternity will always have a special interest for the American Pharmaceutical Association, because of the fact that it was founded by our honored and beloved ex-president, Albert B. Prescott, of the University of Michigan. Chapters of this Order have been established in sixteen different colleges and universities and it issues an interesting quarterly, *The Communicator*, from Boston.

The Kappa Psi fraternity has 31 chapters and is in a most flourishing condition, maintaining a very creditable organ—"The Mask" which is published quarterly at Menasha, Wis.

One of the younger frats is the Tau Epsilon, founded about four years ago at the New York College of Pharmacy by J. M. Breitenbach, Phar. D. Full data regarding these various fraternities are deposited with the historical collection.

The Historian also begs leave to acknowledge receipt of a number of photographs of groups of members of the various Pharmaceutical organizations, a

list of which appear below. These will be placed in the archives of the association.

Particular thanks are due to Hugo Kantrowitz of New York, for an interesting album of snapshots of pharmacists, taken by him. This album is shown and will be observed with interest by all of those who have attended recent meetings of the association, as it includes a number of excellent pictures of the Boston and the Denver meetings.

PHOTOGRAPHS ON FILE FOR HISTORICAL SECTION.

PRESENTED BY C. A. MAYO.

1. Members of National Association of Boards of Pharmacy.
2. Dinner of New York Retail Druggists' Association.
3. Ohio Delegates to Milwaukee Meeting of N. A. R. D.
4. Presidential Party, Milwaukee Meeting N. A. R. D.
5. The A. Ph. A. at Glacier Lake.
6. Delegates to the Milwaukee Meeting of the N. A. R. D.
7. The Philadelphia Delegates to the Milwaukee Meeting of the N. A. R. D.
8. Members of the Commercial Travelers' Auxiliary of the New York State Association at the Rochester Meeting, June 25, 26, 27.
9. New York State Pharmaceutical Association at Manitou Beach, near Rochester.
10. Members of the New York State Board of Pharmacy.
11. Group of Four: Dr. and Mrs. Whelpley, Mr. and Mrs. William Mittelbach.
12. Print: Snapshots at the Denver Meeting of the A. Ph. A.
13. Print: Reminiscences of the Denver Meeting of the A. Ph. A.
14. Print: Snapshots at the Milwaukee Meeting of the N. A. R. D.
15. Microscopic Laboratory of the New York College of Pharmacy.
16. One of the Crude Drug Drying Closets. Digitalis Showing. College of Pharmacy, University of Minnesota.
17. A Section of the Pharmacognosy Class Collecting Digitalis Leaves in the Medicinal Plant Garden: College of Pharmacy, Univ. of Minn.
18. Photograph of George Reimann and his four sons.
19. Group of Three American Chemists: Prof. J. P. Remington, Dr. S. P. Sadtler and Dr. W. E. Hillebrand.
20. Two Pharmacological Chemists: Dr. Reid Hunt and Dr. J. J. Abel.
21. Prof. Dr. A. Bernthsen, Gr. Bad. Hofrat, Direktor Bad. Anilin und Soda Fabrik, Mannheim.
22. Prof. W. H. Perkin, Manchester, England, and Dr. Carl Duisberg, Director of the Farbenfabriken of Elberfeld, taken at the Eighth International Congress of Applied Chemistry.
23. Group: Dr. Carl Duisberg, Dr. John H. Findley, President College of the City of New York, and Herman A. Metz.
24. Group of American Chemists: Dr. Charles Baskerville, Professor of Chemistry, College of the City of New York; Dr. S. A. Tucker, Professor Electro Chemistry, Columbia University; Dr. A. S. Cushman, Director Carnegie Institute for Research; Dr. E. Coggeshall, Chemical Engineer.
25. President Nichols and Sir William Ramsay on Steamer Excursion, September 7.
26. President Nichols Enjoying a Cigar on Steamer Excursion, September 7, 1912.
27. U. S. Government Chemists: Dr. W. D. Bigelow, Chief, Food Division, Bureau of Chemistry; A. Seidell, Public Health and Marine Hospital Service; E. W. Boughton, Assistant, Bureau of Chemistry; F. C. Cook, Assistant, Bureau of Chemistry.

CENTENARY OF MEN FAMOUS IN PHARMACY.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

In compliance with the promise in my address as chairman of the Section on Historical Pharmacy, at the Denver meeting, I herewith present short biographical sketches of men born in 1813, men who were pharmacists or chemists or botanists, men who have greatly helped in the evolution of pharmacy and men to whom pharmacists should forever be thankful.

The celebrated pathologist, Rokitsansky, once said, "An dem Lichte der Alten

sollte die Jugend ihre Fackeln entzünden," which freely translated means, "Let the young light their torches on the fire of their forefathers." Let the deeds of the men before us serve as an example and let us try to follow in their footsteps! Let these short biographies prove instructive as well as edifying, to the profession and to the public!

The compilation of these biographies has been made from the following works:

Gallerie, by B. Reber.

Geschichte der Pharmazie, by Hermann Schelenz.

A History of Chemistry, by Von Meyer—McGowan.

and last, but not least, from the Proceedings of the A. Ph. A.

In spite of the so-called "unlucky 13," the year 1813 was productive more than usual of men who have become prominent in pharmacy, chemistry and medicine.

WILLIAM B. CHAPMAN.

(1813-1874)

He was born at Pennypack Hall, near Philadelphia, June 5, 1813. Graduated from the Philadelphia College of Pharmacy 1834 and moved to Cincinnati in 1835, where he conducted a very successful retail pharmacy. In the spring of 1839 he obtained the degree of M. D. from the Ohio Medical College. He joined the A. Ph. A. in 1851 and was elected President at the Cincinnati meeting in 1854. During the war he was appointed surgeon of the United States army, being stationed at Camp Dennison. In 1872 he was elected professor of pharmacy in the Cincinnati College of Pharmacy and was also appointed a member of the pharmaceutical board of examiners. At the time of his death, October 10, 1874, he was the oldest pharmacist in Cincinnati and held a high rank in the profession.

JOHANN RUDOLF WILD.

(1813-1868)

He was born on January 10, 1813, and served as apprentice in his father's pharmacy, the "Sonnenapotheke," in Kassel. Later he finished his pharmaceutical education under the celebrated pharmacist W. W. F. Wackenroder, in Jena. In 1849 he succeeded his father in the pharmacy at Kassel. He was the author of the following works:

"Relation of Magic to Alchemy, Astrology, etc. Kassel 1841."

"Description, Preparation, and Testing of Medicaments, Kassel 1842."

Wild was a member of the Revision Committee of the Pharmacopoeia of Hanover in 1861.

FRIEDRICH SCHÖDLER.

(1813-1884)

Originally a pharmacist, he took the degree of Doctor of Philosophy and devoted himself to chemistry. At Tübingen in 1839, he translated into German, the master-work in pharmacy of its time, namely, "Traite de Pharmacie," by E. Soubeiran, the celebrated chief pharmacist of the hospitals in Paris. This book was published by C. F. Winter in Heidelberg, 1839, and became one of the best known pharmaceutical works in Germany. Schödlér also obtained great popularity through the publication of his "Book of Nature." He became director of the Realschule in Mainz.

CARL FRIEDRICH RAMMELSBURG.

(1813-1899)

Was born in Berlin in 1813 and studied pharmacy in the "Rote Apotheke" and passed his state examination in 1834. Thereafter he studied chemistry under the celebrated Mitscherlich and Rose. In 1840 he established the Private Chemical Laboratory, and in 1851 became assistant professor at the Technical College, and in 1874 director of the second chemical laboratory at the university. In 1891 he retired and died December 29, 1899. His researches greatly enriched inorganic and especially mineralogical chemistry. Rammelsberg helped very much in the development of quantitative analysis. He determined the atomic weight of molybdenum, prepared phospho-molybdic acid and ammonium phospho-molybdate. During his time the rich deposit of potash salts was discovered in 1860 at Stassfurt. Rammelsberg called attention to the high percentage of potash which was left in the waste products, the so-called Abraumsalze, which were then thoughtlessly thrown away. By the evaporation and crystallization of Solution of Potassium Bicarbonate, he obtained colorless permanent monoclinic crystals of Potassium-sesqui-carbonate.

He also determined the chemical composition of Kaolin, as



He performed great service by the publication of a number of text books, as for instance:

"Handbuch der Mineralchemie."

"Krystallographisch-physikalische Chemie."

"Grundriss der Anorganischen Chemie."

"Grundriss der Chemie."

which books will remain the everlasting monuments of Rammelsberg, the former apothecary.

JEAN SERVAIS STAS.

(1813-1891)

Was born at Louvain, France, and as early as 1835 without having access to a properly equipped laboratory, made a thorough chemical investigation of phloridzin, which helped to his securing a place in the laboratory of the celebrated Dumas at Paris. This first research of Stas even attracted the attention of Berzelius. Dumas and Stas worked together upon the action of alkalies on alcohols, ethers and esters of the fatty series. Together they began a thorough determination of the atomic weight of carbon, a research which formed the starting point of the chemical work, with which the name of Stas is so intimately associated, and which extended over thirty years, from 1840-1870.

In 1840 he was appointed professor of chemistry at the Ecole Royale Militaire in Brussels, a position which he held for many years, until a throat affection compelled him to resign. In connection with a murder case arising in 1850, Stas originated a method for the detection of individual alkaloids. His method was modified by the pharmacist Friederich Julius Otto (1809-1870) and is still known and used today as the Stas-Otto method. In 1880 Stas furthermore determined the spectra of the alkaline earths. The long and arduous researches

of Stas brought out quite a number of important facts and in consequence took their proper places in the history of chemistry.

LUDWIG ANDREAS BUCHNER.

(1813—?)

He was born July 23, 1813 in Munich where his father, Dr. Johann Andreas Buchner held the position as chief apothecary of the charitable hospitals. He studied pharmacy in der "Mohrenapotheke" at Nuremberg. In 1834 he went to Paris, attended the lectures of Gay-Lussac and Chevreu and became assistant to the celebrated chemist Bussy. He returned to Munich where he received the degree of Doctor of Philosophy in 1839, and Doctor of Medicine in 1842. He then commenced his academic career and in 1852 became professor of pharmacy at the University of Munich.

Buchner was a very productive author. He published twenty-five volumes of the *Repertorium für Pharmazie* and his celebrated *Commentar zur Pharmacopoea Germanica*, together with the supplement. He was very active as a member of the Committee of Revision of the Bavarian Pharmacopoeia and in 1871 became a member of the Revision Committee of the new German Pharmacopoeia.

G. ADOLPHE CHATIN.

(1813—?)

He was born on November 30, 1813, at Tullins, France. In 1814 he became Doctor of Natural Science and pharmacist of the first class, and in 1844 Doctor of Medicine. In 1842 he became connected with the *École supérieure de Pharmacie* in Paris and served as its director for thirteen years from 1873 to 1886. He is the author of a number of works among which was "*Anatomie Comparée des Vegetaux*" which is one of the best known. His numerous works were published in *Comptes rendus de Academie des Sciences*, in *Bulletin de la Societe botanique de France*, and in *Journal de Pharmacie et de Chimie*.

DR. JOHAN ELIZA DE VRIJ.

(1813-1898)

One of the most famous men, whose cradle stood in an apothecary shop in Holland, was Johan Eliza de Vrij. He was born on January 31, 1813, at Rotterdam and was apprenticed in his father's apothecary shop and continued the pharmacy after his father's sudden death on December 10, 1831. He studied chemistry, pharmacy and botany under the celebrated Dutch chemist Georg Johannes Mulder. As early as 1831, he translated the master work of chemistry of its time, namely the book of Heinrich Rose into the Dutch language. Through this translation and his other chemical work, he became thoroughly acquainted with the most noted pharmacists, chemists and botanists of his time, including such man as Gustav Magnus, Jons Jacob Berzelius, Johann Bartholmee Trommersdorff, Lorenz Geiger, Rudolf Brandes, Joseph Pelletier, Jean Bienaimé Caventou, Justus Karl Hasskarl, L. Nees von Esenbeck and Justus von Liebig and others.

In 1838, he graduated from the University at Leyden with the degree of *Magister Matheseos et Doctor Philosophiæ Naturalis*, and then became in 1841 successor to his former teacher Mulder at the University of Rotterdam. In 1850

he sold his pharmacy and devoted himself to an Academic career. His achievements are so numerous that it is impossible to go into details. However, it may be stated that he reached conclusions which served for the foundation of our present knowledge of bacteriology. He experimented with nitro-glycerin, red phosphorus, the assays of opium, of cinchona, and of cherry laurel water, different tests for strychnine, etc., etc.

The Dutch Government was very fortunate in increasing their cinchona plantations in Java, under the direction of the German botanist, Franz Wilhelm Junghuhn (1812-1864.) In 1857 de Vrij was sent by the government to Pahua, Dutch India as a governmental chemist. It was here that de Vrij made his many examinations of the different species of cinchona and obtained worldwide reputation as a chinologist. In 1865 he returned to Holland and conducted a private laboratory for the assay of cinchona bark. On account of his work on cinchona, Queen Victoria on July 14, 1880, bestowed upon de Vrij the "Order of the Indian Government," on account of which the title, "Companion of the Indian Empire" which is abbreviated as C. I. E. is added to his name. On June 6, 1882, de Vrij celebrated the 50th anniversary of his State Board examination.

De Vrij used his vacation time in travel, and became acquainted with other prominent men, and the following quotation from the "Chemist and Druggist" of October 15, 1881 may be of interest.

"Properly there is no foreign chemist with whose personal appearance pharmacists are more familiar than with that of Dr. de Vrij of The Hague. He has been called 'The Flying Dutchman' on account of his frequent visits to our shores. Cosmopolitan in his friendship and in his speech, he is to be met with whenever a congress or a scientific gathering forms a reasonable excuse for travel."

Johan Eliza de Vrij's name was frequently mutilated and mispronounced as "Wrii" and for this reason he was in the habit of signing himself "Vry" when corresponding with foreigners.

JOHN KING, M. D.

(1813-1893)

Dr. de Vrij was born on the last day of January. Dr. John King on the first day and both of these men have made the year of their birth famous, in pharmacy and medicine.

On New Year's morning, 1813, just as an American Man-of-War came into the harbor of New York towing a British prize, John King opened his eyes upon a world he was destined to adorn. The biography of Dr. John King has been so well written by Dr. Harvey Wickes Felter in Bulletin No. 19, Pharmacy, Series No. 5 of the Lloyd library that it would be wasteful to enter the subject very deeply. Suffice is to say that Dr. John King became famous as a physician, chemist, teacher, humanitarian, author and scientist. In 1835 he became the discoverer of podophyllin or resin of podophyllum, the first Eclectic resinoid. Full particulars regarding this discovery are given in the Bulletin above mentioned. As an author, John King's name will live forever in pharmacy in the "American Dispensatory." After eighty well-spent years, he died June 19, 1893 at North Bend, Ohio.

Contributed and Selected

THE RELATIONS OF THE PROPRIETOR TO THE RETAIL DRUG-GIST AND PRICE MAINTENANCE.*

F. K. FERNALD, ELKHART, IND.

I would like to say at the beginning of this report that the views of your chairman may be somewhat influenced by his personal position in regard to some important details which later will be quite thoroughly discussed.

Our relations with the retail trade appear on the surface and from the personal standpoint to be cordial and satisfactory, and the volume of business is on the whole fairly maintained.

To those in closer touch with the retail dealer, and therefore better acquainted with his personal views and his organized efforts to make such views effective, there is, I think, easily recognizable a serious movement, not perhaps intentionally so, but nevertheless antagonistic to the interests of proprietary manufacturers.

This movement has no reference, as a rule, to the merits or demerits of the articles themselves, but has had its origin in the rather complicated conditions arising from (1) a compulsory change in the working methods of the organized trade, (2) from the extremely unsatisfactory price schedules in the large cities and the localities immediately surrounding them, and (3) to an uneasy feeling among the ultraethical members of the trade caused by the vicious attacks upon proprietaries generally made during the last five or six years by individuals who have been either misled by their prejudices and associations or who have had some commercially selfish end in view.

You will remember that the slogan of the N. A. R. D. at its organization was and is now "Live and let alive," and a very good slogan it is.

Following the decision of the Federal Court at Indianapolis, commonly known in the trade as the "Indianapolis Decree," much of the militant spirit which previously characterized the efforts of the organization for better prices disappeared of necessity, and was replaced by a much more chastened feeling, and followed by efforts to maintain the prestige and influence of the association along other lines. The immediate result was the propaganda movement, far heralded at the start, but apparently in the net result somewhat disappointing.

*Abstracted from the "Report of the Committee on Relations with the Retail Drug Trade," presented at the last annual meeting of the Proprietary Association of America. The paper is reprinted as a contribution to the subjects of price maintenance on proprietary medicines and the cooperative manufacturing and buying movement. The report is not only well written and readable, but presents a fair-minded statement of the retailer's reasons for being dissatisfied with his present profits on proprietary goods, and shows that the proprietors are awakening to the necessity of cooperating with him in devising or finding an effective legal method for giving the relief asked for.

While this movement may not have measured up to the fond anticipations of its friends, it yet had a temporary tendency to bring the druggist and physician closer together, a result which could hardly be an advantage to the manufacturing proprietor. In this movement the idea was to induce the physician to use in his practice the pharmaceuticals made by the druggist instead of those made by the well-known manufacturers of pharmaceutical specialties. A certain amount of detail work was done among physicians, many "get together" meetings were held, and the doctor was urged to use the home products of the druggists. The arguments presented doubtless had a considerable effect, but I can easily imagine that some of them fell on unsympathetic ears and that propositions on the quid pro quo order might have been made, which if accepted by the druggist must have bound him to look with less favor on the sale of advertised proprietaries.

Following also the "Indianapolis decree," the cut-rate situation in many localities grew steadily worse, not that prices were cut nearer to cost, but that more cutters and cut-rate cities developed, and the chain store idea came more and more to the front.

As a corollary to the chain store in private hands various enterprises, large and small, of a co-operative nature, with druggists as stockholders, were organized and most of them appear to have met a fair measure of success.

Chief among the chain store enterprises are the Riker corporation, the Owl Drug Company and the United Drug Company, the latter sharing profits with retail druggists who are its stockholders.

The Riker concern, known as the Riker-Hegeman Corporation in New York and New Jersey, has also located in Philadelphia and Washington, D. C., besides acquiring stores in Schenectady and Rochester, N. Y., while as the Riker-Jaynes Company it is firmly seated in Boston and most of the other cities of Massachusetts, Rhode Island and Connecticut, and is about to begin operations in Portland, Me., with prospects of farther extensions in the States of the Middle West. The Owl Drug Company covers the Pacific coast states.

The United Drug Company is now operating a number of stores in the New England cities and in Buffalo, N. Y., and is marketing the "Rexall" line throughout the country with the assistance of those dealers who are among its stockholders.

The Owl Drug Company has long been the dominant concern in California, Washington and Oregon and has been a persistent price cutter, thoroughly demoralizing the trade in localities in which it operates.

The United Drug Stores of Baltimore is also a newcomer in the field.

It would seem that the Riker stores of New England were able alone to sufficiently demoralize the trade, but in the cities where United Stores are also located and in which the competition on advertised proprietaries is something frightful, the lot of the average druggist, ground as he is between the upper and nether millstone, must be very unhappy.

One of the most deplorable features of the situation is that the conditions described are unlikely to be long confined to present areas.

The smaller co-operative ventures of dealers in the various cities, the "buying clubs" and many small jobbing houses owned by the retail dealers which are

thorns in the flesh of the regular wholesale druggists, add their complications to the general situation, not only for the jobber, but for the manufacturer.

These co-operative ventures at first originated in localities (usually large cities) in which the retailer, unable to protect himself adequately against the ruinous prices made by the professional cut-rate dealers—that is, being unable to control his own selling price—looked with much favor upon plans which gave promise of a saving at the buying end.

This movement, however, has grown in some instances to larger proportions, and has been handled in a manner to excite the envy of promoters who have long traveled the path of high finance in other lines.

It has also involved the manufacture and sale of many articles of a proprietary nature, often on a small scale, but sometimes on a large one, and as to which every individual sale over a retail counter has been based on a demand created by your advertising and in each such instance your legitimate business and profit have been diverted to other channels.

The conditions outlined above have been of gradual growth, and for that reason their influence has not been readily noted, but taken as a whole it would seem that they must work to our disadvantage, not only in the movement of our products through the hands of retail distributors, but also in a divergency of interest, which is sometimes manifested in a lukewarm support in matters which are important to us, or by a seeming disregard of our welfare in matters which seem important to them.

The conditions to which I have called your attention are in my judgment very important to every proprietor, and are due primarily to the inability of the retail druggists to obtain the fair profit on advertised proprietaries which we say he should have and to which he is certainly entitled.

It is true that with the ultra-ethical portion of the trade arguments unfriendly to proprietary interests would have had their influence regardless of price conditions, and articles marketed on fake lines or palpably sold for improper purposes would have been the subjects of discrimination by the self-respecting druggist doing his plain duty to the public, but it is a commercial axiom that the interest of a merchant cannot easily be diverted from a legitimate and reputable article whose sale shows a reasonable profit. However, when that profit disappears why should he be interested? Why is not a certain antagonism perfectly natural and why is the idea of substitution not the inevitable result?

I do not undertake to fix the blame for this trade difficulty, but the fact remains that it is a glaring absurdity to expect a retail merchant—and the druggist is a retail merchant to the extent of half his business or more—to continue to sell articles of any nature on which he makes but an inadequate profit or none at all.

Don't blame the druggist generally for this condition. He is in business to make a living, and as he cannot do so by selling your article without a profit he will sell something in its place whenever possible upon which his profit is adequate. And remember, too, that it is the business of the various syndicates, co-operative concerns, and the older manufacturers of non-secret goods to furnish the trade the proper articles with which to effect the substitution. Re-

member, too, that these concerns flourish in proportion to the spread of professional price cutting, and that the loss in your business is measured by their success. Bear in mind, also, that the habit of substitution is not natural but acquired.

It does not matter where the blame lies. It does not matter that the trouble originates in the ranks of the retail trade. The important thing is to find a means of cutting out the professional price cutter. The retailer says that the manufacturer should do it, but he does not point out the way. The manufacturer perhaps has a right to say that he is not responsible, but that attitude cannot rehabilitate his business, nor assist his retail distributor, and is probably tempered by the theory that he gets his price and his profit, no matter what happens to the goods after they leave his hands, which theory is, in my judgment, very short sighted.

The obvious method of accomplishing this result is unfortunately closed by the various anti-trust laws of the states and nation, and we have this very peculiar situation—that a small retail merchant cannot protect himself against piratical price cutting on articles which comprise in volume about one-half of his business, though the laws were designed to prevent monopolies and discourage unfair competition, and the decent manufacturer takes his business life in his hands and jeopardizes his personal liberty if he tries to assist him.

I am not attempting to point out the solution of the problem, but believe that the anti-trust laws should be so amended as to protect the average merchant against the unfair encroachment of his large and purse-proud competitor. The small merchant has certainly some rights which even the legislators and the public should respect.

Articles in a recent number of Everybody's Magazine on the "High Cost of Price Cutting," by Prof. Galloway, of New York University, and by Henry B. Joy, of the Packard Motor Car Co., show that similar troubles afflict other lines. The Ingersol Watch Company, among others, is also having trouble to maintain the price on its dollar watches.

Some legislator in New Jersey has evidently seen light on this subject, for after the passage in the Legislature of that State of a number of very stringent anti-trust bills, he introduced a bill which is now a law forbidding the stealing of the trade-marks, good will, etc., of another, in which good will the advertised retail price is included and compelling the observance of that price if notice of a fixed selling price accompanied the package. If this law can be sustained in the courts it will do much for the merchants of New Jersey.

My observation is that our relations with our ultimate distributors are from a personal standpoint satisfactory, and on the commercial side only fair, with a tendency to grow worse. If we all made it a point to keep in close touch with the retailer, co-operating wherever possible with his legitimate efforts to better his condition, if we attended his trade association meetings, if we took pains to consult with him individually and collectively as to matters of mutual interest, we should be better able to share his viewpoint and better able to help him and ourselves when emergencies arise.

I cannot believe that any argument along this line is necessary, as the advantages from a close association with our distributors is so self-evident. Nor do I

think I should take the time to go into this phase of the subject in detail. Gentlemen of your business experience are well able to devise means for accomplishing the desired result without elementary instructions. You have all taken post-graduate courses. My aim is to bring to your attention the vital necessity of close and pleasant relations with those who hand our goods over the counter to the public for whose business we advertise, and to insure so far as is possible that this transaction is accompanied by a standard and adequate profit.

I want to urge upon you as strongly as possible the great importance of making a personal and business friend of the retail druggist. Go to him with legitimate preparations advertised on clean lines, convince him that you have his interest in mind as well as your own, and your enemies will find it difficult to induce him to join in unfair attacks on your business.

BUYING CHEMICALS FROM PEDDLERS.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

The writer well remembers that some years ago, when refined deodorized wood alcohol was first placed on the market under a fanciful name, silver tongued salesmen were trying to convince the pharmacists throughout the country that this product was non-poisonous, and was in every way equivalent to grain or ethyl alcohol, and could be used in its place. As the result of this, many druggists throughout the United States were induced to use this product on account of its cheapness, and as a consequence some druggists had to pay fines, or even go to jail.

Practically the same conditions have existed, and do still exist ever since the new chemicals, the so-called coal tar derivatives, have been introduced into the United States. The large chemical industries especially those of Germany, have spent thousands, nay millions of dollars to perfect and to introduce these products, and for that reason, are charging a fair, and in some cases, a somewhat fancy price for these new chemicals. The processes of manufacture are patented, and the names of the chemicals are trade-marked. This serves as a protection for the manufacturer. The little republic of Switzerland has a patent law, which refuses protection to chemicals and chemical processes, and the result is that most of these chemicals are duplicated or imitated in that country, and are distributed from there. The United States in particular seems to be one of the large outlets for these products. Sometime ago, the writer read the following letter from a firm in Philadelphia:

"Kindly note that we have reduced prices on Givaudan's chemicals. Perhaps, at times, you have calls from druggists who want chemicals at ruinous low prices, regardless of whether the goods are A1 or not. If so, we have some of Siegfried's chemicals on hand, which we will sell below cost. You, of course, buy these at your own risk. Any reasonable offer will not be refused if you can use same."

Just think of such a condition in medicine, intended for the cure and relief of the sick! These imitation goods are distributed by peddlers, who deliver their

fraudulent wares to druggists from hand satchels. These peddlers are irresponsible men, who very frequently make only one visit, who have no address, who leave no bills, and who cannot be held, nor can they be caught. These peddlers are in the same class as "gunmen," many of them being ex-convicts, who would resort to any means in order to obtain money. These peddlers are also the distributors of obscene rubber goods and instruments, the sale of which is forbidden by law. They also supply cocaine and morphine to habitues, and even to school children. These peddlers buy and sell stolen goods and act as fences.

It is a large, a very large traffic that these illegitimate chemicals constitute. They are bought and sold without any guarantee whatsoever. The average druggists buy these chemicals at a slightly lower cost than the genuine articles. They dispense them, and thereby violate the patent as well as the trade mark rights of the manufacturer. That the manufacturer has such a right has been demonstrated on numerous occasions, when druggists have been caught substituting these chemicals in place of the genuine ones, and thereby have had a great deal of legal annoyance, and even have had to pay fines or were sentenced to jail.

But the druggists are not the only guilty parties, as the peddler furthermore is in the habit of supplying the dispensing physician with these articles. The dispensing physician has no means of convincing himself of the chemical identity of these products, much less than the druggist, and thereby runs a greater risk as to the health and welfare of his patients. All he knows is that the goods bear a certain label; that the goods are cheap, and this is the sole reason that prompts him to buy them.

The infringers sell these imitations under their chemicals names, and the peddler claims that they are identical with the patented and trade-marked product, but frequently, almost invariably, these chemicals are grossly adulterated. Aristol has been adulterated with brick dust, Protargol substitutes contained only 3 to 4 percent of silver, instead of 8.3 percent, and were strongly alkaline; Salicylic acid has been sold as Aspirin, and a mixture of magnesium and sodium sulphates as Pyramidon. Adulteration has even gone so far as to imitate the labels of the genuine product, so as to require an expert to tell the difference in the outside appearance between the imitation and the genuine. It is also well known that chemicals supplied by the irresponsible peddler, are generally short weight. It has been repeatedly shown that tablets which are sold by peddlers are fraudulent. Aspirin and Veronal tablets said to contain five grains, have been found to consist entirely of inert matter. A large quantity of tablets are sold by peddlers which are made from adulterated chemicals, and it is predicted that some time or other, there will be a large exposé, which will be a serious blow to pharmacy and medicine.

It has even come to my knowledge that vials, bearing imitation labels of Salvarsan, instead of containing this wonderful remedy were filled with oxide of iron to give it the characteristic color of the genuine article, and this fraud was not discovered until the peddler selling this counterfeit article had left town to continue his criminal activities in another community.

The dangerous practice indulged in by so many druggists, as well as dispensing physicians all over the United States, of purchasing supplies from peddlers,

is one of the most serious menaces to the health and life of every community. How dangerous this practice is has been well demonstrated in a recent case, when a substitute for a chemical which was intended as an eye lotion resulted in the loss of the patient's eye, and in the recovery of heavy damages from the substituting druggist.

Just now I received a circular from A. C. Smith, Windsor, Ontario, Canada, one of the veteran dealers in this class of goods which circular in fact prompted me to write this article. I would ask you to read carefully the following sentence taken from it:

"You are taking an awful chance by buying elsewhere; it is a crime to buy rank imitations and short weight tablets peddled by every Tom, Dick and Harry, whose sole desire is to get all the profit possible irrespective of quality. You owe it to yourself and customers to buy these chemicals only from a reliable source. I positively cannot recommend anyone to you. I am retiring from business with a clean slate—honorably. No man will ever find me ungrateful or dishonorable."

Could there be better proof than these statements, made by a man who knows the truth of the nefarious dealings of these peddlers? How humiliating for us druggists that we must allow ourselves to be advised by that man not to take any chances in buying goods from his competitors!

Retail druggists as well as physicians should take pride in their honorable calling, and in their profession, and should not buy their supplies from irresponsible parties. This, in my opinion, is the curse of the retail trade of today, and the sooner this will be abolished, the better it will be for professional pharmacy.

We pride ourselves on our high state of civilization, but I doubt whether conditions in this particular are anywhere as bad as in the United States; not in the darkest part of Mexico would it be possible for peddlers to sell medicines and no druggist could be found who would stoop as low as to buy supplies from notorious criminals.

It has been rumored that Mayor-elect Mitchell will appoint Dr. H. W. Wiley, Commissioner of Health of the City of New York. Let us hope that this will be done and that Dr. Wiley will begin his activities by putting an end to these criminal practices in New York City which would have a beneficial effect all over the United States.

A STUDY OF SPIRIT OF CAMPHOR TO SHOW THE EFFECT OF ADDED WATER.

J. W. MARDEN AND VANNA ELLIOTT.

The camphor in spirit of camphor can readily be determined either by titration or, if the camphor be from the same source, by means of the polariscope, but the percentage of alcohol cannot be determined by the ordinary distillation method because of the volatility of the camphor. Upon the information that certain druggists were adding water to their spirit of camphor in order to save alcohol, a study was made with the aim of devising a method for the determina-

tion of the percentage of alcohol used in making the preparation and, since the polariscope method for the determination of camphor can be used in this laboratory, a study was also made of the effect of dilution of the alcoholic solutions of camphor on their polarimetric readings.

The method devised for the determination of the alcohol was similar to that suggested by Marden¹ for the determination of alcohol in tinctures of iodine. Known weights of pure camphor, conforming to U. S. P. requirements, were dissolved in ninety-five percent alcohol and the change in weight of a given volume of the mixture was determined per gram of camphor. For this work a weight pipette² was used which held 4.6990 grams of water at 20° C. It was found that one gram of camphor dissolved in 100 cc. changed the weight of this volume of liquid .00340 grains. The use of this factor is best shown by an example:

Grams of camphor per 100 cc. = 10.00
 Wt. (of pipette full) of the liquid.....=4.0420
 .00340 multiplied by 10.00.....= .0340
 Corrected weight = 4.0080
 $\frac{4.0080}{4.6990} = 0.8529 = \text{Sp. Gr. of Alcohol} = 83.98 \text{ per cent.}$
 83.81 percent alcohol was used in making this preparation.

The following table shows some of the results obtained in this way and calculated as above.

TABLE I.

Gms. Camphor per 100 cc.	Wt. of Spirit	% Alc. used in preparation	% Alc. by calculation	Difference
2.00	3.8072	97.05	96.85	— .20
4.00	3.8140	97.05	96.85	— .20
4.00	4.0180	84.34	84.24	— .10
5.00	4.1562	73.54	73.61	+ .07
6.00	4.2602	64.97	64.93	— .04
6.00	3.8310	97.05	96.34	— .71
7.00	4.2204	68.36	68.68	+ .32
8.00	4.1235	77.36	76.96	— .40
9.00	4.1312	76.20	76.72	+ .52
10.00	4.0420	83.81	83.98	+ .17
12.00	3.9700	89.41	89.36	— .05

It is to be seen readily from this table that the percentage of alcohol can be determined by this method with a very fair degree of accuracy. It must be admitted that this factor gives somewhat better results with the lower percentages of alcohol and lower concentrations of camphor. It is, however, only in a spirit that is low in camphor that dilution with water is to be expected. Under good conditions the above method should give within 0.5 percent of the true percentage of alcohol used in making the preparation.

It was found that polarimetric readings of solutions of a given number of grams of camphor dissolved in 95 percent alcohol were not the same as when the same weights of camphor were dissolved in more dilute alcohol. Solutions of varying strengths of both camphor and alcohol were therefore polarized and

¹This Journal, November, 1913.

²Mulliken, Identification of Pure Organic Compounds. Vol. I, page 229.

the results compared with those obtained with 95 percent alcohol. The following table shows these differences.

TABLE II.

No.	Gms. Cam. found with 95% Alc.	Gms. Cam. in Dil. Alc.		Dif. in Gms. of Cam.	Gms. Cam. low % of Alc.
		% Alc.	Gms. Cam.		
1	4.00	84.34	3.40	.60	.035
2	5.00	73.54	4.66	.34	.016
3	6.00	64.97	4.95	1.06	.035
4	7.00	68.36	6.30	.70	.026
5	8.00	76.96	7.50	.50	.028
6	9.00	76.20	8.40	.60	.032
7	10.00	83.81	9.40	.60	.054
8	12.00	89.42	11.80	.20	.036

Average, .035

The last column represents the value given in column (5) divided by the number of units of percentage that the alcohol given in column (3) is below 95 percent. Although these polarizations were done with a polariscope which does not allow great accuracy, yet it is apparent that there is a very nearly constant decrease of the grams of camphor per 100 cc. found by this method with the decrease in the percentage of alcohol. This decrease in grams of camphor is fairly large and the average value of column (6), .035, equals the number of grams low which spirit of camphor read in the polariscope for each unit percent that the alcohol used in its preparation is below 95 percent. In the case of No. 3, only 4.95 grams were observed. Since the difference of one gram of camphor would change the percentage of alcohol by calculation but a few tenths of a percent, the grams of camphor found by the polariscope could be corrected by multiplying the difference between 9 percent and the percent of alcohol found by .035 and adding this value to the grams of camphor already found by means of the polariscope. For example, a sample was found to contain 4.95 grams of camphor and that 65 percent alcohol was used in its preparation.

$$95 - 65 = 30, \text{ and } 30 \times .035 = 1.05,$$

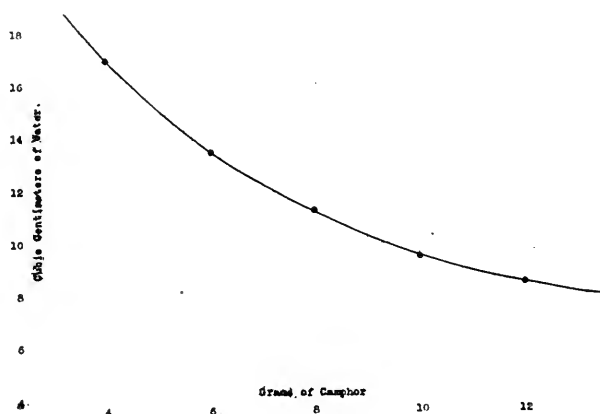
$1.05 + 4.95 = 6.00$ grams. The sample contained 6.00 grams of camphor per 100 cc. (No. 3, Table II).

Another method was devised to serve as a check upon the specific gravity method for the determination of added water. It was found that 10 cc. of the spirit of camphor of a definite concentration always took the same volume of water to produce a permanent precipitate and that spirit that contained added water took correspondingly less water to produce a permanent precipitation. The following table (a) gives the cc. of water necessary to give a permanent precipitate in 95 percent alcohol and table (b) the volumes of water necessary to cause a permanent precipitate in more dilute alcoholic solutions.

TABLE III.

(a)			(b)			
Gms. Cam. per 100 cc.	Cc. of Spirit.	Cc. H ₂ O	Gms. Cam. per 100 cc.	Cc. of Spirit.	% Alc.	Cc. H ₂ O.
4.00	10.0	17.0	4.00	10.0	84	12.4
6.00	10.0	13.5	6.00	10.0	65	3.6
8.00	10.0	11.3	8.00	10.0	77	5.8
10.00	10.0	9.5	10.00	10.0	84	6.3
12.00	10.0	8.5	12.00	10.0	89	7.8

The values given in Table III (a) are plotted on the accompanying diagram and from the curve the volume of water can be read that any concentration of camphor dissolved in 95 percent alcohol should take to form a permanent precipitate.



A table is given below to show the results of these experiments on a number of samples of spirit of camphor which were found low in camphor and were tested for added water.

TABLE IV.

No.	Gms. Cam. found per 100 cc.	% Alc. by calc.	Cc. H ₂ O to titrate 100 cc. Sp. Cam.	Dif. from standard value.
1.....	6.10	93.2	12.0	-1.0
2.....	8.47	94.9	10.5	-0.3
3.....	5.5 (6.5) corr.	67.7	4.2	-10.0
4.....	8.24	94.3	10.7	-0.3
5.....	8.37	94.3	10.7	+0.1
6.....	8.78	94.5	10.4	-0.2
7.....	9.22	94.1	9.7	-0.5
8.....	9.04	94.9	10.4	0.0
9.....	8.8 (9.2) corr.	83.2	7.7	-2.9
10.....	7.06	94.1	11.7	-0.5
11.....	9.00	94.1	10.2	-0.2

It will be noticed that in all cases except three the percentage of alcohol does not exceed 94.9 percent (the U. S. P. strength) or is it less than 94.1 percent, making a total variation of only 0.8 percent. In the three cases where the percentage of alcohol is low the volume of water necessary to produce a permanent precipitate is abnormally low indicating that some water is already present. Excepting these three cases the volume of water is in no instance more than 0.5 cc. away from the standard value. Numbers 3 and 9 have been considerably diluted. Number 1 may have been put into a wet bottle in its preparation, but the percentage of alcohol is not low enough to consider the sample adulterated.

The factor for the determination of alcohol can be restated so as to be used in any specific gravity apparatus. The grams of water necessary to fill the pycnometer used for the determination at 20° C. multiplied by .000723 will give the factor for that apparatus.

CONTRIBUTED FROM THE SOUTH DAKOTA STATE FOOD AND DRUG LABORATORY, VERMILION, S. D., Dec. 8th, 1913.

WRIGTH'S STAIN—MODIFIED.

R. A. KUEVER, IOWA CITY, IA.

This polychromic stain, originally known as Romanowsky's stain, has had many modifications. In principle, they all depend upon the loose chemical combination of eosin (tetrabromofluorescin) with methylene-blue, these dyes staining not only as units but acting together when properly combined. The two in solution in the same solvent, therefore, contain at least three compounds, each of which colors the various structures of the specimen, selectively.

This particular modification yields an eosinated methylene-blue solution which will not only produce a strong differential stain but simplifies the technic of both the preparation of the stain and the staining of specimens, and it gives more uniform results.

Solution No. 1.

Methylene-blue (Merck).....	5.0
Sodium bicarbonate	2.5
Distilled water	500.0

Place the methylene-blue and the sodium bicarbonate in a 1000 cc. flask, add the distilled water and connect the flask with a twelve inch reflux Liebig condenser. Transfer this apparatus to a water-bath and heat for two hours, and then cool.

Solution No. 2.

Tetrabromofluorescin (Merck)	4.0
Water, distilled	250.0

Dissolve the tetrabromofluorescin in the distilled water by agitation or stirring.

After solution number one has cooled to 20° C., add solution number two slowly and with frequent agitation. Collect the precipitate thus formed on well-wetted filter. While it is still wet dissolve it in 60 cc. of hot methyl alcohol (acetone free), and again filter. Evaporate this solution to one-half its volume and set aside for the eosinated methylene-blue to crystallize. Collect the crystals thus formed and after they have been dried spontaneously, transfer them to a well-stoppered, amber-colored bottle.

THE STAIN.

Eosinated methylene-blue .....	.1
Methyl alcohol	100.0

Dissolve by agitation.

The methyl alcohol should be acetone free and the eosinated methylene-blue should be made by the above process.

This stain, like all polychromic stains, decomposes rather rapidly and should therefore be made in small quantities. Amber bottles will retard the decomposition somewhat.

METHOD OF STAINING.

Pour the stain over the surface of the specimen until it covers it and allow to remain for from fifteen seconds to one minute; this period of time varying with the thickness of the specimen. This serves to fix the film to the glass as well as to stain it, so it is not necessary or desirable to pass the preparation through the flame. Now add distilled water, drop by drop, until a slight metallic

scum is produced on the surface of the stain. At this point a precipitation occurs and the real staining takes place which takes from five to ten minutes. Next wash in distilled water for several minutes or until the thin parts of the specimen have acquired a yellowish tint. The differentiation may frequently be brought out more plainly by washing longer.

If the blood-smear, as an example, stains a uniform deep-blue, distilled water will bring about a differentiation, removing the blue from the acidophilic parts, leaving them well stained with an eosin color.

The differentiation produced by this stain is as perfect as can be obtained by any of the eosinated methylene-blue combinations, and is being used with a great deal of success on blood-smears, demonstration of bacteria in cellular exudates, pus, etc.

DETERIORATION OF NITROGLYCERIN TABLETS.

J. R. RIPPETOE AND N. SMITH.

Although within the past five or six years several prominent pharmaceutical chemists have expressed the opinion that nitroglycerin tablets are a stable preparation, there are still some who believe in their instability and that the deterioration is chiefly due to volatilization.

In 1907, Bernegau¹ stated, that "the loss of nitroglycerin appears to be in the granulation process, and that the tablets themselves are fairly constant" and Dohme² in the same year stated "that observations made in his laboratory appear to indicate that tablets of nitroglycerin do not deteriorate perceptibly in course of time." In 1908, Gane and Webster³ referred to "nitroglycerin as a stable compound" and Edmunds and Roth⁴ find that "contrary to the common opinion, nitroglycerin tablets do not deteriorate greatly with age." Again 1909, Dohme⁵ comments upon a "comprehensive investigation of the deterioration of the tablets, that disprove the claim that these tablets deteriorate rapidly" and very recently Vanderkleed⁶ stated that "nitroglycerin tablets when properly made are to be classified among the more stable products, * * * and the tablets will remain unchanged or practically so, for a considerable length of time."

The last comment was in reply to an editorial article referring to the very unstable nature of nitrolycerin tablets due to loss by evaporation.

Until the phenoldisulphonic acid method was proposed by Scoville⁸ and its modification by the Bureau of Chemistry,⁹ and also the May method,⁹ there was no very reliable method for accurately determining nitroglycerin in tablets. We have found the modified Scoville method to be a very practical and reliable method.

The purpose of this paper is to report the results of several experiments and while not covering a very long period or many samples, we believe the figures are quite sufficient to demonstrate the stable nature of nitroglycerin tablets.

Samples of 0.01 (1/100) and 0.02 (1/50) grain hypodermic tablets, which were assayed on April 12, 1912, having been made sometime previous, were set aside on a laboratory shelf in ordinary cork stoppered glass tubes of

about 100 each. These tablets were again assayed by the modified Scoville method on Nov. 12, 1913, with the results as shown in the following table.

	April 12, 1912	Nov. 12, 1913
0.02 grain	0.0150 gr.	0.0149 gr.
0.01 grain	0.0061 gr.	0.0057 gr.

These tablets while they were deficient in nitroglycerin when made show practically no loss during a period of 19 months.

A 10 percent solution of nitroglycerin (strength was not confirmed by analysis) was mixed with sugar of milk to give a nitroglycerin content of 5 percent. This mixture upon analysis was found to contain 4.13 percent of nitroglycerin. A quantity of hypodermic tablets was made up from this mixture using the theoretical amount based upon the above analysis to give a tablet assaying 0.01 grain. The tablets upon assaying were found to contain 0.0102 grain nitroglycerin. These tablets were hand made while a lot of tablet triturates, which were made from a granulation on a machine using the same quantities as above assayed 0.0093 grain nitroglycerin.

The hypodermic tablets were also assayed by extracting with ether, allowing the ether to evaporate spontaneously and drying in a vacuum desiccator, over sulphuric acid, and found to contain 0.0114 grain residue (nitroglycerin?) which residue when assayed by the modified Scoville method yielded 0.0095 grain per tablet.

A lot of 0.02 grain tablet triturates made in 1907 were assayed in October, 1907, by the ether extraction method and appeared to be of full strength, but as shown above, this method gives too high results, and the saponification method proposed some years ago gives still higher results.

Two bottles each containing about 100 of these 0.02 grain tablets, were set aside in a closet, one of the bottles being corked and the other having only a piece of muslin over the mouth of the bottle to exclude dust. These tablets were assayed in November, 1913, by the modified Scoville method after having been stored as stated above for six years with the following results.

Tablets in stoppered bottle.....	0.0130 grain
Tablets in unstoppered bottle.....	0.0040 grain

In all probability these tablets would not have assayed, by the modified Scoville method, much over 0.015 grain when made. (Compare assay tablets in first experiment April 12, 1912.)

Conclusions: It is apparent that nitroglycerin will volatilize in the process of making the tablets if the granulation is exposed for any length of time, but after compressing the tablets and storing in ordinary corked bottles very little deterioration takes place.

The tablets will lose in strength if exposed in unstoppered bottles, therefore containers that are not air tight such as card board boxes should not be used.

¹Bernegau, Am. J. Pharm., 1907, 79, 555.

²Dohme, D. A., Apoth. Ztz., N. Y., 1907, 28, 133.

³Gane & Webster, Drug Topics, 1908, 23, 197.

⁴Edmunds and Roth, J. Am. M. Ass., 1908, 51, 2131.

⁵Dohme, Proc. M. Ph. A., 1909, 104.

All the foregoing references through Digest of Comments on the U. S. P. Hyg. Lab., Wash.

⁶Vanderkleed, Am. Drug., July, 1913, 240.

⁷Am. Drug., May, 1913, 148.

⁸Scoville, Am. J. Ph., 1911, 83, 359.

⁹Murray, Proc. A. O. A. C., 1911, 248.

THE POSSIBILITY OF INCREASING THE ALKALOIDAL CONTENT OF BELLADONNA PLANTS THROUGH SELECTION.*

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For a good many years importers and jobbers of drugs have experienced difficulty in supplying certain drugs of the required strength. Even previous to 1900, the belladonna and stramonium which could be secured was alleged to be of such inferior quality that it was impossible to furnish sufficient quantities of these drugs of the Pharmacopœia Standard. This difficulty was finally recognized by the revision committee of the eighth decennial revision of the Pharmacopœia, and the required strength of each of these drugs reduced by .05 percent of alkaloids.

Whatever may have been the wisdom of making this reduction in the standards, the fact that it was made first called serious attention to the apparently growing inferiority of some of the important official vegetable drugs, a situation which was viewed with considerable alarm, for if any further deterioration should take place in the future, as seemed very likely, it would become necessary in time to still further reduce the standards with the consequence of bringing a lot of inferior material on the market. The rapidly diminishing supply of belladonna from the wild state makes its cultivation in the near future practically a necessity and since cultivation of a naturally wild plant often results in decreasing its strength, it seemed highly desirable that something be done to improve the quality of this plant.

While the Solanaceous group of plants are not by any means the only ones which could be improved to advantage, the Office of Drug Plant Investigations in taking up this problem selected this group on which to begin the study of medicinal plant improvement for several reasons. In belladonna and hyoscyamus the group includes two of probably the most important and most widely used vegetable drugs. Two of the members of this group were largely responsible for the attempt to investigate this question in that the widespread inferiority of the official material they furnished necessitated the lowering of the Pharmacopœia standard, thus calling attention to a question of grave importance. The active principles which they contain being definite chemical compounds which admit of definite quantitative determinations the plants lend themselves well toward studying individuals. Finally, belladonna, being a perennial, can be studied through a number of successive seasons which is a further distinct advantage.

The investigation was started on its present scale in the spring of 1911. The first step was entirely in the direction of studying a large number of individuals to determine the following principal points: (1) Is there a deterioration in the belladonna plant under cultivation, in so far as its medicinal quality is concerned? (2) If such is the case is the deterioration general of the whole plant or is it found only among certain individuals? (3) Does this individual characteristic

*Read before the City of Washington Branch, October 15, 1913.

manifest itself at different stages during the growing season? (4) Is there any relationship between the medicinal value of the plant and its physical appearance or in other words, its vigor, growth, and general thriftiness? (5) Is a high alkaloidal content in an individual plant of perennial occurrence or does it only occur in one season?

The season of 1911 was started with 59 individual plants under observation. Each plant was carefully watched as to growth and appearance with a view towards finding some striking physical characteristic which might later serve as a type. Samples of the leaves were collected at the following stages of growth: First stage, during the early part of May before the flowers appeared; second stage, during the latter part of May when the plants were in full bloom; third stage, about the middle of June when the berries were developing in various stages of maturity; fourth stage, early in September when the berries were mostly ripe; fifth stage, about the middle of October after the plants had made considerable growth of new leaves. Practically the same plan was followed in 1912 with the same list of plants.

The results of the two years' investigation show two interesting facts. Taken as a whole, the plants under cultivation at Arlington for these experiments show a comparatively high alkaloidal content in their leaves. Of the 59 plants in the list, not a single one fell below the present standard of .3 percent in its season average for either year and only one assayed below the old standard of .35 percent. This would seem to show that in this particular location at least, belladonna plants can be grown under cultivation which may be expected to yield a product considerably above the standard required at present.

The other striking fact brought out is the wide range of variation in the alkaloidal content of the individuals. Table I shows the maximum and minimum percentage found at each stage of growth among the 59 plants at Arlington, 10 plants at Madison, Wisconsin, and 19 plants at Bell, Maryland.

TABLE I.

Range of Variation in Percentage of Alkaloids in Leaves.

Stage of Growth	Arlington, Va.				Madison, Wis.				Bell, Md.	
	1911		1912		1911		1912		1911	
	High	Low	High	Low	High	Low	High	Low	High	Low
First	0.852	0.303	0.869	0.404	0.580	0.418	0.500	0.268	0.823	0.329
Second .....	.879	.267	.747	.292	.820	.427	.519	.316	.783	.288
Third .....	.925	.277	.882	.328	.767	.419	.....	.....	.750	.350
Fourth .....	.908	.311	.806	.359	.....	.....	.....	.....	.....	.....
Fifth .....	.733	.200	.678	.296	.....	.....	.....	.....	.....	.....
Season's average.....	.766	.306	.768	.353	.665	.430	.452	.312	.707	.346
Average .....	.841	.277	.792	.339	.708	.423	.490	.298	.766	.339

Alkaloidal Content at Different Periods of Growth.—There being not sufficient time to show on the tables the alkaloidal content of all the plants at all the stages of growth, a few of the typically rich and poor plants have been selected and the complete data shown in Table II.

TABLE II.

Plants with Leaves of Low Alkaloidal Content.

Stage of Growth.	No. 3		No. 23		No. 34		No. 46	
	1911	1912	1911	1912	1911	1912	1911	1912
First .....	.384	....	....	.496	.335	....	.337	.418
Second .....	.375	.393	.348	.366	....	.292	.285	.334
Third .....	.277	.448	.354	.341	.526	.320	.308	.480
Fourth .....	.549	.448	.487	....	.532	....	.588	.483
Fifth .....	.451	....	.425	....	.200	....	.431	.314
Average .....	.407	.429	.403	.401	.414	.406	.390	.406

Plants with Leaves of High Alkaloidal Content.

Stage of Growth	No. 21		No. 29		No. 1W		No. 6W		No. 7W	
	1911	1912	1911	1912	1911	1912	1911	1912	1911	1912
First .....	....	.732	....	.737	.638	.737	.596	.847	.558	.782
Second .....	.535	.719	.655	.647	.835	.642	.879	.747	.831	.666
Third .....	.633	.781	.914	.729	.587	.777	.925	.882	.832	.646
Fourth .....	.669	....	.908	....	.738	....	.711	.804	.727	.694
Fifth .....	.684	....	.547	....	.612	....	.722	.558	.571	.573
Average .....	.630	.744	.756	.704	.682	.719	.766	.768	.704	.672

Alkaloidal Content During Successive Seasons.—It having been fairly well established that the characteristic of a high or low alkaloidal content in certain individuals manifests itself during the entire growing season we come to the question of the perennial consistency of such a characteristic. This is of prime importance for the possibility of improvement by selection depends on it. If it is found that a plant selected for its high content of alkaloids one year is only of ordinary quality the following season, it would seem likely that seasonal influences are mostly responsible for the relative development of alkaloids and that such a property could not be used to advantage as a basis for selection. If, on the other hand, it is found that the high alkaloidal characteristic exists in the same plant through a number of seasons it is logical to assume that the property of forming large quantities of those alkaloids is an inherent characteristic in that particular individual plant in distinction from the others grown under similar conditions.

In Table II in which the analyses of typical plants are shown for two seasons, we find that these plants display the same characteristic throughout both seasons. Numerous other plants can be selected from the list under observation. It would seem that in plants which are conspicuously rich or poor in alkaloids, as numbers 6w and 7w and numbers 3 and 34, the tendency to produce such large or small quantities of alkaloids constitutes a definite characteristic which is manifested by that individual plant throughout its existence in much the same way as certain types of sugar beets produce a conspicuously high or low percent of sugar.

Relation of Physical and Chemical Characteristics.—As previously stated, the plants under investigation were carefully noted as to their physical appearance with a view to finding some relationship between that and the alkaloidal content. Thus far, nothing has been found to indicate that such a relationship exists.

The belladonna plant is almost entirely lacking in any distinctive physical features, any one of which might serve as a distinct type. While the size of each plant, the number of stems it has and its general thriftiness have been noted, nothing has been found which is characteristic of any one individual. It would be a distinct advantage if plants of a desirable alkaloidal content could be identified by means of some distinctive physical feature since that would make the tedious assay process unnecessary in many cases.

Method and Results of Selection.—It having been established that the variation in the alkaloidal content of belladonna plants can possibly be made the basis for the improvement of the plant, the next step in the problem is to apply the methods of selection. The belladonna plant may be propagated by seed or by cuttings. The flowers of the plant are well adapted to insect fertilization and in order to insure close pollination, bagging or screening is necessary. In selecting the plants to be used, types of very good, very poor, and average alkaloid producing individuals were chosen. While the plants of poor alkaloidal content are of no economic significance they were included so as to give more extensive data on the possibility of reproducing in successive generations the characteristics regarding alkaloid production.

In 1911, the attempt to secure close-pollinated seed was not successful. Open pollinated seed from the selected individuals were sown in the greenhouse in January and in April the seedlings were set out in the plat. The plants made a slow but steady growth and on the 23d of July, when the plants were in full bloom, the first picking was made. The number of plants secured from each selected parent varied from six to fifteen. No individual picking was made, but a general representative sample of leaves was secured from all the plants from each selected individual. On August 30th, when the berries were partially ripe, a second picking was secured in the same way. Of the five plants of high alkaloidal content shown in Table II, numbers 21 and 29 died of a root disease before seeds could be secured and number 1w was in such a diseased condition that the seeds which were secured failed to germinate. Numbers 6w and 7w and also numbers 12 and 13, each rich in alkaloids, yielded first generation plants from their seeds. Plants were also secured from the seed of numbers 3, 34 and 19, all plants of low alkaloidal content. Table III shows the results of the assays.

TABLE III.

Percentage of Alkaloids in the Leaves of First Generation Plants Grown from Seed from Selected Individual Plants.

	Percent of Alkaloids, Parent	First Stage	Second Stage	Average
3	Low	.524	.693	.609
34	Low	.479	.518	.498
19	Low	.493	.519	.506
12	High	.650	.882	.766
13	High	.640	.859	.750
7w	High	.617	1.063	.840
6w	High	.805	1.282	1.043

Attention is directed here to the striking superiority of plants 6w and 7w

over the others. Leaves from the second picking of 6w contained a percentage of alkaloids probably never met with previously in belladonna.

During the past summer, these plants have all been picked individually and while only a few of the samples have been assayed, the results so far indicate quite clearly that the individuals from 6w will average much higher than any of the others. This would go further to show that the individual plant 6w which shows to such advantage through 1911 and 1912 and whose first generation reproductions rank highest collectively the first season will serve as a good type to form the basis of further propagations. During 1912, close pollinated seeds were secured from this and several other good types and the plants from these seeds are now making their first year's growth and are being examined and tested individually. The parent plant 6w is now dead, but it is hoped that some of its reproductions will continue to prove equally good if not better. This fall cuttings are being made from the most desirable plants and it is believed that this method will prove the quickest and most productive means of propagation.

Some General Considerations.—The problem under discussion, like most problems in plant breeding and selection, must extend over a good many years. What has been accomplished thus far constitutes practically merely a beginning because we have not yet embarked on any breeding operations, but have only supplied the information and material necessary to make the application of the proposed methods possible. However, while in the actual solution of the problem only a step has been made, the future work will likely entail much less actual labor in that the many analyses which were necessary in the earlier phases of the work can be largely dispensed with and the investigation limited to a few selected plants.

It has no doubt occurred to you that the increase of alkaloids in the plant will in itself alone not relieve the economic situation. From what has been said of the relationship of the size and thriftiness of the plant, there exists the possibility that the plant richest in alkaloids may also prove to be a poor type from an agricultural standpoint. The ideal plant must, therefore, combine chemical and physical excellence in order to constitute the best plant from both the therapeutic and agricultural standpoint.

Much has been said and written regarding the influence of soil and climate on the production of alkaloids and the conclusions reached have varied greatly. In view of the great variation existing in individual plants as shown here, grown under identical conditions as regards soil and climate, it must be plain that little if any importance can be attached to experiments designed to show the influence of these factors until a type of plant can be secured which shows the minimum amount of individual variation. Numerous instances are found in literature where differences in the alkaloidal content of belladonna plants which are claimed to be the results of fertilizers or climatic conditions are considerably less than variations found in the fifty-nine plants here studied. There is no doubt that environmental factors have some influence but the extent of such influences can not be studied under present conditions with any degree of certainty.

This investigation has offered us a splendid opportunity to study the belladonna plant itself. Time will not permit the discussion in any detail of the various points of interest that have been worked out in this connection. Suffice it to

say that we have found a practical way to grow belladonna from seed that eliminates the difficulties of field sowing. The various details regarding the germination of the seed have been worked out. Furthermore, the abundant material on hand made it possible to study thoroughly the distribution of the alkaloids in the various parts of the individual plant; the development of alkaloids in the seedlings and early stages of growth and the relative concentration of alkaloids in the leaves with relation to age and size.

As has already been said, belladonna was chosen for this work for certain reasons. If the problem is finally brought to a successful conclusion its value will lie not so much in what has actually been done with one plant as in the fact that it points the way to the possibility of a broader application of similar methods to our field of medicinal plants.

SENSITIZED VACCINES.*

F. E. STEWART, PH. G., M. D.

Sensitized Vaccines, Sero-Vaccines, or Sero-Bacterins, are suspensions of pathogenic bacteria, living or dead, artificially sensitized by treating them with immune homologous serums, i. e., serums from animals immunized against bacteria of the same kind as those used for producing the Vaccines. By this means the amboceptors contained in the immune serums are made to combine with the bacteria and sensitize them, so when they are injected into the body the complement and phagocytes normally present in the blood of the injected individual immediately combine with and digest them, and the resultant products stimulate the tissue cells to produce antibodies to which the subsequent immunity resulting from the vaccination by the sensitized vaccine is due.

How the Immune Serum is Obtained.—The immune serum for making sensitized vaccines is usually prepared by treating goats intravenously, first, with dead, and later with living cultures of bacteria. Trial bleedings are made at regular intervals, and the serum is tested for amboceptors and other specific antibodies. When the serum shows a sufficiently high titre, a large quantity of blood is withdrawn for use in preparing the sensitized vaccine.

How Vaccines are Sensitized.—The bacterial cultures to be sensitized are added to a little physiological salt solution, emulsified, turned into a vessel containing the immune serum, allowed to macerate for a few hours, the clear and slightly opalescent liquid separated from the deposit of bacteria, and the latter washed by centrifugalization several times in physiological salt solution until the last traces of serum disappear. The white mass thus obtained is of a pasty, semi-liquid consistency, and after standardization by bacterial count, and the addition of physiological salt solution in proper amounts, produces an entirely homogeneous emulsion which constitutes the sensitized vaccine.

*Read before the Seaboard Medical Association, Norfolk, Va., December 9, 1913.

How Sensitized Vaccines Were Introduced to Science.—Sensitized Vaccines were introduced to science in 1902 by Besredka, a scientist connected with the Pasteur Institute, and have gradually and progressively attracted as knowledge concerning them has been developed by Besredka and his associates. Among the latter are Garbat and Meyer, Gordon, Broughton-Alcock, Boinet, Cruveilhier, Bertrand and Feigan, and other investigators. The researches have been carried on at the Pasteur Institute and l'Hotel Dieu, Paris, also at St. Bartholomew's Hospital, London, and other well-known institutions. One of the sensitized vaccines, that is used for immunizing against bubonic plague, is prepared from killed sensitized plague bacilli, and is now official in the French Codex.

What is Meant by Sensitization.—Normal blood serum, owing to the alexin or complement it contains, and the small amount of natural amboceptor present in the blood, possesses in some degree the power of digesting bacteria and other protein substances. This power is enormously increased during the process of parenteral digestion. This is due to the stimulating effect upon the tissue cells of the protein introduced. For, if a protein is introduced into the tissues, the tissue cells are stimulated to produce a specific amboceptor, the function of which is to sensitize the protein and thus prepare it for digestion. This digestion is accomplished by the joint action of amboceptor and complement. (Vaughan says that all digestive enzymes are composed of amboceptor and complement.)

But the complement cannot act upon the protein until the latter is first sensitized by the amboceptor. Amboceptors are *specific*, and the kind of amboceptor produced by the tissue cells depends upon the kind of *antigen* (protein) used to produce it. The digestion is called *lysis*. Hence we have bacteriolysis produced by the joint action of specific bacteriolytic amboceptor and complement upon the kind of bacteria injected into the tissues.

When unsensitized killed bacteria (bacterin) are injected into the tissues, all of this complicated process of parenteral digestion must be carried on by the body cells to produce the specific amboceptor and other antibodies to which the value of the bacteria as an immunizer is due. In preparing sensitized vaccine, the bacteria are artificially sensitized by the amboceptor in the specific (homologous) serum before injection, and thus prepared for the immediate action of the complement already present in the blood of the individual injected.

For What Sensitized Vaccines are Used.—Sensitized vaccines are used against typhoid fever, rabies, plague, cholera, and other infectious diseases, and are also employed in their treatment. Several thousand people have been immunized by their use, and they have also been quite extensively employed as therapeutic agents by many competent observers. Further researches are necessary to determine their merits in comparison with bacterial vaccines prepared by the Wright method, also to ascertain the comparative value of sensitized vaccines prepared by sensitizing living cultures and cultures killed by heat.

How Sensitized Vaccines Act: Garbat and Meyer's Explanation.—In explaining the action of sensitized vaccines, Besredka refers to the researches of Garbat and Meyer. These investigators claim that bacteria are typical cells consisting of an external protoplasmic envelope and an internal nuclear portion. When they are disrupted by the action of amboceptor and complement, the outer portion is

digested and the inner portion set free. Both portions are toxic; both give rise to individual immunizing substances by stimulating the tissue cells to produce them.

Vaughan's Explanation.—As the explanation of Garbat and Meyer resembles in some particulars the teachings of Vaughan and his associates, I wrote to Professor Vaughan in regard to sensitized vaccines, and asked further information on the subject from his view-point. His reply proved very interesting to myself and friends, and became the subject of considerable debate. Thinking that you might be interested in Professor Vaughan's letter and also in the debate following its reading, I am now presenting both to you for consideration. My paper also contains valuable information taken from the papers of Besredka and his followers, and pertaining to the subject before us:

ANN ARBOR, MICH., November 8, 1913.

DEAR DR. STEWART—It seems to me that the action of sensitized bacteria compared with unsensitized bacteria is best explained by my theory. Probably it will be best to first state my theory and then see how it applies to sensitized bacteria. A protein sensitizer or anaphylactogen (called by others antigen) is a protein substance which when injected into animals causes certain body cells to produce a specific proteolytic ferment. This specific ferment digests and destroys its homologous sensitizer or the protein which has caused its development. This ferment, like all other ferments, consists of amboceptor and complement. Now let us apply this to sensitized bacteria. Bacteria, typhoid bacteria for instance, are sensitized by submitting them in vitro to immune serum. These bacteria thus are saturated with their specific amboceptors and when such sensitized bacteria are injected into an animal they are already fitted for complete digestion. In the animal the complement acts upon the prepared bacteria and their digestion is complete. So complete is their digestion that a large part of their poisonous constituents is destroyed and the animal is immunized by the non-poisonous constituent of the sensitized bacteria. For this reason the animal treated with sensitized typhoid bacteria shows little disturbance, while on the other hand, the animal treated with unsensitized bacteria must elaborate both amboceptor and complement. This takes time, the period is longer, the digestion is less complete, more of the poison is set free, less of the poison is destroyed in the process of digestion, and consequently the life of the animal is placed in greater jeopardy. Garbat and Meyer believe that immunization is secured only by the poisonous constituent, or constituents of the typhoid bacillus. According to my theory, the poisonous constituent of the typhoid bacillus has nothing to do with the production of immunity or sensitization. Sensitization and immunity are induced by the non-poisonous part of the typhoid bacillus. Subjecting the typhoid bacillus in vitro to immune sera, in other words, sensitizing the bacteria in vitro, prepares the bacteria for digestion, and when introduced into the body they are digested speedily and completely, or so nearly completely that a large part of the poisonous part of the bacterial molecule is destroyed. It seems to me that if the article by Garbat and Meyer is read with my theory in view, it is confirmatory of that theory. It has been shown by Friedberger, myself, and others, that very small amounts of the protein poison produce an elevation in temperature. Large amounts produce a depression in temperature. Sensitizing with immune serum in vitro prepares these bacteria for ready and complete digestion as soon as they are introduced into the animal body. Therefore, there is less disturbance in the animal body when sensitized bacteria are introduced than when unsensitized bacteria are given. This is the way I look at it.

I don't know whether I have made myself clear on this point or not. I know that I have been able to sensitize animals with the non-poisonous part of typhoid bacteria. This non-poisonous part which I have obtained has been secured by a crude method. The non-poisonous part which is split off by sensitizing bacteria with immune serum is a much more efficient preparation than mine. The point that I insist upon is that the sensitizing group in the protein molecule, and this of course means the immunizing group, is not the poisonous group, but is found among the non-poisonous groups. The poisonous group in all proteins is much the same, physiologically the same, chemically there must be fine differences, while the sensitizing group is not the same in any two kinds of proteins; hence its specificity.

I may be cranky on this subject. I think that the nomenclature of Ehrlich has been wrongly applied to sensitization and to bacterial immunity. The protein poison is not a toxin; it is a poison. It produces no antibody.

Yours,
V. C. VAUGHAN.

Parenteral Digestion in Relation to Infection and Immunity and the Action of Vaccines.—This letter of Vaughan becomes far more interesting after reading

his most instructive book entitled "Protein Split Products in Relation to Immunity and Disease."¹

In his book he explains how the tissue cells of the animal body have the power of digesting and producing enzymes for so doing. Digestion carried on outside of the alimentary canal by the tissue cells is called by Vaughan "Parenteral Digestion."

The questions arise why bacteria, many kinds of which live as commensals (at the same table) on the skin and mucous membranes of the body, feeding as saprophytes on dead matter, including worn-out epithelial cells, excrementitious matter, particles of food, etc., do not attack the living tissues and become parasites? And, in case they do become parasites, and obtain their sustenance by preying upon the tissues, how does the body get rid of them?

Vaughan attempts to answer these questions in his way, Metchnikoff has another way of answering them, Ehrlich another, Wright another, Besredka another, and so on. Each of these views resembles each other in many respects, and diverge in others. They cannot all be harmonized and I shall not attempt in this debate to harmonize them. But there are certain points which need connecting to make the subject before us intelligible to those who have been following Wright in his theories of infection and immunity, and employing Wright's bacterial vaccines in their practice. Besredka's sensitized vaccines appear to be a marked improvement upon Wright's products, and it is an important matter for us to decide whether they are or not. Let us therefore consider the theories underlying the subject, hoping to get a clear idea of Besredka's claims and the investigations upon which they are founded.

In answer to the questions, why do not the bacteria living with us as commensals become parasites, and when they do become parasites, how does the body get rid of them, all authorities agree in the following answers: The tissues of the body possess natural resistance to the action of enzymes, including the action of the enzymes secreted by the bacterial cell. This resistance, when especially marked, is called *immunity*. When bacteria succeed in overcoming this resistance, and invade the body as parasites, the tissue cells secrete specific enzymes which digest and destroy them.

According to Vaughan, infectious diseases are groups of symptoms caused by the parenteral digestion of bacteria, especially by the splitting up of the bacterial protein. This, Vaughan teaches, is split into several portions, viz., a primary chemical group, or archon (keystone), with which are connected secondary or even tertiary groups. When the protein molecule is split up by disrupting agents, including digestive ferments, the archon is set free to a greater or less extent. This archon is poison. Its poisonous character is due to its great affinity for the secondary groups. When the secondary groups are digested the archon aids the digestive enzymes in breaking down fresh protein molecules, and the digestion proceeds onward. The primary, or poison group causes the toxic symptoms of the infectious diseases. The non-poisonous or secondary group stimulates the

¹"Protein Split Products in Relation to Immunity and Disease," by Victor C. Vaughan, M. D., LL.D., published by Lea and Febiger, Philadelphia and New York, 1913.

tissue cells to produce a special and specific proteolytic ferment or enzyme which has the power of rapidly digesting and destroying the homologous protein. Immunity to another attack of the disease is due to the rapid digestion of the invading bacteria upon subsequent exposure. The bacteria are thus destroyed before they have an opportunity to multiply.

Vaccines are prepared by attenuating by various means the disease-producing bacteria so that they are unable to cause infection, yet the bacterial protein still retains the power to produce the specific proteolytic ferment upon which immunity depends,—that is, according to the hypothesis of Vaughan. When a vaccine is used in the treatment of an infectious disease, this proteolytic ferment is produced in excess of the quantity required to digest the vaccine itself, and the excess is employed in digesting and destroying the invading pathogenic bacteria.

Various Teachings Compared with the Teachings of Vaughan.—We are taught by Metchnikoff that invading disease germs are destroyed by the white blood corpuscles or leucocytes, called by him phagocytes or “cell eaters” because they ingest and digest the bacterial cells. This does not conflict with that of Vaughan, for the phagocytes undoubtedly depend upon the ferments they contain for their proteolytic function.

How about the teachings of Ehrlich and his associates? They say that the destruction of invading bacteria is accomplished by the action of amboceptor and complement upon them, and that the value of bacterial vaccines lies in the fact that their injection into healthy tissues stimulates the tissue cells to produce a large excess of amboceptor which sensitizes the invading bacteria and thus prepares them for the destructive action of complement. *How does this view agree with that of Vaughan?* It is immediately apparent that the only difference is essentially one of terminology.

How do Vaughan's teachings agree with those of Wright, who says that the invading bacteria are destroyed by phagocytes only after they have first been prepared for ingestion by opsonins? It is evident that the opsonic properties of the serum are merely a manifestation of the action of the specific proteolytic ferment.

How does the explanation of the action of sensitized vaccine given by Garbat and Meyer and endorsed by Besredka, harmonize with that of Vaughan? This question is answered by Vaughan himself as follows: “Garbat and Meyer believe that immunization is secured only by the poisonous constituent, or constituents of the typhoid bacillus. According to my theory, the poisonous constituent of the typhoid bacillus has nothing to do with the production of immunity or sensitization. Sensitization and immunity are induced by the non-poisonous part of the typhoid bacillus.”

The Relative Value of Living and Killed Sensitized Bacteria for Immunization.—In Besredka's earlier experiments killed bacteria were used. Further investigations, first on animals and then on man, demonstrated the harmlessness of certain sensitized living bacteria, and in anti-typhoid immunization the sensitized living bacteria are now preferred by Besredka and his followers.

Why are living bacteria preferred? It is generally conceded by authorities that immunity obtained by living viruses is more substantial than that resulting from

the use of killed virus. However, up to April, 1913, Broughton-Alcock has "seen no advantage of the living sensitized gonococci over those allowed to die."² Is there no danger of carrying contagion with living sensitized pathogenic bacteria? Besredka claims that there is no more danger of carrying contagion from living sensitized bacteria than there is from living smallpox vaccine, and that there is no danger from either.

Are sensitized bacterins prepared from killed cultures superior to unsensitized killed bacterins? Yes, according to Besredka, "Whatever be the nature of the virus, whether it be a question of bacteria of pest, of dysentery, of cholera, or of typhoid fever, whether it be a question of rabies virus, of diphtheria toxin, whether the bacteria are killed or living, sensitization confers upon them new properties which make them vaccines of the first order, and which are characterized by an action, sure, rapid, harmless, and durable."

How do unsensitized living bacteria compare with unsensitized killed bacteria for the production of immunity against typhoid fever? Results obtained by Besredka and Metchnikoff in the immunization of chimpanzees against typhoid fever demonstrates that sensitized living germs gave absolute protection, causing but slight fever and reaction, while killed bacilla failed to protect adequately.

Is there no danger of acute infection from such procedure? Apparently the method is harmless, as Besredka reports that about ten thousand persons, men, women, and children, have been vaccinated without a single mishap of any kind.

Is there no danger that in some persons the injection of living bacilli might lead to the development of a carrier state? No cases of the kind have been reported in relation to the ten thousand persons immunized. Seven hundred of these cases were tested, and no typhoid bacilli found either in the feces or urine.

How do Besredka's results with living sensitized cultures compare with those obtained by the armies of the United States and of foreign countries with killed cultures? The results obtained by immunization with killed typhoid cultures in the armies of the world abundantly demonstrate that adequate protection against typhoid fever is obtained in this manner. However, according to Besredka's general verdict concerning the improvement in the vaccine produced by sensitization itself, killed sensitized vaccines are superior to killed unsensitized vaccines in all cases.

Sensitized vs. Unsensitized Bacterins. Is there anything to be gained by using sensitized killed bacteria for immunization? According to the statement by Besredka above quoted, there are many advantages to be gained by sensitizing the killed bacteria before injecting them for protective purposes.

What are the advantages? Freedom from the negative phase, freedom from local soreness and freedom from marked systemic reactions, and more rapidly acquired immunity.

What is meant by more rapidly acquired immunity? Experiments in the British army demonstrated that antibody formation following a dose of unsensitized killed bacteria administered for the prevention of typhoid fever, requires several days, and does not reach its maximum until the ninth or tenth day. Experiments

²"Vaccination for Various Infections with Living Micro-organisms," by W. Broughton-Alcock, *Lancet*, London, April 26, 1913.

by Besredka and his followers demonstrated that the maximum immunity following an injection of sensitized bacteria is reached in from twenty-four to forty-eight hours.

Dosage. What doses should be employed, and at what intervals should they be given, when killed sensitized bacteria are used for prophylaxis against typhoid fever? Want of experimental data on this subject makes of this a hypothetical question, requiring an answer of similar character. In the first place, if we accept Besredka's general verdict to the effect that sensitization confers upon bacterial vaccines certain properties which markedly increase their efficacy, whether prepared from living or killed cultures, we must apply the verdict to killed sensitized typhoid bacilli. Secondly, the doses successfully employed by Besredka's associates in treating typhoid fever are very much larger than the doses recommended by Wright and his followers for therapeutic use, when killed cultures are employed. Broughton-Alcock's impression from experience is that great value lies in large doses. He begins with 500 to 3000 million killed gonococci, and has also found it to be a safe and beneficial procedure to commence with 20 million killed staphylococci and 200 million killed gonococci.

What dosage should be employed in the treatment of infectious diseases? Gordon reported excellent results from the use of killed sensitized streptobacterin in a series of cases treated at St. Bartholomew's Hospital. He employed the "intensive" method, which consists of giving rapidly increasing doses at brief intervals. The dosage in the four following cases illustrates his method:

In Case 1—(A girl suffering from erysipelas) he administered 100 million sensitized streptococcus vaccine as the initial dose, 24 hours later 500 million, and on the following morning 1000 million. Three days later the child was quite well.

In Case 2—(A nurse with cellulitis of the scalp and cervical adenitis), the patient was given an initial dose of 100 million, the following day 500 million, and 24 hours later 1000 million. Two days later the erysipelas subsided, the temperature fell, and convalescence ensued.

In Case 3—(A patient suffering with an acute attack of erysipelas of the forehead and cheeks), three successive doses of 100, 500 and 1000 million sensitized streptococcic vaccine were given at 24-hour intervals, followed by a prompt cure.

In Case 4—(A patient who suffered from a compound fracture of the lower end of the left humerus which had suppurated, and cultures from which showed streptococcus pyogenes), a single dose of 100 million (this may be a typographical error; possibly 1000 million is meant) sensitized streptococcus vaccine was given. The local condition improved and the pyrexia subsided.

The dosage employed by Boinet in treating typhoid fever illustrates another system of dosage. He says: "The best results follow the use of doses of 2 cc., repeated daily during four consecutive days, if the disease is grave, but three consecutive days if the disease is mild." He used the living sensitized germs.

In reporting cases, other observers, while careful to state intervals, neglect to inform us as to the size of the doses. Broughton-Alcock reports cases of gonorrhea, acne, sycosis, furunculosis, impetigo, and seborrheic eczema, treated with appropriate sensitized living bacteria. In cases of acute and chronic gonorrhea without complications, the serobacterin was apparently without benefit. In cases of orchitis, epididymitis, and in gonorrheal arthritis and peri-arthritis, good results were invariably secured. In every case following the second injection, and in many cases following the first injection, the pain ceased and the swelling was notably diminished. The arthritis and peri-arthritis were arrested. To avoid

relapse, the injections were repeated. It is important to know the size of doses and intervals to give these reports proper educational value.

Summary of Besredka's Claims in Regard to Sensitized Bacterins.—The most striking characteristics of sensitized vaccines are:

1. They produce but slight local reaction (inflammation at site of injection),
2. They cause no general reaction (malaise, increased temperature, etc.),
3. They may be given in much larger doses and much more frequently than the unsensitized bacterins (every 24 hours),
4. The immunizing effect is almost immediate (manifesting itself within from 24 to 48 hours),
5. They sometimes give successful results in very late stages of a disease, when no response is secured from the ordinary bacterins, and even serum treatment is ineffective."³

According to Besredka, "whatever be the nature of the virus, whether it be a question of bacteria, of pest, of dysentery, of cholera, or of typhoid fever, whether it be a question of rabies virus, or diphtheria toxin, whether the bacteria are *killed* or *living*, sensitization confers upon them new properties which make of them vaccines of the first order, and which are summed up in an action *sure, rapid, harmless* and *durable*."

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WHAT SOME PHARMACISTS ARE FIT FOR.

F. A. BONGARTZ, MEMBER NEW JERSEY BOARD OF PHARMACY.

Since I have had to rate about one hundred and sixty papers of our last and my first State Board examination, and in view of the low standard of same, I think it would be well to enact a law disbaring about 33 1-3 percent of pharmacists from selling anything but shoe strings and postage stamps.

We should raise the standard, then protect the standard and give the public the benefit of the raise.—*N. A. R. D. Journal*.

³*Bull. de L'Inst. Past.*, Tome VIII, 1910, 30 Mars, 6 PP. 241-253.

Papers Presented to Local Branches

THE CULTIVATION OF MEDICINAL PLANTS IN AMERICA.*

HENRY KRAEMER, PH. D., PHILADELPHIA.

The object of this article is to direct attention to the work which is being done in the cultivation of medicinal plants in the United States and the progress that has been made during the past few years in both the scientific and practical development of this phase of pharmacognosy. The aims of pharmacognosy are not only to prove the identity and to determine the quality of drugs, but to study the conditions that make for their uniformity and to ascertain the manner in which this uniformity may be maintained. Under existing conditions our studies must naturally begin with the crude dried drugs of commerce. Indeed, the latter are the official articles and the materials from which both isolated principles as well as the preparations containing them usually are made. Time and time again, however, in our studies of these crude substances our inquiries are directed back to the living plant for the solution of the questions in dispute.

Experience has shown that true scientific progress is only possible when we base our pharmacopoeial and other standard work on material which has been derived from growing plants under direct observation. The more we study the growing plant the more we come to the conclusion that our work, in the first place, should begin here, for at this point we have the answer in most cases to every unsolved query and the verification or check on the conclusions drawn from the facts obtained in the study of the crude materials. So that we may say, given the identification of the plant, the locality of its growth, the date of the collection of the drug, and method of its preparation for commerce, we have the principal factors we require for all basic work. With this information we should know much more about the quality of the drug and what the finished preparation would be than if the drug was collected at random at any time of the year and mixed with old and inferior lots or even good and superior grades. It is not too much to expect that eventually every bale of drug will have a label supplying this information and each lot will be kept separate, and if admixture is attempted this will be left to the judgment of the manufacturer and not to that of dealer or jobber.

The pharmacognocist being somewhat familiar with the origin, formation, distribution, and transportation of various plant principles, and it being well known by actual experiments that the amount and character of these substances is influenced by external factors such as climate and soil and possibly even meteorological conditions, is in a position to indicate at least a possible if not adequate explanation for the discrepancies in analytical work and what should be done to

*Read before the New York Branch, Dec., 1913.

establish a nearly uniform article. Furthermore, he is also familiar, by virtue of histological investigations, with the nature of the tissues and constituents as they occur in the recently dried drug gathered under ideal conditions, and the very great changes incident to the length of time of keeping, varying conditions of storing, etc., whereby interactions and changes among the substances themselves are brought about. Under existing conditions he who works on the finished product is at a very great disadvantage, whether he is the physician who prescribes the articles or the manufacturer who guarantees this product. In other words, there are changes in constituents in the plant due to conditions which affect its physiological activity and also changes in the drug which affect its medicinal constituents. So that the problem of obtaining a reliable drug is a very complex one. It is out of the question to begin our scientific studies with the crude materials of commerce concerning the origin of which and of whose marketing conditions we have no knowledge. It seems to me that there is but one point from which we can proceed with any degree of satisfaction, if we are to have drugs and preparations the guarantee of which may be assured, and that is that we must have the growing plants under competent supervision and scientific control.

When our forests and woods were full of wild plants and drugs they could be easily collected, there was hardly an incentive to consider the farming of medicinal plants. Now that they are becoming scarcer, the need is especially apparent. But our interest in the cultivation of medicinal plants is not primarily because there is a growing scarcity of the sources of supply, but our increased knowledge of crude drugs leads to the conclusion that, if manufacturing pharmacy is to develop to the same degree as the other branches of industry, it requires that rational methods be introduced if we are to attain the goal which the physician must expect of us. Of course, this requires research and investigation and an honest and sincere cooperation on the part of both pharmacists and the medical profession. The work of the physician is distinguished from that of the pharmacist in that he is dealing with a number of variables. His own diagnosis is not always uniform, his patient reacts more or less variously toward different medicines, and no two patients respond alike toward the same medicine. What definiteness can there be in any of his work, therefore, if in addition the preparation is of varying quality and of different strength whenever it is employed? The one constant in the equation must be the uniform quality of the drug, and this we must endeavor to supply as well as the physician should expect of us.

Without considering what is immediately practicable it is a safe rule, I think, to work from what is theoretically an ideal condition. We see that the theory of today is the practice of tomorrow and that upon the ideal of yesterday the success of the future is based. The tendency of the times is for men to become more thorough in their work at least in some special phase. One of the results of this specialization has been research. Investigations have given us a more complete knowledge and as a result of this we are very apt to be conservative regarding the things we know. Anyone who is a sincere student of drugs, and whether in research or in practical life is working out any problems, must come to the conclusion, sooner or later, that we are handling entirely too many drugs to have any very definite information regarding any of them and this does not apply only to the drugs of limited use but to those which have become the main-

stay of physicians. This, for instance, is seen even in such a widely known drug as digitalis, the investigation of which during the past few years has shown that even in the old world the pharmacopoeial standards are based upon nothing but tradition. Fortunately there is a tendency upon the part of some manufacturers, to concentrate their efforts upon a relatively few drugs and study them in relation to the growing plant throughout different periods of the season. These studies are of very great importance as they will enable the manufacturer to secure uniform preparations and it is very doubtful if this uniformity can be obtained under any other conditions. Should these experiments prove to be as successful as we believe they will be it opens up a future of very great possibilities. The effect of this on manufacturing pharmacy would indeed be most vital. It will establish a new era in this work. Instead of there being a few large firms each handling a thousand or more preparations, of which they can not have any very satisfactory knowledge, there will be a thousand manufacturers, depending of course upon initiative and enterprise, each of whom will make preparations of a limited number of drugs to which he gives a reasonable guarantee and the physician will have the satisfaction of knowing the capabilities of any drug which he chooses to employ.

The condition at the present time that prevails in the United States as well as in other countries on this question of bringing medicinal plants under cultivation reminds me very much of the condition in which aerial navigation was some twenty years ago. I happened at that time to be interested in this question and I found that there were several thousand people who were either on paper or practically engaged in experiments on this subject. No one could dream at that time that aviation would be established on a practicable basis as it is. So we find on the subject of the cultivation of medicinal plants that there are many thousand of inquiries regarding the possibilities of this subject, I myself having received not less than two hundred letters during the past four or five years on this question. These inquiries come from both pharmacists and persons who for one reason or another would like to get back to the country and have some definite work to do. Most of these inquiries are very difficult to answer satisfactorily. For instance, a very common inquiry is this: "I have forty acres, partly woodland and partly open country and would like to use it for the growing of medicinal plants. Kindly let me know what plants to grow." Another will say: "I am very much interested in the possibilities of growing medicinal plants. Kindly give me the names of such plants as you think I can profitably grow, and also tell me how to grow them." Others will ask specific questions such as, "Can ipecac be grown in one of our large northern cities?" Others again will write for the names of books on the subject of cultivating medicinal plants. Some few people ask for seeds or plants and seem to feel that you are honored by their requests for supplies. Many of these requests are from persons who have never had any practical experience in growing plants. They may have had some interest in keeping up a garden but their ideas on this subject are that all that is necessary is to give them some particular direction and they will have no trouble to work it out. Nearly all of these inquiries come from persons who know nothing about the commerce of drugs and have no idea of the problems connected with the disposition, drying, curing, and marketing of them. They pos-

sibly have been thrilled by that wonderful story of "The Harvester," or have read the alluring advertisements of "nuggets of gold," in golden seal. Now it happens that as there is no royal road to learning so there is no hewn path which leads to success in the growing of medicinal plants. It is true that some experiments have been conducted and we have some little general information as to how to proceed with the work, but at the best it is in a primitive stage requiring active intelligent pioneers to bring the subject upon a practical basis. It may be pointed out, however, at the outset that no one can grow medicinal plants without having some training and special education in growing plants. Again, unless one knows a good deal about practical conditions in the drug trade, that is in regard to the drug market and prices paid for drugs, even though one does succeed in making a good crop he may not be able to dispose of it. It would seem that a practical pharmacist would succeed best, even though he lacked a practical knowledge of growing plants. For while he may lack a knowledge of agricultural requirements yet by virtue of the fact that there are so many agricultural experiment stations and colleges where this practical information may be obtained, both through correspondence courses and through special practical courses, frequently given during the holiday periods, this deficiency may be made up. On the other hand, the inside information which gradually must amount to intuition regarding the crude drugs of the market can only come after a rather long practical experience. Of course there will be exceptions in this latter case, as the first successful marketing of oil of peppermint in this country was through the common sense of a Mr. Hotchkiss, the keeper of a country store in the village of Phelps, Ontario County, New York.

As has already been stated it is rather difficult to lay down any rule which one can follow invariably on this subject. In fact, very little work has been done to enable us to draw other than very broad conclusions. The first thing that one naturally would consider is locality. We would, of course, not expect to grow tropical plants in a temperate zone, nor mountainous plants at the seaside, although even here there are exceptions and nothing but experiment can reveal them. Then again, there are plants which only grow in the rich soil of the woods, others will grow in the open and on gravelly banks, where the soil is rather barren. In addition there are plants, such as belladonna and cannabis and sativa which grow only on certain kinds of soil, which do not seem to have been successfully cultivated except in a calcareous soil. This may explain why many attempts to cultivate those plants in certain localities in the United States have not been successful.

It is very important in beginning this work in a new locality for one to make a rather careful survey of the plants that are growing wild or have become naturalized. Within certain limits it would be safe to say that if there are a number of genera of any family well represented, and that if the plant which one desires to experiment with has something of the habits of the species represented, there is a probability that it may be grown successfully. Even this can sometimes be ascertained by the nature of the plants that have been brought under cultivation. For instance, digitalis might be grown very successfully in the vicinity of Philadelphia as there are a number of private grounds in which it has become naturalized. By a priori reasoning, if one wished to go into the

cultivation of licorice, the ideal location for growing the plant would be in the west and northwest where the wild licorice, *Glycyrrhiza lepidota*, is indigenous.

It is necessary to study the best ways of propagating the plant one wishes to grow. Sometimes this is by means of seeds, as in the case of belladonna and digitalis; at other times it is by propagation of rhizomes, as hydrastis and glycyrrhiza; or again by rootstocks or prostrate stems as in the mints. Sometimes both seeds and cuttings may be used as in the case of hydrastis.

Plants Grown from Seeds.—Most plants can be grown from seed, and Mitlacher (in Zeitsch. f. a. landw. Versuchswesen in Oesterreich) has given the results obtained with rhubarb, valerian, poppy, matricaria, lavender, hyoscyamus, gentian, pyrethrum, althaea, aconite, etc. When plants are grown from seeds, especially if in a temperate climate where the growing season is rather short, it is necessary to begin the germination of the seed early in the spring. This must be done then in the house or under conditions where there is some protection. These seeds may be sown either in small boxes or in seed pans, i. e. shallow, square flower pots, in which the soil is quite sandy or made up largely of broken granitic rock. The soil must be clean and free from organic matter which is likely to mould. The seeds should not be planted too deep and should be covered with glass so as to condense or hold moisture. Of course where there is the necessary attention as far as keeping the earth moist is concerned, this can be dispensed with. The time required in germination will vary considerably. Many seeds will germinate well within two weeks; usually probably four or five weeks is necessary. Occasionally some seeds, as with roses, may require a year or two before they germinate. The present tendency is to shorten the period of germination in several ways. The simplest, possibly, is to place the seeds in water for 24 hours. When the seed coat is somewhat resistant germination may be hastened by pouring boiling water upon them. Again, some special treatment may be given them as the use of dilute or even concentrated mineral acids. In the cultivation of maté for many years it was found that the seeds would not germinate unless they had previously passed through the alimentary tract of certain birds. Later it was found that the same end could be obtained by placing the seeds for a short time in solutions of hydrochloric acid. F. A. Miller reports that he has obtained good results in the case of belladonna by first placing the seeds for thirty or forty seconds in concentrated sulphuric acid. The germination of seeds may also be hastened by certain mechanical means. This is used when the seed coat is particularly thick and not easily penetrated by the moisture, when if they are large they are filed in one or two places. If they are small they may be shaken with sharp angular sand until the exterior is somewhat roughened.

After the seedlings have a few leaves upon them they are then set out in suitable boxes known as "flats." These are about three inches deep and about two feet square and the soil used should be of a sandy character, containing a certain amount of nutriment. The plants must be watched at this point to see that there is not damping off and loss by reason of the attacks of micro-organisms in the soil.

Should there be a damping off and loss of seedlings then one must study methods for overcoming this. Recently the Department of Agriculture (Carl Hartley, Proc. Society of American Foresters, March, 1912, pp. 96-99.) has

utilized dilute sulphuric acid for this purpose and which I have shown (Proc. American Philosophical Society, April, 1906, pp. 157-163.) is the active principle produced whenever sulphur is used in the greenhouse, and that it is one of the most effective agents for the destruction of insect pests as well as the blights due to fungi and other micro-organisms.

The seedlings are allowed to grow in the "flats," until they have developed a good root system and have three or four leaves. Before placing them directly in the soil out of doors they are acclimated or hardened by placing them in cold frames. This transference should be done not later than the early part of May. The structure and use of the cold frame is perfectly familiar to the practical gardener. Information regarding the construction of this accessory to the garden can be had of any of the seedsmen. In fact, in many instances, they publish small booklets entitled "Vegetables Under Glass," giving information on the tilling of soil during the entire year, and these booklets can be had at a very moderate figure. Sometimes the plants are removed from the flats and placed directly in the soil in cold frames. This may give a temporary setback to the plants as the roots are more or less disturbed by the operation but if one wishes to continue the experiment in the cold frames, later removing the sash, considerable time will be saved.

If the plants are to be transplanted out of doors it is very desirable that this should be done as soon as possible after the last days of the possibility of frost are likely to occur in any given locality. The plants are arranged in rows and set sufficiently far apart so the maximum crop per acre can be obtained. Usually they are so arranged that weeds may be pulled out and the ground worked over.

The above outline may be used for the propagation of most plants by seedlings but they must be carefully cared for if one wishes to get maximum results. Some plants are rather easily grown if care is taken with their culture, as digitalis and belladonna. Other plants, like hyoscyamus, are with some difficulty cultivated, and very few persons, even seedsmen, are uniformly successful in growing aconite. Several good practical papers have been published on the cultivation of digitalis, namely one by Newcomb (American Journal of Pharmacy, Nov., 1911), and another by Borneman (ibid. Dec., 1912.) Some facts regarding the growing of Hydrastis from seed are given in a bulletin of the Bureau of Plant Industry, U. S. Department of Agriculture, by Alice Henkel and G. Fred Klugh. The subject of growing ginseng from seed is also considered in a bulletin of the Division of Botany, U. S. Department of Agriculture, by George V. Nash. At the present time there is considerable interest in the growing of Eucalyptus globulus and other species of Eucalyptus, seeds of which can be obtained from J. M. Thorburn and Company, New York City. A very valuable monograph on "The Eucalyptus cultivated in the United States" was prepared by A. J. McClatchie, and published as Bulletin No. 35 of the Bureau of Forestry, U. S. Department of Agriculture. In addition to these special plants which have been mentioned there are a large number of plants yielding medicinal products which are grown from seeds and require no more care than the usual garden plants. Among these are calendula, Chrysanthemum roseum, Echinacea, and a number of plants grouped under sweet, pot, and medicinal herbs.

Propagation by Cuttings.—This is a common method of propagating plants. A cutting is a severed portion of a stem having one or more nodes or buds. They are derived from over-ground shoots, as in carnation, rose, geranium, and coleus, or, where the plant produces rootstocks or rhizomes, they are made from these rather than from the over-ground shoots. In propagating plants from rhizomes the latter are cut into pieces, each of which has one or two buds, and these pieces are planted. This propagation by means of cuttings or rootstock is extensively carried on in the cultivation of peppermint. A. M. Todd, who has been growing peppermint on a very extensive scale, has given in some detail the method of propagating this plant in an article published in the Proceedings of the A. Ph. A. for 1903, p. 277. A later article on the cultivation of peppermint in the United States is one prepared by Miss Henkel and published as Bulletin No. 90, Bureau of Plant Industry, U. S. Department of Agriculture. Hydrastis is another drug, the plant of which is commanding considerable interest and is being propagated by means of rhizomes. There are three good articles which treat of the practical cultivation of hydrastis, namely, one by John Uri Lloyd in Proceedings of the A. Ph. A., 1905, p. 307¹; another by Alice Henkel and G. Fred Klugh, in Circular No. 6, Bureau of Plant Industry, U. S. Department of Agriculture; and a third by J. C. Baldwin in the American Journal of Pharmacy, April, 1913.

In the case of both ginseng and hydrastis one-year-old plants are frequently supplied by growers, and while taking everything into consideration this is not desirable, yet there may be conditions where, for experimental purposes, they may be used. It should be emphasized that it is not merely a matter of getting rhizomes or young plants but a very careful study should be made of the soil and light conditions which favor the maximum returns from the crop. The use of manure for increasing the yield of both crop as well as constituents should proceed with a good deal of caution until we know more about the subject.

Collecting and Drying of Drugs.—In many of the text-books on Practice of Pharmacy and on Pharmacognosy will be found general statements with regard to the collection and marketing of plant drugs. Some of the large firms also supply collectors general rules that should be followed. In addition, in nearly all of the drug journals will be found, if one goes over the files carefully, a certain amount of information bearing on these questions. When one, however, is farming drug plants, these questions become exceedingly vital for not only do the constituents vary at different times of the season but there is considerable variation in the amount of drug obtained. This information can be obtained only by the collecting of the drug at different times during the season and assaying the material and making preparations from it. For instance, experiments thus far seem to show that belladonna leaves collected in July and August show a higher toxicity than those gathered in September or October. It is quite possible that after the removal of the leaves high in alkaloidal content in July, another crop can be obtained by October. It is important to bear in mind that with some drugs a very slight difference in time of gathering and manner of drying, a great variation of the active constituents may be found, and this applies

¹See also Journ. A. Ph. A., Vol. 1, p. 5.

especially to the composite flowers, as in the case of insect flowers, and *santonica*. It is only when they are in the bud condition that they show the highest amount of active principle. Again, depending upon whether an article is gathered to be put upon the market or whether the active principles are to be isolated as in the manufacture of essential oils, different methods are to be followed, depending upon the nature of the plant and what previous experiments have demonstrated should be advisable. For instance, while in the preparation of oil of peppermint the herb is first dried, yet in other cases the collected material must be previously macerated in order to obtain the largest yield of oil as with those plants yielding volatile oils containing either cyano-benzaldehyde or methyl-salicylate.

Too much attention cannot be given to the entire question of the harvesting of the crop and proper methods of drying, and of course, again, depending upon the locality, different methods will be followed. There are some localities where at certain times it would be quite possible to dry the drugs out of doors. In other situations it would be necessary to dry them in barns and even in specially constructed drying ovens where artificial heat would be employed. Newcomb has constructed a special oven for the drying of *digitalis* leaves (*American Journal of Pharmacy*, May, 1912, p. 207). The drying of leaves, flowers, and seeds is comparatively simple and can usually be rather quickly performed without any special construction. In the case of roots and fleshy fruits the drying should be under special protection and is facilitated more or less by slicing or comminuting the article.

Relative Value of Drugs from Cultivated and Wild Plants.—For some years it has been a question whether the activity of drugs obtained from cultivated plants is equal to that of those derived from wild plants. We find in some of the foreign Pharmacopœias the specific statement that certain drugs as *digitalis*, belladonna leaves, and belladonna root, must be derived from wild plants. This would naturally lead to the inference that wild plants are better and yet it may be that this provision was made with the intention of securing uniformity in drugs rather than because the materials from wild plants are superior. In 1907 Mr. Rippetoe conducted some experiments in Virginia which showed that cultivated plants of belladonna yielded both leaves and roots which were equal if not superior to the average drug on the market. As this work was done without any particular care and in a limited way, it was more than gratifying to those who were especially interested in this subject. These results were published in an article in the *American Journal of Pharmacy* for November, 1907.

Careful comparative experiments on an extensive scale and for a number of years, show, as has been pointed out in a recent paper by Carr (*American Journal of Pharmacy*, December, 1913), that cultivated plants of belladonna contain a little more alkaloid than do the wild plants. "The percentage of alkaloid found in the leaves and stem of dried wild plants was 0.49, while the average of that found in cultivated plants during the eight years from 1906 to 1913 was 0.57. As other investigators have usually recorded about 0.45 in the wild plant it may be assumed that the plant employed was satisfactory. It therefore follows that the effect of cultivation has been beneficial." The investigations of Sievers also point to a similar conclusion. Sievers has also shown that the percent of alkaloids in the leaves of different cultivated plants is exceedingly large, and that plants high

in alkaloids will continue to breed plants high in alkaloids, so that by mere selection a better commercial article may be produced. While Carr states that nitrogenous manures tend to lower the percentage of alkaloids, and Sievers states that it is difficult to determine the influence of soil and climate on the development of alkaloids, Miller reports (*American Journal of Pharmacy*, July, 1913) having grown belladonna plants with commercial acid phosphate and that the yield of alkaloids is as high as 0.9 percent. Miller (*loc. cit.*) has obtained similar results in his comparative experiments with wild and cultivated plants of *Datura stramonium*.

Coming to the question of the cultivation of *digitalis*, we have some very interesting results. Hale, for instance, showed that cultivated *digitalis* leaves yield a much higher potency than those obtained from wild grown plants, and yet he concludes that it is doubtful whether the fact that they were cultivated had anything to do with the high activity. (*Hygienic Laboratory Bulletin* No. 74, p. 28.) One of the most valuable facts brought out in connection with his investigations is that the leaves of one-year-old plants seem to have as great toxicity as those of the two-year-old plants. Hale distinctly states later (*Proceedings A. Ph. A.*, 1910, p. 928), that "first-year leaves are not necessarily weaker than second-year leaves and might be used in preparing assayed *digitalis* preparations." This means that one does not have to wait for two years before securing a crop, and that practically he can obtain twice the quantity during the same period. Although there are published records of experiments which show that when aconite is cultivated it contains less alkaloids, yet Schweizinger (*Pharm. Ztg.*, 1891, p. 608) has demonstrated that cultivated plants are equally and even more toxic than wild plants.

There may be some instances during this experimental stage which might seem to indicate that certain external conditions, such as climate as well as soil, have a very great influence in the growing of plants of exceptional value. For example, in the case of American-grown cannabis, Eckler and Miller have shown that repeated plantings from carefully selected plants of American and Indian cannabis have failed to yield, when in cultivation near Indianapolis, a product testing over 65 percent of the active value of good Indian-grown drug and that the majority of the plants tested 50 percent and even less. Experiments conducted in Somerville, N. C., by the U. S. Department of Agriculture have shown that in that locality a drug of a somewhat higher degree of potency can be grown, although not quite equal to the plant grown in India. Of course it is well known that the hemp plant is grown extensively for fiber in Kentucky and other parts of the middle West. This may be due in large part to the fact that it requires a limestone soil and in practice the most favorable results are obtained where there is an underlying bed of blue limestone. (*Yearbook*, U. S. Department of Agriculture, 1895.) Sufficient has been said to show that success will attend the cultivation of medicinal plants, and indeed by a priori reasoning on the basis of other agricultural efforts we would expect that medicinal plants could be grown with the same certainty of increasing the yields of any particular constituent or quality that might be desired. Indeed, the history of the sugar beet industry has been duplicated in the work on cinchona, and the same thing can be said with regard to any other plant that man desires to conserve and cultivate.

It will require some years before we can say anything definite about the conditions necessary for the successful cultivation of the many plants that have scarcely been known outside of their native haunts. There are no insurmountable obstacles in this work and there are no intricate processes to be solved before success results. There are merely a few underlying principles that must be adhered to and by persistent effort and with a full understanding of market conditions, success must crown the efforts of any one who undertakes this work. What has been done in the selection of fruits and vegetables can be equally well accomplished with drugs with the proper incentive.

Some Steps of Progress in the United States.—We can scarcely appreciate that while the development of medicinal plant culture has been an exceedingly slow one, yet as a matter of fact, by reason of some of the products being more extensively used in other industries as in the case of hops, it is one of the oldest agricultural industries in the United States. The history of the cultivation of hops is very similar to the experiences recorded with other medicinal plants. For instance, hops were grown in Virginia and in Vermont and Massachusetts. In the former the quality was poor and in the latter the results were very successful. By virtue of the success obtained in the New England states it was in the early part of the last century introduced into New York State and later spread into some of the middle states as Michigan, Wisconsin, Indiana, and Ohio. Since that time the cultivation has been extended to some of the states on the Pacific coast, notably in Oregon, Washington, and northern California.

In the cultivation of peppermint we find a similar history. The industry was first developed in Wayne county, New York. Later it spread into Michigan, Ohio, and some of the southern states and by reason of the more favorable climate and soil conditions in Michigan the industry here has outstripped that of even New York State, being practically abandoned in Ohio and the other states.

The men connected with the Division of Botany of the U. S. Department of Agriculture have always manifested a keen interest in the possibilities of the cultivation of medicinal plants and have done what they could to encourage interest in this subject and the records show that they have supplied information as it might be needed by those disposed to take up the work in a practical manner. The development of the tea industry in North Carolina is one of the most creditable pieces of work of the National Government. Bulletin No. 234 of the Bureau of Plant Industry, on the "Cultivation and Manufacture of Tea in the United States," by George F. Mitchell, should serve as an inspiration to any one contemplating drug culture. If a plant of this kind can be grown successfully here and the technique of manufacture developed to such an extent that the cultivation at Pinchurst, North Carolina, has become remunerative, there is no reason but that within reasonable limits nearly every plant except the strictly tropical ones can be successfully grown in the United States.

Without doubt, the camphor industry will become successful in some of the southern states. Nearly fifty years ago when the price of camphor was very high, the government started some experiments in Florida in the growing of camphor. These experiments were subsequently abandoned as there was hardly any likelihood of any one being interested in this commercially, on account of the low price of camphor. During the past few years, however, interest in this

culture has been revived in Florida and southern Georgia by reason of the fact that frosts destroyed the citrus fruits and the land owners began a search for other possible crops which would not be so injured. Circular No. 12, Division of Botany, U. S. Department of Agriculture, shows just what can be done for the successful cultivation of this tree in the southern states, and some recent experiments of the Government show that by utilization of leaves and twigs there are great possibilities in the economical manufacture of camphor in the United States in spite of the high price of labor.

Owing to the fact that essential oils are used in such large quantities it is quite likely that the cultivation of many of these plants may be made successful, providing at the same time that suitable apparatus for their distillation is also installed upon the farms. The article in the Yearbook of the U. S. Department of Agriculture for 1898, by E. S. Steel, on "Can Perfumery Farming Succeed in the United States?" is deserving of careful perusal by those contemplating taking up any serious work in drug culture.

By reason of the fact that the cultivation of chicory is a permanent agricultural industry in nearly all of the countries having a temperate climate in Europe, experiments have been conducted in the United States in a small way and these have led to the conclusion that it may be successfully cultivated in those states where the sugar beet industry has flourished. The results of this work in the United States were published in Bulletin No. 19, Division of Botany, U. S. Department of Agriculture, entitled "Chicory Growing as an Addition to the Resources of the American Farmer," by Maurice G. Kains. I have elsewhere enumerated the plants which may be successfully cultivated and have indicated in a general way how either plants or seeds may be obtained. (Kræmer's Text-book of Botany and Pharmacognosy, pp. 403-416.)

Summary.—The following is a summary of the principal points which I have attempted to bring out in this article:

1. That there has been very great progress made in the practical cultivation of medicinal plants in the United States during the past five years.

2. That our interest in the subject should not be merely by reason of scarcity of drug supplies, but for a more important reason, viz., that uniform products may be produced.

3. That this uniformity in crude drugs and their products is a principle that should be practically attainable and is fundamental in the development of modern pharmacognosy, pharmacology and therapeutics.

4. That the experiments in the cultivation of medicinal plants which have been conducted in the United States have given us certain information that can be generalized and applied to plants other than those already experimented with.

5. That the following points might be held in mind by those who desire to take up the cultivation of medicinal plants.

In the first place he ought to determine whether there is a market for any drug under consideration, and this can only be obtained by personal inquiry and investigation, as not even any of the government publications show this.

In the next place, if one is satisfied that it is worth while to take up the cultivation of any particular plant, then its geographical range should be studied, both as to where it is indigenous and where it has become naturalized.

The literature should be gone over not only for facts regarding the cultivation and distribution of the particular plant in view but also of some of the related plants.

At the same time that these preliminary studies are made, a careful survey should be taken of the plants which are indigenous and in cultivation in the particular locality where one is proposing to locate the farm.

Then, of course, everything should be done on a small scale at first. If there is no information available then he must, on the basis of the general principles laid down for the cultivation of medicinal plants, proceed with their culture, conducting parallel experiments with propagation by both seeds and cuttings.

When the crop is harvested he must by analytical and other means satisfy himself as to the value of his product compared with the commercial article, and with these facts in hand submit specimens and request quotations from the dealer in crude drugs and from the wholesale druggist. On this basis he will arrange for all future crops with some certainty as to their market value. Experience has shown that cultivated crops command a higher price than the drugs obtained from wild plants even though their superiority cannot always be demonstrated by analytical means. For instance, no one is trying to determine by an analytical process whether any given lot of tobacco, tea, or coffee is of superior value, and yet the competent dealer and the discriminating public even recognize the qualities of the grades that are offered. This is even more marked with the products that have been derived thus far from cultivated medicinal plants and are appreciated by some pharmacists and physicians.

WINDOW DRESSING.*

IRA B. CLARK.

It would seem, in looking at the drug store windows of our fair city, that most of them could not be used for any other purpose than the admission of light and as a repository for various kinds of drug store junk that could not find a resting place in any other part of the store. In some of them, we see nothing but accumulated dust and flies, with a few sunburned packages of some patent medicine, or a set-up display of one of the numerous products of the tobacco trust, which is allowed to remain in the window week after week, and in still others, nothing at all.

To the majority of druggists, dressing a window is a big bugaboo with long horns and you frequently hear such expressions as this: "I know nothing about dressing a window" or, "It takes an artist to make a good window display," or "It takes too much time." Now I insist that no special artistic ability is required to arrange a window display that will pull trade right into your store. What is needed, however, is sufficient energy to do the work, a little application of gray matter, and judgment in the selection of seasonable and profitable articles of merchandise. The time required to do the work will be well and profitably spent.

*Read before the Nashville Branch, Dec. 11, 1913.

In order to dress a trade pulling window, it is necessary of course, to select a seasonable article. Cough remedies do not sell well in July, neither will a perspiration killer have much sale in zero weather. No matter how much publicity may be given these worthy preparations, they will not sell out of season. As previously stated, the application of some thought is necessary in arranging a window and it is essential to begin planning your window a week or longer, beforehand, in order to get all the details worked out, and when the times comes for placing the display it will be found to be comparatively easy work.

In beginning your display, cover the floor of the window with some material, crepe paper is generally very acceptable, that will either harmonize in color or be in sharp contrast with the general color of the article to be displayed; that is, do not use a combination of red and yellow, or brown and blue and so on. Colors that will produce a harmonious blending are red and green, or blue and white, or orange and black, etc. Begin at the front of the window with arrangement of display and elevate toward the back. The elevation being dependent on the depth and length of window. Be careful not to leave any wide openings or breaks in the display, to convey the impression that something had been taken out or had been omitted.

In order to make a pleasing display of merchandise, it is necessary to have the arrangement well balanced; that is, do not have one side high and the other low. If you build a pyramid on one side of the window, be certain to make a counterpart on the other side.

It is not always necessary to have a large stock of goods to make a creditable display. A very attractive window may be made by covering a number of small boxes with the same material that is used in covering the window floor and arranging them in steps, pyramids or otherwise, and placing on them the articles to be displayed, and a very harmonious effect is produced. I have seen a very attractive window with only a twelfth of a dozen of the exploited article in the display. This and a price card, with a small amount of text matter, constituted the trim.

While a large stock is not necessary for window display, it is often desirable to make as much on display as possible, in order to impress the buying public that you sell the article in no small quantities. For the past several years, the writer has been putting up a chapped hands lotion, which has been exploited to the public through the medium of package inserts and window displays. Recently, during the present season, a display of two gross was placed in the window and during the week we had a sale of forty-eight bottles of the preparation. While this article has some general sale in a general way, over my own counter, the demand is always stimulated by a window display and one of the windows is given over to this article about every four weeks during the season.

A window may be well arranged and prove attractive, but from a merchandising standpoint it is incomplete without a price card or cards; without the price being made known, the story is only half told. Your display may impel the prospective purchaser up to the buying point, but he or she, not knowing the price will come to a dead stand still and the sale is lost. The importance and value of a price card in connection with a window display was impressed on the mind of the writer several years ago and before rubber goods had advanced to the

present high prices, when we had a window, consisting of one dozen fountain syringes and a card with this legend, "\$1.00, Guaranteed for one year." A lady, who was not a regular customer of the store and lived eleven blocks away, ordered, by phone, one of the syringes we had in the window, saying she had seen it in passing on the street car.

The value of the drug store window as an advertising medium should be so self evident that no argument is needed, but as remarked at the outset, this valuable asset is not made use of by the majority of druggists as it should be. There is no drug store so small, or its location so isolated, but what would be benefited by a systematic use of the windows for displaying merchandise. Prospective buyers of your wares are constantly passing your store in greater or smaller numbers and any one of this number may be made a permanent customer by an appeal through a window display. It is a generally conceded fact, that, getting the customer across the door sill is half the battle. If your store service is of the proper kind and stock well kept, you can then call this customer your own.

It is important, and I may say necessary, that window advertising, to be effective, must be changed regularly and frequently the same as any other form of publicity. Again I hear the pharmacist say, "That will take too much time and be a great deal of trouble." But this is not true, after the start is once made. Have a stated time for changing the windows and do not let any thing interfere with this arrangement, except sickness or death. A display should not remain in the window a great length of time, I would say, not longer than a week, as after that time it begins to grow stale and loses its power to draw trade. I repeat, the windows must be changed regularly and frequently, and if a specified time is set aside for this work, it will prove a pleasure and be as easy of accomplishment as any other store routine.

What is the best class of merchandise to display in the windows must be determined by conditions and the location of the store. The present day drug store carries such a variety of stock that no difficulty should be experienced in selecting something every week for a window display. Frequent changes could be made from a list something like this: Toilet goods of a general character, a combination of tooth brushes, powder and paste, own make preparations. Olive oil has recently become a staple drug store seller, make an occasional display of this; stationery is a profitable side line and an effective window may be made with box paper. Rubber goods, such as hot water bags and fountain syringes can be arranged in an attractive manner and is sure to bring dollars into the cash register; cotton, gauzes, bandages and surgical dressings could be used frequently and with good returns. A window that invariably excites interest and comment is made with old prescription files, and utensils used in prescription work; a percolator in operation adds interest to the display.

It is rarely ever good policy to make a display of patent medicines as they are unprofitable and may be bought at any drug store and at some places that are not drug stores. If you must display patent medicines, make the proprietor pay you for the space and make him pay you well for it.

Never use in your window but one kind of goods or goods of an allied character as a conglomerate of stuff stacked in the window will not make a very deep impression on the minds of the passers by.

We are frequently urged by the proprietors of nationally advertised goods to "connect up" with their advertising and reap the benefits from their publicity campaign. The advertising man is a wily individual and knows the value of your windows, but it is not good policy to use your window space for the exploitation of merchandise that does not pay a good profit and may be procured any place. However, this matter should be treated with some discretion. The store with a considerable transient trade, may with advantage, give valuable space to "nationally advertised" goods, but the neighborhood store had better stick to the profit makers. Persistent publicity in his small world will be to the advantage of the retailer in the same ratio that it is to the big fellow in a wider field.

A word again on the regularity of changes of display. By frequent and regular changes in the window, the public will learn to look for something new in your window and will respond liberally, in the exchange of their dollars for your wares. The effect of publicity through the show window is, in most instances, immediate. The desire of the buying public is aroused to the purchasing point by an attractive window and it is then a simple matter to step in the store and complete the trade. Then too, the effect of window advertising is cumulative. It has been the frequent experience of the writer to have demand for some article the customer describing it, by saying they had "seen it in the window week before last."

In conclusion, I would advise every druggist to form the window display habit. It is both interesting and profitable, and don't forget the price card with a brief descriptive text.

PHARMACEUTICAL ADVERTISING.*

JEROME A. WILKERSON, ST. LOUIS.

What a vast subject and how little appreciated by my colleagues in the profession! I have talked to quite a few pharmacists on this subject, with the same expressions—that I was crazy, it was a losing game, it didn't pay, or it was unethical.

Just as we would be seriously handicapped by resorting to the sail boat in the days of high powered steam vessels, so too is the merchant who prefers sail-boat methods seriously handicapped in his business voyage on the high sea of commerce.

I shall endeavor to convince you as best I can in the limited time, the essential value of advertising, not advertising in general but in particular; advertising in the pharmaceutical world, and will start by taking the more common pessimistic remarks against it.

The most common is, "It doesn't pay." Right here I want to emphatically state that it does pay. But that the results cannot always be determined directly be-

*Read before the Saint Louis Branch, November 22, 1913.

cause the indirect returns are speculative and sometimes more effective than the direct ones. Let me illustrate.

Suppose you sell a certain cough syrup that the manufactureres advertise extensively and for which you pay from both ends of the game; 1st, because you pay a long price 2-4 and 8 for the article, which is made so cheaply that regardless of their heavy expenses, the manufacturers make thousands of dollars on it each year; 2nd, being a popular article, it is most likely to be sold at a cut price. Some one will try to convey the impression he sells for less than you, and consequently you rebate the customer off the prescribed price.

Now if you will manufacture and advertise your own preparation and charge the cost of advertising upon the cost of production, your own article will still cost you less and sell for more, as you can govern the price. The impression conveyed that you are capable of formulating medicines, will indirectly sell your hair tonics, cold creams and other goods of your own manufacture. The trouble is that the average druggist thinks that if he advertises he must follow out the expensive way employed by the larger manufacturer, which is entirely wrong. A cough syrup of your own make need not be advertised on bill boards or newspapers. A more effective way for you will be to use counter inserts, stickers, rubber stamp, or program advertising. You will be surprised at the results.

To illustrate this. During a certain month last year we sold a gross increase of cough syrup which cost us to manufacture 94 cents a dozen or \$11.28 per gross, plus \$2.00 for counter inserts (which we know were the direct cause of the increased sales, and we never will be able to estimate the indirect results), making a total cost of \$13.28 a gross, which retailed for \$36.00 leaving a profit of \$22.72. The possible sale of an advertised brand which would have cost \$24.00 less 5 percent or \$22.80 net and retailed for \$33.12 at 23 cents per bottle, would leave a gross profit of \$10.32. The difference between the two being \$12.40 or over 100 percent better profit for your own product. It is profit and not sales that count.

Well, I think I have showed you how it paid in one particular way and here is another.

Granting, which is most essential, that your preparation has virtue, it is bound to create friends, who will recommend others to your store and who will send miles to get it if they move from your neighborhood; and once you have them as a friend you enjoy the advantage of restricted sale and the profit on their possible other purchases.

You might state here, that you are not convinced of any advantage, because if you had sold the same preparation over the counter by recommendation, the result would be the same. True, but you cannot reach everybody who wants a cough syrup at the particular time he needs it; he might live next door to your competitor and yet be reminded by your advertisement that you have a special cough remedy and go blocks to give it a trial.

The next common argument, is that it is unethical. It is not any more unethical to advertise and to sell your own article than it is to sell an article nationally advertised. The only point of ethics is to know what and how to advertise. Advertise and push articles that do not conflict with any physician's practice. Advertise your cough syrup, cold creams, lotions, hair tonics, liniments.

tooth preparations, plasters, bird seed, corn remedies, toothache drops and cathartics.—Do not advertise that which might conflict with the practice of a physician or that which will encourage “self medication,” which is oftentimes dangerous, as for instance, kidney and stomach remedies, nervines, female tonics, and many others with equally disastrous effects.

With these suggestions as to “What to advertise,” let me show you “How” and to “whom to advertise.”

It is necessary in order to become a successful advertiser, to not only advertise a preparation or a line of preparations to the buying public, but you should at the same time popularize your store, calling attention to some special way you have of doing things or of your efficiency and accuracy.

You might cater to the prescription end and state your advantages, such as the fact that you are a graduate of a recognized college of pharmacy, a member of various pharmaceutical associations, and that you have a well earned standing among your physicians for honesty and efficiency; that your prices are as low as any—quality considered. You might also advertise your soda fountain specials, your cigar department, your line of toilet goods and kodaks.

It seems a pity that so many druggists neglect the advantages offered in advertising to control their own territories. When a man opens up a big down-town kodak store, his overhead and advertising expenses are enormous, yet he meets these and still makes a profit. He draws your customers and those of other localities to constitute a volume of business. He popularizes his store. He has no inducements to offer better than yours. Yet he invariably succeeds without the valuable asset of personality.

People living in your locality, would rather buy of you where they are known and free to ask questions. There is nothing nicer than to trade where they are known, provided you win their confidence, have a fresh stock, low prices and the ability to supply them.

I often have been told that, all things being equal, they would rather purchase this class of goods from us, where they are known and have some recourse in event anything goes wrong, than to buy at a strange place. Hence the most valuable asset a local druggist has is his personality.

Do not lose sight of the fact that you have a professional end which can be helped by advertising. Besides reminding the public of your prescription department, cultivate the good will of your physicians and nurses by supplying them with goods at a discount, whether the physician be a prescriber or dispenser. Don't ever discriminate. If the doctor is a prescriber he might enjoy a closer friendship than the dispenser, which has some advantages. If he be a dispenser, cultivate his good will and business and make a booster for your store which will bring indirect results. By cultivating his business you can make a small profit on biologics, cottons, etc., on a wholesale basis, which will increase your buying capacity and help you to enjoy the discounts from the manufacturer. Effective ways of advertising to your physician I shall treat of a little later on.

The various methods of advertising any particular article or item will best suggest themselves after you have studied the requirements of your immediate neighborhood.

Counter inserts give the best results on the advertising of any particular article, going right into the hands of the customer. A catchy short explanation of the article, its uses, etc., set up with a prominent display of the name of the article and the price, is all that is necessary. Do not go into details in an advertisement, because it will not be read and very likely on account of the congested appearance of the type, will not be glanced at a second time, but thrown away.

Another valuable method, which most druggists look on with scorn is program advertising. If carefully handled it is bound to prove effective. The reason some druggists never get results from this form of advertising is their own fault. To fill in a space on a program with the words "John Doe—Druggist, Prescriptions a Specialty," is just wasting money, unless you want those interested in the program to know that you have donated, and "Let me alone." It would be just as well to have inserted "This space paid for," for all the effect it has.

The way to get all that is coming from this class of advertising is to advertise one particular article and make it strong. This is especially advantageous in the holiday season. If you plug away on one particular item you are bound to get either direct or indirect results.

To test the effectiveness of program advertising, I ran a 10 cent rebate coupon on a 25 cent box of face powder that cost \$1 a dozen with the results of a sale of 65 boxes @ 15 cents each cash, or \$9.75. Deducting \$5.50 the cost of the powder and \$2.00 the cost of advertisement, I made a net profit of \$2.25 on the powder and an indirect result of an increase of business on other articles.

The rubber stamp and the sticker have little if any value. They have always appealed to me as a half-hearted attempt at advertising unless applied on a 'limited time special.'

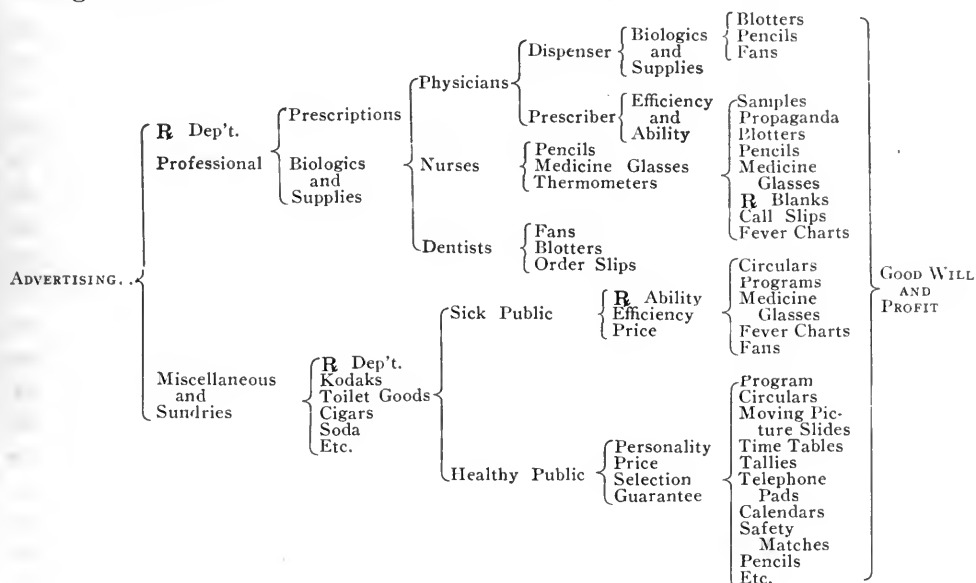
Circular advertising is very effective but a little more expensive than other advertising. It is to the local druggist what the newspaper is to a downtown man, and should never be overlooked if you are in the game. Euchre and bridge tallies having printed on them your advertisement of a special cream or cosmetic and given to private or public euchres are good advertising; also telephone pads, calendars, safety matches and owl car time tables.

The foregoing are all used to advertise to the public. Your physician and your dentist must not be overlooked if you desire to increase your professional end. This is easily accomplished by supplying them with pencils with your business advertisement on them.

Blotters may be given from time to time suggesting the use of U. S. P. and N. F. preparations, with their formulas and therapeutic value printed on one side, which is in itself propaganda work. You might also supply your physicians with prescription blanks, fever charts, and medicine glasses, and the dentists with tooth paste, order slips and palm leaf fans with your imprint thereon for their offices in warm weather.

You can hardly appreciate how this helps. Even though a physician sends you some of his prescriptions, these "live wire" advances will arouse him from a neutral state and make him an enthusiastic booster for your store, so much so, that he will insist that his prescriptions be filled by you.

This chart gives you an outline of what to advertise, to whom to advertise, and through what channel.



In conclusion I would say that these things take time and nursing. You must not look for large returns immediately, but if patiently followed out the remuneration will be worth your while. The longer you follow up advertising the less you will seem to know about it, because things and methods change so rapidly with the introduction of newer and novel ideas. But the game is fascinating and the longer you work the more you will like the work. It may appear deep and intricate at first, but it really is very simple. Master the fundamental rules and you will be as proficient as anybody. My advice is to start now.

"CONSERVATION IN RELATION TO PHARMACEUTICAL CHEMISTRY."*

H. C. FULLER, THE INSTITUTE OF INDUSTRIAL RESEARCH, WASHINGTON, D. C.

The conservation question has been before the public to such a large extent during the past few years that in some ways I hesitate to make any remarks on what might be considered a hackneyed subject; but it has an important relation to our particular branch of science, and economic conditions at the present time certainly demand conservation in this field, so it seems important enough to give the subject some slight consideration.

It would not be possible in a few paragraphs to consider the application of this subject to all of the different branches of pharmaceutical chemistry, and I am only going to touch on four of the important points which have come to my

*Read before the Washington Branch, December 17, 1913.

special attention during the past few years, and especially during the two years that I have been connected with the economic side of the work.

The four points that I want to talk about are those relating, first, to the manufacturer; second, to the retail druggist; third, to official control; and fourth, to fakes.

A sort time ago there was placed on my desk a package of considerable bulk which, on opening, I found to consist of 142 monographs, mostly reprints of magazine articles but all the work of a number of scientists connected with one particular laboratory and all relating to pharmaceutical chemistry in its highest scientific sense. They were all articles on research problems, and in most cases went to the very root of the question under consideration. The laboratory which was responsible for this work is under the protection of the British Empire, and the firm itself is a manufacturing house which has had wonderful success in its business and is now invading the American market to a degree which is appalling. This mass of research matter gave me considerable food for reflection, and I sat down and looked over the indices of some of the abstract journals to see what we in America had contributed, in a scientific way, to pharmaceutical chemistry during the same period. While in the whole we have done a good deal, with the exception of the work done by our own Bureau of Chemistry here in Washington and by the American Medical Association in Chicago, very little of what might be called real scientific research has been done by the profession at large. We all know that some of the larger manufacturing houses do maintain laboratories which, they claim, are devoted to experimental work and, supposedly, to advance research. In one case I know that such a laboratory has been run for at least a decade and that the picture of the building is used for advertising purposes. However, the amount of real valuable work that has been turned out by this laboratory, at least so far as has been made available to the science at large, would occupy but a few inches of index space during all that period.

It is not my purpose to intimate that the entire success of this foreign firm is due to research, but it is very evident from a study of their products and from the fact that their value has been positively ascertained, both by practical and chemical investigation, that at least part of their success is due to their ability to get at the bottom of things. The American manufacturer has certainly wasted a great deal of time and energy in making up products whose chemical and therapeutic value were uncertain, and in many instances absolutely unknown, and has relied on the medical profession to get results from which he could make advertising. We have this forcibly brought to our attention by the vast number of digestive products that have been exploited and which, on investigation, are found to be either inert or of so little therapeutic value as to be unworthy of consideration by the medical profession or by the laity, who actually consume them. We have seen how manufacturers would put out preparations claiming to possess the virtues of cod liver oil and extol the value of the alkaloids present in the original material, when, as a matter of fact, we know that the true value of cod liver oil has nothing to do with the alkaloids; and these substances are indicative of putrefaction in the livers before expression and are really a sign of impurity. They are ordinary, common amines which can be made from any liver—dog, cat, or most any refuse from the slaughter houses. We see hundreds

of preparations on the market, with fancy names, which are made up of products containing so-called resinous principles with unknown glucosides which, if investigated—as was done by the firm above mentioned—would be shown to consist of nothing extraordinary and probably nothing of any value. It can safely be stated that as soon as the manufacturers fully wake up to the idea of careful research, it will be possible to write a very interesting mythology in pharmaceutical chemistry and to relegate hundreds of products of supposed value, to the waste heap, and it will be possible for these same manufacturers to save their shelves and the shelves of the retail druggist from an immense accumulation of worthless material.

The point I wish to make is that the manufacturers could well determine the actual value of their products from a chemical and an unbiased therapeutic standpoint before they put them on the market, thereby saving themselves great expense in maintaining a supply of useless crude material, in making up valueless pharmaceutical products and overlooking space which might be used to good advantage with meritorious articles.

Some of our manufacturers, especially those who have not been in a position to retain on their staff a fully qualified pharmaceutical chemist, are taking steps to have their manufacturing processes examined, criticised and improvements suggested; and what is of special merit, also are learning how to analyze their products so that when they claim on the label that it contains a definite quantity of a certain ingredient, regardless or not as to whether it is an inhibited drug, the amount that they claim on the label will actually be found there. It is well known that methods of assaying complex mixtures are very few and many of them can be worked out only after a considerable amount of experimentation, but with time and thought there are probably only a few such problems which could not be solved. A full realization of this question would have saved hundreds of manufacturers from prosecution under state and national and local drug laws, and at the same time have saved them untold expense.

The American Medical Association, though it has been greatly criticised by some of the manufacturers, has done an immense amount of very meritorious work, and it is to be hoped that in their laboratory, in Chicago, they will continue to carry out their present policy. The American manufacturer or associations of manufacturers could do nothing more to their advantage than to thoroughly cooperate with the work that is being done in the laboratory of the American Medical Association; not necessarily to adopt their suggestions, but to check up their work and to adopt it where it is shown that the American Medical Association is right in their conclusions as to the value of a particular preparation and to show wherein they may be wrong in case the manufacturers' laboratory obtains different results. By this means, progress looking to the final evolution of meritorious and perfect-keeping products, would be much more rapid.

Coming to the retail druggist, there are two points which I think ought to be emphasized in the beginning and which, I believe, will be agreed to by all of us present. In the first place, the retail druggist is not primarily a storekeeper or simply a vendor of supplies. His place in the world of pharmacy can be obtained only by a scientific study, and he is not allowed to enter into his profession until he has passed certain examinations and fulfilled certain requirements satisfactory

to the community wherein he desires to establish himself. This should make him vitally interested in what he sells, both as regards the efficiency of the same as a medicine and as to its keeping qualities and activity as a drug. Also, on account of the vast amount of legislation which is going on at the present time, he is obliged to keep up, to a greater or less extent, in analytical chemistry.

The retail druggist is obliged to stock his shelves with a great variety of substances, preparations and mixtures, and in some stores this supply will probably reach into the thousands. These things come to him from manufacturing pharmacists, patent medicine makers, manufacturing chemists pure and simple, and those who deal in specialties—to say nothing of the numerous preparations which are not strictly drugs or medicines. Oftentimes the druggist has to invest a relatively large outlay in some one thing for which he has but few calls, and sometimes these calls only come at the interval when a manufacturer is carrying on a detail in that vicinity. He also is obliged to stock his shelves with a vast amount of material which is absolutely useless; some of the things being of high cost. At the present time there is a great run on peroxide creams, antiseptic soaps, throat lozenges claiming to have active formaldehyde, and others. A great majority of these things are absolutely useless. There is no peroxide cream made which contains any detectable peroxide; and the value of antiseptic soaps is mostly in the label and not in the body of the substance in question. However, the druggist is obliged to carry all these articles and many others of analogous properties, and hence he becomes merely a storekeeper.

It seems as if the American Pharmaceutical Association could do the trade a great deal of good by establishing a central laboratory, where products could be carefully checked up, and, where they are of no value or of doubtful value, a full exposure could be made and sent to all the members of the Association so that they need not stock their shelves with these useless articles. Furthermore, this laboratory would be in a position to advise its members as to the true relative merits of the lines carried by the different manufacturers, and thereby enable the druggist to talk intelligently to the physicians who are his patrons, as well as to the lay patron. Again, such an institution would have an opportunity to work out methods of analysis which are of special importance to the retail druggist—simple methods, if possible, whereby he could quickly check up some of the things he makes, such as tincture of iodine, spirit of camphor, paregoric, etc.—all of which must contain a definite quantity of the active ingredient and which, if wrong, are likely to subject him to unpleasant prosecution and notoriety.

The retail druggists ought to spend some time in studying the question of cost, and, wherever possible, suggest to manufacturers the conservation of raw materials in order that the substances which they use to a considerable extent can be obtained at a better price. For instance, probably not one retail druggist in a thousand knows that the chocolate manufacturers in this country have for years thrown away by-products which contain valuable ingredients amounting to from fifty to one hundred and fifty dollars a ton; ingredients which are used to a great extent by the members of this profession and which would probably have a larger use if they could be obtained at a more reasonable figure.

Again, the woolen manufacturers have for years thrown into the rivers, or sold something little better than sludge for leather makers, a grease which can be

worked up into the finest grades of lanolin, equalling and surpassing in quality that which is imported from Europe. A laboratory such as I have mentioned above would be in a position to take up such questions and impress upon the manufacturer the advisability of working up these goods for the American market.

There are many other points which such an institution could do to assist the retailer and which would undoubtedly make the Association a much stronger body than it is at present, by bringing in a larger membership. But I have not time at the present moment to go into all the features.

Coming now to conservation in connection with official control, I want to say a few words regarding the matter of rules, regulations and laws which are being enacted and which affect our particular work.

The Food & Drugs Act has proven to be one of the most interesting and valuable pieces of legislation that has been enacted in this country for a long time, and it is being copied to a large extent by the different states. As a whole, it has worked quite well; and certain features which have allowed technical violations, have been corrected or an attempt is being made to correct them. Before advocating new legislation or radically modifying this law or any other, those who have the matter in charge ought to be absolutely certain that the results sought can be obtained and are really going to be of benefit. I say this because, as it is now, the people who are engaged in the selling of pharmaceutical products come in contact with national, state and local laws; and a study of the requirements in vogue at any particular time is quite a problem, in order that goods may be honestly labeled, and the uncertainties of new legislation and the consequent changing of labeling, if anything new is enacted, requires constant alertness at great additional expense. Now, it is well known that the final burden of all these added expenses comes on the ultimate consumer, and the vast amount of legislation that has been enacted and enforced during recent years has been a great factor in the increased cost of living, both in relation to foods and medicines. I think it can be said truthfully that if the Federal Food & Drugs Act were strictly interpreted and enforced in the District of Columbia, it would drive every small retailer out of business within five years. This may seem a radical statement, but, with his multifarious stock he cannot keep it always up to standard, and if rigidly inspected it would not be long before he would be caught twice for the same offense which, as we know, carries a jail sentence, and even though the man may have been perfectly honest in his desire to keep his products up to standard, we know what the experience has been in the past. The courts pay very little attention to this in many cases. It seems as if control officials should endeavor to help instead of to persecute the retailer. Those who are doing an underhand business will soon be discovered and the energy of enforcement can be visited on them and the honest dealer made to feel that he can conduct his business without constant fear of prosecution.

Going back to the Food and Drugs Act, a short time ago an attempt was made to enact an amendment requiring the declaration of about every individual drug in the Pharmacopœia. There may have been some reasons for this, but before such legislation is enacted or attempted, its real necessity ought to be ascertained. It would appear to me from a study of this particular feature of drug legislation, that we require the declaration of too many drugs now. The primary object of

this declaration is to let people know what they are getting and to let them know if they are buying an habit-producing drug. Every one knows about opium, cocaine, and chloroform; and a large majority probably know something about acetanilide, but probably not one in one thousand ever heard of eucaine, and alpha eucain is not sold in the United States. Probably not one laymen in five thousand every heard of cannabis indica, and it is doubtful if the Hashish habit will ever be in vogue in this country. However, if there is danger of such a contingency, to be consistent we should make provision for the chewing of areca nuts and the eating of mescale buttons. Furthermore, cannabis indica cannot be determined, and the declaration of it is of small value because the amount stated cannot be checked. Alcohol in medicine is not taken for its medicinal effect. If one wanted alcohol for this purpose he would buy whiskey, or some of the straight grain alcohol. "Medicated boozes" can no longer be sold except under a revenue license, which brings them into the same class as whiskey, and under the category of beverages on which no declaration is necessary. Personally, I cannot see the logic or the necessity requiring a declaration of alcohol, and such declaration requires a vast waste of time, energy and material all over the country in assaying the batches of products containing it. Hence, the burden of declaring a lot of other things on labels, the checking up of the analysis and other useless procedures connected therewith, ought not to be imposed on the members of our profession.

At the last meeting I listened to a discussion regarding the declaration of sales of coca and cocaine, required by the Treasury Department. It was apparent that the most of the members present thought that such a declaration carried the goods down to the ultimate consumer, or practically to that end. I think, myself, that the matter was taken too seriously and that it will not be taken seriously by the trade as a whole, for, to check up such a proceeding would require nearly as much work as checking up the returns under the income tax; and as there is no appropriation for carrying it out and no penalty attached for not complying with it, and as there is not room in the Bureau of Chemistry for a force of clerks to check up and interpret the returns from the thousands and thousands of retail druggists, doctors and other people who handle from a grain to 2 or 3 ounces of coca leaves a year, it seems more like a tempest in a tea-pot. However, such a regulation comes under the present discussion because it adds one more piece of work to the already over-burdened druggist and dealer, who is beset with much unnecessary regulation already. If such regulations and orders become obnoxious, it is but a simple matter to remedy them, and the course is open to anyone affected, though many may hesitate to take such steps. Nothing should be construed in the statements which have just been made, which would appear to be antagonistic to well merited legislation, but it seems from a study of what we have at the present time, that we could dispense with a good deal of what we have now.

Before closing I want to say one or two words on the subject of fakes, and suggest what could be done by the pharmaceutical chemist to do away with this evil. The American Medical Association, and, spasmodically, some of the Journals, have exposed a number of fake products which have been foisted on the American public to the extent of many millions of dollars. The work done by

the American Medical Association, unfortunately, does not reach the public generally, except occasionally through some magazine article—and it is only through publicity, and continued publicity, that the sale of these pernicious things can be stopped. The retail druggist himself is not in a position to do this, because he immediately is sued for libel and is not able to defend his case in court. It was thought that the Food and Drugs Act would eliminate this problem to a considerable extent, and it undoubtedly has, but from the number of pernicious and weird things that have come to me for analysis during the past year or two, it would seem that this law is not able to reach all cases. For instance, we have here an article which is sold at the philanthropic price of \$25.00 to anyone who wants to prolong his life. It consists of a brass capsule, nickel-plated, filled with red oxide of iron and plaster of Paris, and which is connected with a wire to a plate which is attached to the ankle. The nickel-plated capsule is put in some water—ice water recommended—and the manifestations begin. Sometimes the philanthropic doctor who puts this out, sends a quart of tonic, at the very low price of one dollar, which seems to be a weak pickling liquor from the iron works or something of a very similar nature. Another interesting fraud is this little tablet which is advertised in the highest terms as being valuable for anybody, whether he is sick or well, and which is found, on examination, to consist of sodium tartrate and epsom salts. Another product which is apparently unique, is this liquid. It is recommended as an eye remedy, and is exploited for producing shiney eyes, especially among actresses. On examination it was found to be an essence of pepsin, and the scheme is somewhat unique, though in a way there is a basis for it, as we all know that a bad stomach makes a dull eye. Turning now to some articles for external use, I want to mention this hair remover, which, though not a depilatory, is especially recommended for women. This product seemed to be a paste which is to be warmed, spread on the face, and after cooling and drying, to be removed, taking with it the hair. Investigation proved it to be common rosin, with possibly a little added balsam or something to give it an odor, which, on application, was found to have marked sticking properties. It would unquestionably pull out the hair, but at the same time probably considerable of the epidermis. Another interesting fake which you may all try if you wish, is this wrinkle eradicator, which is sold at a very high price and which can be cut into various shapes and guarantees to do the trick with old and young. As you will note, it is nothing but an ordinary court plaster, sold at an exorbitant figure. It seems to me that all the organizations, manufacturers, retailers, wholesalers and medical bodies should resolve together to stamp out this abuse, and I believe if they would work in unison there certainly would be no fear of prosecution and they could accomplish results which would be beneficial to all. The Drug Trades Conference might consider this suggestion.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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GREETING FROM HONORARY PRESIDENT A. B. LYONS.

To the Members of the American Pharmaceutical Association:

I take great pleasure in being able to send you a word of New Year's greeting. It has been very gratifying to me during my severe illness to receive from so many of you words of sympathy and expressions of a hope that my recovery might be speedy and complete.

Complete recovery I suppose that I cannot hope for, but I am happy in present freedom from discomfort, and especially in finding myself increasingly able to resume my wonted activities.

The wholly unlooked-for honor conferred upon me at Nashville, in my absence, calls for grateful acknowledgment. I accept it in the spirit in which it was offered—not as a thing I had a right to claim or expect. I trust that it may be possible for me yet to render to my chosen profession services such as shall justify your confidence.

A. B. LYONS.

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THE PRESIDENT ELECT.

As noted in the November issue of the JOURNAL, Mr. Caswell A. Mayo, editor of the *American Druggist*, has been duly elected to preside over the fortunes of the American Pharmaceutical Association during the official year 1914-1915, his official duties beginning with his installation at the 62d annual meeting, which will convene at Detroit, Aug. 24 next.

From an appreciative article by Thomas J. Keenan, who was for many years associated with Mr. Mayo in editorial work, we abstract the following:

"At the annual meeting of the Association in Nashville last August, Mr. Mayo's name and the names of two other pharmacists were placed in nomination by a committee, and after the meeting adjourned these names were submitted by mail to every member of the Association, with a request that the member indicate his preference on a ballot enclosed for the purpose. On October 24, the ballots were counted by the official board of canvassers, when it was ascertained that Mr. Mayo had been elected by a plurality of votes. In accordance with the by-laws of

the Association, the installment takes place at the meeting in Detroit next year.

"Seldom in the balloting for a president of the American Pharmaceutical Association has such an intensity of interest been displayed or has enthusiasm run so high as in the present election. The opposing candidates were men of nation-wide fame and prestige, whose friends spared no effort to



CASWELL A. MAYO, New York,
President-elect, 1914-1915.

improve their chances of election. One has achieved prominence as the editor of a comparative newcomer in the field of drug journalism, and his candidacy was actively championed by a local association of pharmacists; while the other, enjoyed an extensive acquaintance among pharmacists throughout the country, and by creditable and long-continued activity in association work generally, had gained many loyal followers and zealous supporters. Both were connected in a teaching capacity with colleges of pharmacy.

"The prospects of Mr. Mayo's success at no time seemed very bright, and it was doubted by many whether the sterling obligations under which he had placed the membership of the American Pharmaceutical Association

by indefatigable industry in committee work during the years of his connection with it, would be recognized and acknowledged.

"Mr. Mayo's activity in the affairs of the American Pharmaceutical Association dates from 1892, the year which saw the passing of the lamented Prof. P. Wendover Bedford, though he was well known to some of the members from an earlier period, when he was associate editor of the *Druggists Circular*. Professor Bedford had been a very influential factor in the upbuilding of the Association, not alone in New York state, but in every part of the country reached by his editorial articles in *The Pharmaceutical Record*. The work which he was compelled to relinquish by death was taken up by Mr. Mayo, and how well the latter has served the Association, and through it the pharmaceutical profession of the United States, may be read in the pages of the *American Druggist* from the time he assumed the editorship in 1892 down to date.

"Two kinds of pharmaceutical journalism are recognized as having come into existence during the past quarter of a century. There is the kind which disseminates ideas, upholding high professional aims and directing the progress of pharmacy; and a contracting type which exploits the purely commercial features of pharmacy, catering principally to minds that seek cheap entertainment, or to those who have small regard for ethical considerations and are ready at any time to sacrifice the higher things of the profession for financial gain.

"In the conduct of the *American Druggist* Mr. Mayo has always striven to preserve the golden mean, and while insisting on a high standard of educational qualification for the pharmacist, he has not overlooked the commercial interests, nor the necessity of a sound training in business system and efficiency."

What Mr. Keenan has said concerning Mr. Mayo's untiring and valuable services to the Association will be heartily endorsed by the members of that body, who, without exception, regard his election to the presidency as a promotion well deserved, and who also believe that his many estimable qualities of heart and head fit him admirably to discharge with credit to himself and the Association the somewhat exacting duties of the high office to which he has been called. Long live the president-elect!

THE NEW PRESIDENT OF THE N. W. D. A.

The newly elected president of the National Wholesale Druggists' Association, George W. Lattimer, was born in Columbus, Ohio, December 6, 1856. His literary education was obtained in the public schools of that city, at a preparatory school in Cleveland,



GEO. W. LATTIMER,

President of the N. W. D. A.

and at Amherst college, from which latter he graduated in June, 1879, with the degree of bachelor of arts. After a short period spent in the study of law, Mr. Lattimer went to Colorado and became interested in the mining business, but a year later returned to Columbus, and shortly afterwards became secretary and treasurer of the Hocking Valley Coal Mine Company. In 1882 he associated himself with George B. and Linus Kauffman in the formation of the wholesale drug firm of Kauffman, Lattimer & Rising, which, following the withdrawal of Mr. Rising, was changed to the firm Kauffman, Lattimer & Co. In 1888 the business was incorporated as The Kauffman-Lattimer Co., of which Mr. Lattimer has been from the beginning, and is at the present time, secretary and treasurer.

Mr. Lattimer attended the organization meeting of the N. W. D. A., in 1882, and has since that time been a constant attendant and

active member, filling various official positions and committee chairmanships. Perhaps his most valuable work has been done as chairman of the Committee on Fire Insurance, and it is said that as a result of the efforts of this committee the cost of insurance to wholesale druggists has been reduced from a general average rate of \$1.45 to an average rate of 45 cents.

In his home city Mr. Lattimer has been prominent in many civic and commercial enterprises. He has been president of the Columbus Chamber of Commerce, president of the Columbus City Park Commission, and a member of the State Board of Arbitration, and was a member of the State Floods Commission, which was charged with the distribution of the funds raised for the relief of the sufferers by the flood in the spring of 1913, acting on this body as the representative of the American Red Cross Society. He is president of the Central Philanthropic Council, which is a consolidation of the organized charities of Columbus, and is also a trustee of the Humane Society.

He is a member of the Columbus Club, the Columbus Athletic Club, and was one of the founders and is a director of the Columbus Country Club.

The esteem in which Mr. Lattimer is held by his fellow citizens, as evidenced by the numerous civic and other honors which have been conferred upon him is held to be abundantly warranted by his business associates who have been in close touch with him for so many years. He represents the very best type of American citizenship, liberal in his views upon all subjects, always ready to contribute of his time and means to the welfare and uplift of his fellowmen, diligent in business, faithful in the discharge of every trust which he accepts, and has always been a sturdy supporter of the highest principles of commercial honesty in his business relations.

His numerous friends in his home city and throughout the state feel that his election to the presidency of the N. W. D. A. was an honor most worthily bestowed, and deem themselves also honored through his elevation to that position.

Of General Interest

THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION THIRTY-NINTH ANNUAL MEETING, JACKSONVILLE, FLA., NOVEMBER 18, 19 AND 20, 1913.

The first session of the meeting was called to order by President Albert Plaut of New York on Tuesday morning at 10:30 o'clock, and the Divine blessing was invoked by Rev. Dr. French of the First Presbyterian Church of Jacksonville. Judge Swearington, the Mayor, then welcomed the association to the city and his address was responded to by Mr. Lee M. Hutchins in a speech full of wit, humor and poetry. The reception of delegates to the association then took place, and Dr. Adolph W. Miller presented the fraternal greetings of the American Pharmaceutical Association, to which Mr. Ludwig Schiff made a fitting response. Mr. Lee Willisee brought the best wishes of the New York State Pharmaceutical Association to which Mr. C. Mahlon Kline made reply. Mr. Thomas F. Main voiced the most cordial greetings of the New Jersey Pharmaceutical Association, to which Mr. S. Massingham responded.

President's Address.—President Plaut then delivered his address, which we regret that lack of space compels us to summarize, so full was it of wise suggestion and helpful thought. General business for the last thirteen months, he said, had been quite good, the volume of imports and exports of the country being by far the largest in its history. He spoke of the interference with European trade caused by the Balkan war, and deplored in strong and feeling language the evils of all wars, which he said were caused by greed and selfishness. He referred to the Mexican internecine conflict and hoped that it might be soon succeeded by a permanent peace founded upon justice and law. He spoke of the near completion of the Panama Canal as a monumental epoch-making

work in its effect upon the intercourse of the world. He referred to the recent tariff-legislation as being that which all had expected and said that its effects having been discounted, as soon as business had adjusted itself to the new lines, he thought the trade-outlook for the coming year was encouraging. As to the income-tax he said he thought it the fairest of all taxes if properly administered and that it had come to stay as a part of our fiscal system, for while it was not a burdensome tax, it produced an enormous revenue. He approved the reform in currency-legislation now being considered by Congress and predicted extensions of the parcel-post. He gave strong commendation to the Harrison anti-narcotic bill, but said that to be effective it must be supported by efficient state legislation. He called attention to the slight decrease in the active membership of the association, and stated that it was in accordance with the natural course of events, which would be likely to reduce the number of wholesale druggists in the country still more. He passed in review several interesting court decisions, among these being those of the Wisconsin Syrup cases, and the Sana-togen case, and quoted at length a decision of Judge Grubb of the U. S. Court at Birmingham, Ala., giving legality to certain acts of the Southern Wholesale Grocers' Association, and said that this decision clearly shows that there is a wide field in which an association of wholesalers could legally work, and in which it could produce results of great value to its members. He spoke in commendation of the Sherman law and suggested that the time might come when a merchant who cuts prices would be fined and imprisoned the same as railroad officials are penalized if they cut rates. He approved the work of the Eleventh International Congress of Pharmacy, and said it might in time lead to a universal Pharmacopœa and uniformity of laws regarding sales of medicines in all civilized countries. He recommended the association to petition Congress for the speedy adoption

of the metric system by the United States. He commended highly the services of Messrs. Holliday and Toms, the General Representative and the Secretary of the association, and in conclusion voiced his appreciation of the honor bestowed upon him by his election to the Presidency and also of the loyal and earnest support accorded him by all the members.

The Secretary's Report.—The Secretary reviewed the important work of his office, commented upon the number and importance of the bulletins issued by it and announced the forthcoming production of "The Green Book" to supersede "The Red Book," published in 1911. He reported the present membership as being 260 active and 326 associate members.

The Treasurer's Report.—This report showed:

Receipts from all sources.....	\$29,356.38
Disbursements	21,828.31
Balance	\$7,528.07

Report of Committee on Commercial Travelers and Selling Methods.—The committee called attention to the lack of marked success of mail-order drug-houses; spoke of the necessary qualifications in a salesman; suggested that more thought should be given to selling-policies; discussed over-solicitation of orders; approved the establishment of a telephone-detail to solicit and receive orders; spoke of the advantages of providing automobiles for certain classes of salesmen; recommended that members discourage the parcel-post business and long-distance reverse calls, the payment of freight-charges, and the solicitation of "splits." It recommended direct settlements with customers, the use of an itemized expense account by salesmen, discussed their proper compensation and approved "The Uniform Vacation Plan" which, they said, was highly recommended by those who had adopted it.

Committee on Credits and Collections.—This report discussed the question of cash-discount customers, noting that little change had taken place in the number of that class during the year, except in the South, where there was a slight improvement, and says, "a due regard for the welfare of our customer, as well as that of ourselves, suggests the wisdom of counselling with him on this subject on all proper occasions." It suggested the

need of caution in the extension of credit to "the confectioner class of crafty nomads, employing names irreconcilable to their nationality and as changeable as their places of abode. Keen and unscrupulous, he devotes his talents rather to the framing of clever get-aways, than to the upbuilding of a permanent business along honorable lines." It emphasized the importance of fire-insurance in relation to credit; recommended the adoption of uniform terms and discounts, and it condemned, as "most insidious," methods which prevail in certain sections in transgression of a fair and just system, and strongly recommended the charging of interest on past-due accounts. It suggested that where accounts are closed by notes, that these be made payable monthly and so drawn that "default in the payment of one would automatically mature the others." It condemned over-solicitation of orders, deceptive claims of percentage of profit by manufacturers and advanced dating, and recommended co-operation in the matter of credits and collections.

Committee on Employer's Liability and Workmen's Compensation.—The report of this committee was so complete and so replete with facts, figures and argument that it does not admit of summarization with justice to so admirable a document. It should be read in its entirety, not only by every employer, but by every person interested in social reforms. One of its paragraphs will show the idea of the committee in relation to this question: "Whether you choose to see in this prevention movement a growing realization of our social responsibilities or a mere desire to save dollars, the result is sure to be far-reaching and beneficent." The committee says that we should not neglect to study the experience of foreign countries, in order that we may not be overzealous in "our endeavor to right long-standing wrongs," and recommends that the members investigate the possibilities of mutual-liability insurance.

Committee on Fire Insurance.—The report of the committee called attention to the small number of fires in wholesale drug establishments and gave a list of those which had occurred during the year with their causes, losses, etc. Among these causes were the breaking of a bottle of bi-sulphide of carbon, the flood at Dayton, O., fuming nitric acid and the spontaneous ignition of sulphur which was packed in second-hand bags which

had probably previously contained niter or potash. This fire occasioned a loss of \$62,000. The report commented in strong language upon the enormous fire-waste of the country, which reached a total in 1912 of \$225,300,000, and urged the attention of the members to the ways of fire-prevention which were being advocated by the National Fire Protective Association and other bodies. It discussed the various charges for water-sprinkler service, and suggested a conference to determine an equitable charge for the same; the necessity for a uniform bill for reciprocal insurance and described in detail the legislation of several states regarding insurance matters. It entered at length into the question of automobile insurance and recommended that members endeavor to secure more equitable rates for same, as well as greater security from loss.

Committee on Proprietary Goods.—Their report called attention to the fact that the sales of these preparations in one-twelfth, one-sixth, and one-quarter-dozens were about ninety-four percent of the total sales—831 actual sales of one fairly popular preparation accomplishing the delivery of but 900 separate pieces, and claimed a larger remuneration for the jobber than it at present allowed. It condemned over-solicitation, "free goods," the granting to buying-clubs of the same terms allowed to jobbers, and discussed at length the question of fixed retail prices.

Committee on Legislation.—The report of this committee was most exhaustive of the subject of its activities. It described the National legislation of the year, and then took up in detail the changes which had been made in the laws of the various states. It recommended strongly uniformity of legislation in regard to food and drug laws.

Committee on Memorials.—This committee reported resolutions on the demise of twelve active and three associate members, with a short life-history of each.

Committee on the Prevention of Adulteration.—A most exhaustive and interesting report was presented by this committee. It congratulated the association upon the steady advance towards better conditions and said: "This widespread spirit of reform and improvement is a beneficent, effective accomplishment in the pharmaceutical industry and deserves our heartiest commendation and co-operation, though candor compels us to as-

sert that instances not infrequently occur which show that there is also need of the exercise of rare discretion to prevent senseless oppression and useless annoyance. There is nothing to be gained by ignoring the obvious fact that in this, as in all great reformative crusades, which have been inaugurated since the beginning of our history, rushing to extremes may result in harm from the activities of narrow-minded officials and enthusiastic but wholly impractical theorists. Popular enthusiasm is like all great forces, in that, while capable of yielding beneficent results when properly guided and restrained, can also work incalculable harm when directed only by prejudice." It called attention to the fact that "high-power papain" could be made by the addition of pepsin to papain and that its sale might lead the seller to the courts. Another surprising statement of the report was that the Cramp Bark of commerce is not collected from the *Viburnum Opulus*, but is really the bark of the mountain maple (*Acer spicatum*) and that the description of *Viburnum Opulus* in the U. S. P. is that of maple bark and not of Cramp Bark. The committee say that the bark of the *Acer spicatum* has not only displaced the *Viburnum Opulus* in America but it has also done so in Europe, and that it would appear, from the use of the substitute, that the maple has a medicinal activity very similar to that of Cramp Bark.

Committee on Trade-Marks.—This committee had a lengthy and interesting report, citing numerous decisions of the courts in determining the rights of manufacturers in the names of their specialties; giving the amended law of the United States in relation to trade-marks, and stating much of interest to those who might desire to acquire a foreign trade-mark for their preparations, in its comprehensive review of the laws of different countries in relation to the same.

Committee on Transportation.—A most interesting and instructive report was that presented by this committee. The subjects treated in it were The Railways, Inter-State Commerce Commission, Freight Rates, Express Companies and Rates, Parcel Post, Panama Canal, Free Customs Port for New York, and Local Deliveries, and when it is said that each one of these subjects was treated most exhaustively it may be seen that it is impossible to summarize so excellent a report. It should be read in full by

every one interested in any one of these subjects.

Committee on Anti-Narcotic Legislation.—This committee reviewed the proceedings of the National Drug Conference and the various steps which led to the passage of the Harrison Anti-Narcotic Bill by the House of Representatives and gave also a list of states that had adopted anti-narcotic laws during the past year.

Committee on Local Associations.—This committee laid it down not only as a moral principle but as a standpoint of policy that "it would be best if each wholesale drug-house throughout the country could realize that the most lasting or enduring success can be best obtained, in fact can only be obtained, by establishing a fixed policy and by conducting its business upon a clean, legitimate basis, relying upon service, quality and candid, fair, honest treatment in order to secure patronage."

Board of Control.—This board in various reports concurred with the recommendations of the committees and this affirmative action was approved by the convention.

After the passage of several complimentary votes by the convention the officers-elect present were installed into their respective offices. The officers-elect for the coming year are:

President—George W. Lattimer.

First Vice-President—F. C. Groover.

Second V. P.—Charles F. Michaels.

Third V. P.—Charles E. Potts.

Fourth V. P.—C. S. Littell.

Fifth V. P.—G. S. Fleece.

Secretary—Joseph E. Toms.

Treasurer—Samuel E. Strong.

Board of Control—Charles Gibson, Chairman, James W. Morrison, George R. Merrill, Mr. Bedwell, John T. Kennedy.

General Representative—F. E. Holliday.

After the installation of officers the Convention adjourned. The place selected for the next meeting is Indianapolis, the time to be probably early in October. The Convention also voted to meet in Del Monte, California, in the year 1915.

The banquet was a most notable occasion. It was served in the main dining-room of the Windsor Hotel on Thursday evening, and the menu was a most attractive one. Mr. John W. Durr acted as toastmaster. The speakers of the evening were the retiring President, Mr. Albert Plaut; George W.

Lattimer, the new President; Judge W. T. Bland, who spoke for "Florida, Past, Present and Future"; Duncan U. Fletcher, who spoke on "Deeper Waterways"; Charles S. Adams, who responded to the toast of "The Ladies." The President's reception was held on Tuesday evening and was a most delightful occasion. The other entertainments were an automobile ride and reception for the ladies on Wednesday, a steamer-trip on the River St. Johns, and on Friday one hundred and twelve of the Convention left Jacksonville for a trip to Havana, Cuba, an excursion which took a week to accomplish.

E. C. M.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



CITY OF WASHINGTON BRANCH.

(October Meeting.)

This meeting, held October 15, 1913, at the National College of Pharmacy, was the first meeting of the local Branch for the winter of 1913-1914, and in the absence of the President, Dr. Lyman F. Kebler, who was out of the city on official business connected with the Department of Agriculture, Mr. W. S. Richardson acted as Chairman. In the absence of the Secretary who was detained on urgent personal business, Mr. S. L. Hilton acted as Secretary.

The first paper presented was "The Opportunity for Selection and Breeding in Drug Plant Culture," by Dr. W. W. Stockberger. The speaker introduced his subject by pointing out that until recently very little was done along the lines of procuring plants

carrying greater drug percentums by culture, all efforts having been directed in producing hybrids.

The object of drug culture was, he stated, to produce varieties or strains of plants which would show marked increased drug constituents, and at the same time give future plants continuing the same results.

From the results already obtained, there is sufficient ground for future work, for, as a fact, the constituents of medicinal plants, especially those containing alkaloids, have been increased.

Observation has shown that no two plants act the same under cultivation, and plants of the same species grown in different locations vary largely as to constituents. In some cases these constituents were inactive or inert, and in others the constituents appeared more active than normal. This condition, the speaker stated, was under investigation.

Another object of this culture was to cultivate authentic specimens of medicinal plants that proper standards can be maintained and established.

While many of the forest drugs have been cultivated in the field and garden, experiments are now being conducted with conditions as nearly like that of the natural plant as it is possible to make them.

Dr. G. A. Russell followed Dr. Stockberger and outlined in detail the work being done at the gardens in Madison, Wisconsin, and the results which had so far been obtained there. He brought out strongly the necessity for only lightly covering seeds, stating that to do otherwise meant absolute failure. The cost of producing some plants of the experimental scale had been prohibitive of inducing commercial enterprise, but such was not the case in the majority of the plants cultivated. Nearly all the plants needed as much attention as would plants in a truck garden.

Dr. Russell gave extensive details of the experiments with pyrethrum, wormwood, stramonium and horehound. In calculating the cost of these experiments, great care has been taken to figure on the bases of land and labor rather than dollar and cents, for the reason that land and labor cost varying amounts in the different localities.

The second paper of the evening was on the subject, "The Possibility of Increasing the Alkaloidal Content of Belladonna Plants,"

by Mr. A. F. Sievers of the Bureau of Plant Industry, Department of Agriculture.

Considerable discussion followed the reading of each paper by all who were present.

Respectfully submitted,

HENRY B. FLOYD.



CITY OF WASHINGTON BRANCH.

(November Meeting.)

The meeting was called to order November 19 by the President, and after disposing of routine business, the program was taken up. Dr. H. A. Seil of New York City discussed observations on *asafetida* and *balsam Peru*.

Asafetida.—The *asafetida* problems during the past five years were briefly reviewed. Various kinds of *asafetida* were discussed. The standard proposed by several European workers, based upon the amount of combined sulphur present in *asafetida*, was considered very inadequate, because it would countenance adulteration, in some instances, to the extent of fifty percent. The so-called pepper *asafetida* was referred to as a very low grade product. The cooperative work engaged in during the past year showed that the lead number was a good index as to the quality of the *asafetida* examined.

The most valuable portion of the standard recognized by the Pharmacopœia is the fact that the material to be known under the designation "*asafetida*" is to be derived from certain sources.

There appeared to be no difficulty whatever in manipulating the article itself in other respects so as to comply with the pharmacopœial requirements. The ash limit is of no particular value. The practical worthlessness of the alcohol solubility test is shown by the fact that when it became known to the dealers abroad that *asafetida* containing less than 50% of alcohol soluble material would not be permitted entry, they soon found ways and means whereby to raise this deficiency, if any existed. The fact is that adulteration was ascertained through the trade long before it was possible to show that actual adulteration did exist by the usual methods of analysis. In time, however, methods of analyses and circumstantial evidence were sufficient to justify detention of *asafetida* and in some instances some of the *asafetida* was not permitted en-

try, notwithstanding the protests made by some dealers. In discussing this matter Dr. Kebler called attention to the fact that during the Russia-Persian War, the trade represented that it was impossible to obtain asafoetida of proper quality and it was incumbent upon the Agricultural Department to meet the situation. This was done by the Treasury Department issuing a decision permitting entry of asafoetida containing not less than 35% of alcohol soluble material, provided it be used under certain conditions. Soon after this decision was promulgated, the adulteration to increase the alcoholic soluble material was resorted to. The trade was very much disturbed because of the detention of asafoetida containing the requisite quantity of alcohol soluble matter. Protests were entered, but there appeared to be no doubt whatever but that the asafoetida was deliberately manipulated. The entrance of such asafoetida was refused.

During the last year or so, asafoetida of good quality has been offered at the ports, containing the proper alcohol soluble material, and so far as it has been possible to determine, free from adulteration. It would, therefore, seem desirable to abrogate the present decision.

The chief difficulty, however, in the whole situation is the fact that none of the asafoetida worked on so far by analysts is apparently of known authenticity. All data appear to be based on unknown material, and we cannot expect to place the matter on a satisfactory basis until authentic material is collected, and carefully examined.

Others who discussed the paper were Messrs. Bradbury, Emery, Hoover, Ewing, and Wilbert.

Balsam of Peru.—The article discussed was the so-called imitation balsam which has been offered for import for a number of years. The earlier shipments were found to contain considerable quantities of resin. This substance was, however, not found in later shipments. All the examinations show that the material has been constantly changing in composition, which was probably due to the variation in manufacture of the commodity, as well as the use of different basic ingredients. The contention of the manufacturer and importers was that the article complied in every particular with the tests laid down in the Pharmacopœia. They seem to forget, however, that a part of the standard of the

Pharmacopœia was that the material must be derived from a certain tree. The imitation product if permitted entry into the United States could be readily mixed with the genuine material without much prospect of its being detected. The incentive to do this is increased by the fact that the imitation is much cheaper than the natural.

During the past year not much of the imitation balsam was offered at New York City, and the indications are that it is being shipped to the home of the natural balsam and there mixed. The methods used for detecting the imitation were described. It was pointed out that the methods originally devised to detect the imitation were not applicable to samples examined a year or so later.

The same question as to uncertainty of authentic material was raised as in connection with asafoetida.

The subject was discussed by Messrs. Bradbury, Jackson, Seil and Kebler.

The Traffic in Smoking Opium.—Mr. A. B. Adams, Chemist of the Internal Revenue Department, spoke of the work of that service in conjunction with the illicit opium traffic in the United States. He exhibited a smoking outfit and indicated the manner in which opium smoking is usually conducted. The cunning of the dealers and purveyors of illicit opium is almost beyond human conception. It happens at times when raids are made on places known to be trafficking in illicit opium, no indications of the business could be positively established. A case was cited where such a raid was made and that in disposing of the opium by throwing it into the sewer, some of the material accidentally splashed upon a brick. The brick was removed from the wall and the material splashed on the brick examined. It was conclusively shown that the material was opium and a conviction followed.

In many instances it was necessary to depend upon the evidence obtained in the examination of residues left in containers or rags used in the manufacture of smoking opium. In order to successfully prosecute it is incumbent upon the Internal Revenue Office to show that smoking opium was actually manufactured. It is believed by some that the Government actually licenses the manufacture of smoking opium. This is absolutely erroneous. The fact that no opium is permitted entry into the United States ex-

cept for medicinal purposes would preclude the issuing of such licenses. He spoke with great gratification relative to the voluntary discontinuance of certain pharmaceutical houses in the manufacture of extract of opium which is considered simply a variety of smoking opium. He regretted exceedingly, however, to state that some manufacturers refused to discontinue this practice and that the Department was not in position to force them.

Attention was called to the fact that a manufacturer of glass ware refused to sell the Department certain materials because the Government handled distilled liquors, but did supply illicit manufacturers of smoking opium with jars in which to handle the commodity. They may have been perfectly innocent in this transaction, but the indications did not point that way.

A can of genuine smoking opium containing $6\frac{3}{4}$ ounces was exhibited and the statement was made that in New York City this package would bring \$40. If this can should bear the Internal Revenue stamp, which was formerly used in conjunction with smoking opium imported into this country, the price of the can would be \$90. The same amount of the common extract of opium would bring about \$20.

Attention was called to the difficulties which have been encountered in the enforcement of the law, due to a recent court decision. In course of discussion it developed that some of the opium smokers smoked as many as two or three dozen pellets at one sitting. They did not consider the extract of opium or the smoking opium as made in this country as satisfactory as the genuine material imported into this country. The method of expressing this fact is by stating that "it had too much kick," by this, meaning evidently that it contained too much morphine. The fact was also established that smoking opium was prepared from the ashes of residues left from the first smoking and the article thus prepared often contained a high percentage of morphine.

The paper was discussed by Messrs. Stewart, Jackson, Hilton, and Kebler.

Federal Control of Habit-Forming Drugs.
—Mr. S. L. Hilton read a communication entitled "The Present Status of Federal Control of Habit-Forming Drugs." Mr. Hilton reviewed briefly the efforts made during the past few years toward the regulation of the

importation and sale of habit-forming drugs into the United States, by the Federal Government particularly. Attention was, however, directed to the recent efforts of the National Drug Trade Conference which resulted in the drafting of an anti-narcotic bill, now popularly known as the "Harrison bill." This bill has for its primary purpose, regulating the distribution and sale of opium, morphine, cocaine, coca, their derivatives and preparations in the United States. The bill was introduced in Congress by Representative Harrison and was passed by the House in extra session. It was then taken up by the Senate, where it was read twice and referred to a sub-committee for consideration. There does not appear to be very much likelihood of the bill being passed in extra session and from the activities at present, it does not appear likely that the bill will pass without considerable opposition.

Mr. Hilton appears to be of the opinion that the drug trade ought to have followed up the bill rapidly after its passage in the House and thus avoid massing of opposition due to an interim of time. The bill is opposed in a number of quarters and unfortunately there is an open rift in the retail trade.

The recent Treasury decision, having for its object regulating cocaine, coca, their derivatives and preparations, from the time they enter United States to the ultimate consumer was also discussed. Mr. Hilton considered the declaration illegal and oppressive. He stated that it would be impossible even for the Government officials to buy these commodities without declaration and that in transferring it from one individual to another in the same Department, the declaration would be required.

Mr. Hilton referred to Mr. Stewart, an attorney, who had given the decision considerable attention, and suggested that he be extended the privilege of making some remarks, which was granted.

Mr. Stewart stated that in his opinion the Treasury decision exceeded the authority granted by Congress, that there was no question whatever but that the Government under the Food and Drugs Act was empowered to deny entry to cocaine or coca, but that it did not have the power to regulate these commodities after they had been once entered. This power, however, could readily

be given under the law if Congress would slightly modify the Act.

In discussing the paper, Dr. Kebler reviewed briefly the various steps taken previous to the issuing of Treasury Decision No. 33456. The Government under the Food and Drugs Act detained a vast amount of smoking opium offered at the San Francisco port and smaller quantities at several other ports of entry. The contention raised was that importers were not advised of the contemplated action under the law and therefore the smoking opium detained should be released and the trade informed as to the position of the Government relative to this commodity.

At the request of Dr. Wright, who had been appointed a special commissioner looking to the study of anti-narcotics and subsequent legislation, it was agreed to allow this Act to remain in abeyance, giving him an opportunity to secure specific legislation by Congress. The result was that an opium act was passed in February, 1909, excluding opium for other than medicinal purposes. As we have heard tonight, while it does exclude smoking opium, it did not preclude the surreptitious manufacture of smoking opium in the United States from opium presumably imported for medicinal purposes. In the fall of 1911, a tentative regulation was sent out by the Agriculture Department, tending to regulate the importation of opium, morphine, cocaine, coca, their derivatives and preparations. Much opposition developed to the regulation as framed, but no one appeared to be opposed to that part of the regulation tending to control cocaine or coca preparations. During the year 1912 some coca leaves were detained at the port on the ground that they did not bear a declaration as to the quantity or proportion of cocaine they contain and also because the leaves might be injurious to the health of the people of the United States. The importers of their own volition stated that they would be willing to label the packages as to cocaine content and also place their books at the disposal of the Department for the purpose of determining whether or not the drug was so used as to be deleterious to the public health. After a number of shipments were thus detained and permitted entry it was decided to make the enforcement uniform and accordingly the Secretary of the Treasury promulgated the Treasury decision in question. Dr. Kebler furthermore stated

that the Department was prepared to use its best efforts in controlling and regulating habit-forming drugs and that every possible assistance would be given to the passage of any law which would effectually accomplish this purpose.

Replying to Mr. Stewart's statement to the effect that the decision was not within the law, attention was called to Treasury decision governing the importation of *asafoetida* conditionally. In fact many imports have been permitted entry conditionally, but so far as is known no material objections have been raised to this practice until the cocaine decision was put into force and effect.

Mr. Hilton stated that the Harrison bill will accomplish almost what the decision would, and furthermore that the decision was conducive to smuggling.

Mr. Hilton was informed that it was impossible to see exactly how it induced smuggling any more than under present conditions, and furthermore that even though smuggling was resorted to in the past, it would not be any worse than at present. A case was cited where an attempt was made to smuggle 700 ounces of cocaine into the United States and that the smuggler is at present serving a term in prison.

The bill was further discussed by Messrs. Wilbert, Jackson, Bradbury, Richards, Stewart, and others.

The meeting was considered as one of the most profitable in the history of the local Branch.

Adjourned.

HENRY B. FLOYD, Secretary.



CITY OF WASHINGTON BRANCH.

(December Meeting.)

By invitation of Dr. A. S. Cushman and H. C. Fuller, director, and member, respectively, of the Institute for Industrial Research, the December meeting of the City of Washington Branch of the American Pharmaceutical Association was held at the institute's new building, 19th and B streets, N. W., Washington, D. C.

Before the meeting, Dr. Cushman and Mr. Fuller opened and lighted the entire building to the members and guided them through its modern and well-equipped laboratories. Many delicate and intricate experiments and

tests, relating directly to pharmacy and otherwise, now being conducted there, were explained and commented upon.

In the absence of the President (Dr. Lyman F. Kebler), the meeting was called to order at 8:30 by Mr. W. S. Richardson, the first vice-president. By motion, the reading of the minutes of the previous meeting was dispensed with.

Under new business, the treasurer reported a deficit which has existed for some years, and then upon motion, properly made and seconded, the secretary's report, showing expenditures for the current year, was accepted, without audit, and referred to the treasurer for settlement.

The committee on nominations, appointed at the November meeting, was then called upon to report. Mr. Lewis Flemer, chairman, requested Mr. H. C. Fuller, the secretary, to read the report of the committee, which consisted of Mr. Flemer, Mr. Fuller and Dr. George W. Hoover.

The recommendations of the committee were as follows: For president, Martin I. Wilbert; first vice-president, W. S. Richardson; second vice-president, Dr. Rodney H. True; secretary, Henry B. Floyd; treasurer, Wymond H. Bradbury; member of Council, Dr. Lyman F. Kebler; and further recommended that the office of secretary and that of council be separated.

Immediately following the reading of the committee's report, Mr. Wilbert declined the nomination for president. Discussion showed that the office of secretary and that of member of council had been separated in 1912 and that the term of the present member of the council did not expire until the end of 1914. The committee then withdrew its recommendation concerning the separation of the office of secretary and member of the council, and also withdrew all its nominations except that for secretary and treasurer.

From the floor, Mr. W. S. Richardson was nominated for president, Dr. Rodney H. True for first vice-president, and Dr. Henry E. Kalusowski for second vice-president. No other nominations being made, and one only having been made for each office, it was moved that the secretary be directed to cast the ballot of the Branch as a unanimous ballot in favor of the nominees. The secretary invited attention to the fact that he was on the list of nominees and suggested the selection of some other member to cast the ballot.

His suggestion failed to meet approval, whereupon he cast the ballot in favor of the nominees as directed. The acting president then declared the following officers elected for the year 1914: President, W. S. Richardson; first vice-president, Dr. Rodney H. True; second vice-president, Dr. Henry E. Kalusowski; secretary, Henry B. Floyd, and treasurer, Wymond H. Bradbury.

The election of officers having disposed of all new business for the evening, Mr. H. C. Fuller presented a paper entitled "Conservation in Relation to Pharmaceutical Chemistry." Mr. Fuller described clearly and forcibly existing conditions in medical and pharmaceutical chemistry, noting the persistency with which the manufacturer pursues the "almighty dollar." The "hit or miss" plan of mixing medicines, forming some new concoction to which is attached a high-sounding, valueless (and generally meaningless) name, with the hope that it will stay mixed and catch the fancy of the consumer, was lamented. Inadequate research work, insufficient therapeutic testing, incomplete analysis, and utter disregard for the well-established laws of chemistry, are bringing and have brought into the market each year thousands of valueless preparations which burden the shelves of the retailer. Yet he has to carry all of these because some smooth-tongued and gifted detail man has gotten one or two physicians in his neighborhood to write an occasional prescription for such mixtures.

The immense inroads made by a certain foreign firm manufacturing pharmaceuticals was commented upon, and the key of its success against American competition was attributed to the vast research work conducted by it. Not one of their preparations, it appears, is allowed to enter the market until its stability, therapeutic activity and exact chemical content has been definitely ascertained by most exhaustive experimentation.

The amount of research work done by American houses was compared with that of foreign and found to be all but nil.

A remedy was suggested for the prevention of fakes and other evils, in having the American Pharmaceutical Association establish an extensive chemical laboratory where the pharmaceutical products offered could be analyzed for their chemical contents and their therapeutic values ascertained. Reports of each analysis would be forwarded to its members and every man in the business

soon would know to an absolute certainty what each preparation he is selling is, and what it can be expected to do.

Such a laboratory would immediately expose fakes and eventually, when its findings would come to have the faith of the entire public, fake preparations would no longer be marketable. Pharmaceutical manufacturers would exercise greater care before presenting new preparations and the claims of value for such products. The retail druggist would profit because his shelves would contain only valuable and marketable matter.

Mr. Fuller presented specimens of a number of preparations recently analyzed, by the institute, and showed to what extent the public is fooled by well-written advertisements. A four-ounce bottle of diluted lactated pepsin, sold for a dollar, commanded much comment, for under a copyrighted name it was sold as a brightener of the eyes and a beautifier.

Wrinkle-removers, sold for the same price, proved to be nothing more than pieces of inexpensive court plaster. Diabetic and other foods for which fabulous and mythical claims have been made, and for which enormous prices have been asked, proved to be nothing but cheap, roasted grains. Hair-removers, costing \$1.50 a box, amounted to about five cents' worth of rosin and balsam mixed. The alkaloidal claims for cod-liver oil also came in for criticism.

In the discussion which followed, Dr. George W. Hoover stated that the Bureau of Chemistry has much unpublished information concerning these fakes, and if, as contemplated, a bulletin giving this information is published, much of general interest will come out and there will be some genuine surprises. There has been a decided improvement in the character of pharmaceutical products since the passage of the pure food act, and another decade will bring forth even greater improvements, is his belief.

The question of declaring various drugs, upon which Mr. Fuller touched, was discussed, and, in addition to the content declaration, it was suggested that the effect upon the system be outlined. Cocaine legislation, now so much discussed, furnished food for much controversy, the opinion of those present as to the ultimate effect of the legislation now proposed and recently enacted being about equally divided.

The wasteful methods employed by our

manufacturers was shown by example. Certain refuse thrown out now by chocolate manufacturers is worth \$100 to \$150 per ton, and lanoline, much finer than that now imported, can be made from the waste thrown out by woolen manufacturers.

Mr. Wilbert at this point called attention to the German Pharmacists Association, which has been doing work of the character outlined by Mr. Fuller (its laboratories being located in the Berlin College of Pharmacy), and whose findings have been going to its members as bulletins.

At this moment Dr. Kebler arrived but did not assume the chair. His trip to Hartford, Conn., in connection with a cocaine case, had been useless, as the defendant had "skipped" bail.

"Commercial Alcohol in Germany" was the next subject and was presented by Dr. Rodney H. True, who outlined conditions which have led to the extensive alcohol industry in Germany. It appears that this industry is a part of a great economic undertaking commenced by Frederick the Great and which has had hearty government support ever since. It was clearly shown that as an individual industry it was a failure, but as a part of an economic farming arrangement it had not been a failure.

Potatoes are much grown in the eastern or sandy provinces of Germany in land which would be called poor here.

Crops are rotated in the order of potato, grain and grass. The potato uses but little of the ash content of the soil and is deeply planted. While smaller than the American, it is higher in starch content and contains less water. The yield, with the deep planting noted, is about three times the average American crop, and it leaves the land in excellent shape for the grain to follow. In fact, the grain output has been doubled by this means.

Much of the potatoes are sent to the western provinces and to the cities, the major portion, however, going to the still. The mash left over is used to feed the stock. Altogether, this economic arrangement has been wonderfully developed, and, while no profit is obtained directly from the alcohol, it enters into this great plan as an inseparable and unreplaceable cog.

The plans for disposing of the alcohol, the societies for its protection, and the peculiar

conditions incident to this industry, were all minutely and interestingly described.

The American attempt to commercialize alcohol, while by no means a success, to date has shown enough to warrant a continuation of the experiments already made.

The effect of tax levies and the qualities of the potatoes came in for much good-natured comment and well-placed witticisms.

The question of the location of the permanent home for the American Pharmaceutical Association was then brought to the attention of the Branch. The proposed locations were discussed and much comment was made of any attempt to locate the home out of Washington. Mr. Wilbert spoke very feelingly and strongly in favor of its being located in Washington, where it would be free from the influences of politics and near the national legislative body of the country. It seems to be the logical situation for such a home as is proposed.

The following motion was then proposed, seconded and carried:

WHEREAS, It is proposed to provide a permanent headquarters or home for the American Pharmaceutical Association, and

WHEREAS, Efforts have been and are now being made to secure the location of this permanent headquarters in several widely separated cities, and

WHEREAS, The American Pharmaceutical Association is incorporated under the laws of the District of Columbia and is now operating under the general provisions of this incorporation,

Now, therefore, We, as members of the City of Washington Branch of the American Pharmaceutical Association, would respectfully remind the officers and the council of the parent organization that there are many and weighty reasons for locating the permanent home of the American Pharmaceutical Association in the city of Washington.

The secretary was also directed to bring this matter to the attention of the council.

The William Proctor memorial was also considered and it was urged that if it should be in the form of a statue and that if the American Pharmaceutical Association built here, the proper place for the statue would be in front of the home. "It would be better in our front yard than in the back yard of some government building," quoted Mr. Hilton, for he knows, as all Washingtonians do, that memorial statues of all but national

heroes are placed in obscure parks and "lost" forever. There are a dozen such statues in Washington, of which no one ever hears and few have ever seen; all are in a state of neglect.

Dr. Kebler, in closing, with well-chosen words thanked the branch for the honor which it had conferred upon him to elect him its president and for the hearty support he had received. In turn a vote of thanks was tendered him for his excellent programs and ever persevering efforts to better the branch.

A vote of thanks was tendered to Dr. Cushman and to Mr. Fuller for their kindness in tendering the use of the institute to the society, and it was directed that a note be recorded in the minutes of the motion.

The meeting adjourned at 10:45.

Mr. Albert Hale, of the Pan-American Union, was to describe the "Peru Balsam Industry," but was unable to remain after ten to deliver his talk. His address will be given at some meeting in the near future.

This meeting was held in the magnificently furnished and equipped library of the institute, and was one of the best attended meetings of the year.

Respectfully submitted,

HENRY B. FLOYD, Secretary.



NEW YORK BRANCH.

(November Meeting.)

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of November 10th. Vice-President H. V. Army presided.

Following the reading of the minutes and the report of the Treasurer, Prof. W. C. Anderson, Chairman of the Committee on Legislation, reported that Dr. Alsberg, Chief of the Federal Bureau of Chemistry, had expressed the opinion that the treasury decision designed to regulate the traffic in cocaine would not be applied to sales of the drug on prescriptions as the prescriber's order was sufficient record. Professor Anderson pointed out that the decision made no exception and the matter was one of enforcement. Concerning the Harrison Federal anti-narcotic bill, the committee reported that there was renewed activity in Congress and that the passage of the measure seemed probable. As

an outcome of the enforcement of the State "day of rest law," Professor Anderson said, there had been started a movement for a law that would oblige druggists to close their stores on Sunday. He thought that such a step would lead to an increase in dispensing by physicians. The several pending congressional measures and other evidences of a desire for the curtailment of the sale of tablets of mercuric chloride were reviewed in the committee's report. The chairman was of the opinion that the greatest good would be accomplished through the prohibition of the publication of details concerning poisoning fatalities in the newspapers.

Prof. G. C. Diekmann presented the report of the Committee on the Progress of Pharmacy. Among other matters reviewed in the report were a report on the examination of medicinal substances, published in the *Sud-Deutsche Apotheker Zeitung*; an article on "Further Developments in the Physiological Examination of Digitalis," by Focke (*Zeit. Exp. Med. Therap.*), appearing in the *Pharmaceutical Journal*; a German article on the spontaneous combustion of fireworks; and an article on "The Relation of the Specific Gravity and the Evaporation Residue of Tinctures and Fluidextracts," by Ziegler (*Pharm. Zentralh.*). Professor Diekmann referred also to several items in the advance report of changes in pharmacopœial standards.

This report was discussed by Messrs. Mayo, Raubenheimer, Mansfield, and Murray.

Secretary Hugh Craig read a communication from George M. Beringer, the President of the parent association, in which reference was made to a proposition to have the association take some part in a drug, chemical, and food exposition to be held in Madison Square Garden, New York, January 19th to 26th next. Mr. Beringer suggested that the eastern branches of the association hold a conference in connection with the exposition and that the New York Branch initiate a movement for such a meeting.

After some discussion by Messrs. Craig, Roemer, Latham, Kantrowitz, Raubenheimer, and Murray a committee, consisting of John Roemer, Hugo Kantrowitz and J. H. Rehfuss, was appointed to investigate the project and report at the next meeting.

Hugh Craig, J. L. Mayer and B. L. Murray were appointed to constitute a Committee on Nominations.

Joseph E. Lauber, Esq., read a paper enti-

tled "Safeguarding the Use of Poisons." He contended that the aim of endeavors to safeguard the handling of dangerous substances should be to protect the ultimate user. To accomplish this, uniform, distinctive methods were, in his opinion, necessary. A distinctive shape for poisonous substances in solid form and a container of distinctive shape for solids and liquids, he believed, would afford the most effective safeguards. He favored the jackstone shape for poisonous solids.

Proper labeling, the speaker considered essential. And he thought that the label for poisonous substances should bear, in addition to the word "poison," a list of antidotes and directions for emergency treatment of the particular poisoning.

Mr. Lauber advised that the Branch appoint a committee to draw up a bill, enlist the support of the State Pharmaceutical Association, and work strenuously for its enactment, allowing no temporary failure to daunt it in such a worthy purpose.

The subject introduced by Mr. Lauber, particularly as it applied to mercuric chloride, was discussed to a considerable extent. C. A. Mayo stated that he had been informed that M. I. Wilbert, of the United States Public Health Service, had prepared a report on the much-agitated matter of the misuse of mercuric chloride, but that the service evidently had no plan of action in view. He considered the wrapping of each tablet in paper or foil to be the best safeguard. Otto Raubenheimer pointed out that the German Pharmacopœia requires that tablets of mercuric chloride be of a cylindrical shape, colored red, wrapped in black paper with a poison mark, and sold in a distinctive bottle. In his opinion a flat, square, green tablet would be better, and national legislation is essential to assure uniformity.

Prof. Jeannot Hostmann could see no valid reason why the sale of mercuric chloride tablets should not be restricted to prescriptions. Veterinary surgeons, he said, hand out the tablets indiscriminately. Joseph Weinstein expressed a similar view. Thomas Latham, referring to the widespread popular use of these tablets, said that this was the bichloride age in the cycle of results following newspaper publicity. J. H. Rehfuss believed that mercuric chloride was necessary to the public as a guard against septicemic infection. But he thought that its sale might well be limited to prescriptions or at least to weak solutions.

He stated that it was a common practice for physicians to leave the tablets in plain envelopes at the homes of patients. Professor Anderson was of the opinion that accidental poisonings with mercuric chloride were far less numerous than suicides. He was in favor of confining all selling and dispensing of these tablets to prescriptions.

Messrs. Mayo, Wimmer and Roller also took part in the discussion. As a result the following resolutions were passed and referred to the legislative committee of the New York State Pharmaceutical Association:

WHEREAS, The public welfare is endangered by the indiscriminate sale and distribution of bichloride of mercury; therefore, be it

Resolved, By the New York Branch of the American Pharmaceutical Association, that the public welfare demands that it should be made illegal to sell, dispense or give away bichloride of mercury in any form except upon the written prescription of a licensed physician or veterinarian, dispensed by a registered pharmacist or druggist.

WHEREAS, The increase in the use of bichloride of mercury tablets as an agent for committing suicide seems directly traceable to the sensational newspaper reports of cases in which it has been used; therefore, be it

Resolved, By the New York Branch of the American Pharmaceutical Association, that all newspapers which have regard for the public welfare be requested to refrain from mentioning the particular agent used wherever suicide is committed by means of poison.

John Roemer read a paper on "The Need of Authority for Non-Official Medicaments." This was in part an account of a conversation between a doctor who wanted to prescribe digitalin and a druggist who wanted to know what sort. The prescriber and the dispenser after considering in turn the standards or lack of standards of digitalis, its derivatives and preparations, arrived at the conclusion that pharmacy was somewhat behindhand in the matter of furnishing necessary information about many useful drugs.

Continuing, Mr. Roemer said that the Pharmacopœia did not, and scarcely could, keep abreast of the progress in medicine, and hence the composition of many remedials was unknown or wrongly stated. He decried the fact that pharmacists were obliged to rely upon the council on pharmacy and chemistry of the American Medical Association for information which pharmacy should furnish to medicine, and could from that source obtain but meager details and no standards. He

declared that there was a need for a central bureau under pharmacal auspices to examine and standardize new medicaments and many old ones.

In discussing this paper, Mr. Raubenheimer said that the committee of the parent association, on standards for unofficial drugs was designed to meet the need mentioned by Mr. Roemer. He agreed that a central laboratory was necessary for the proper carrying on of the work. J. L. Mayer instanced Vlemink's solution as an illustration of an official standardless preparation. The color and sulphur content, he said, were a matter of conjecture. Specimens he had examined contained from 3½ to 24 percent of sulphur. Several speakers pointed out the unreliability of physiological standardization.

Mr. Lauber and Mr. Roemer were formally thanked by the Branch.

HUGH CRAIG, Secretary.

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CHICAGO BRANCH.

(December Meeting.)

The December meeting of the Chicago Branch of the American Pharmaceutical Association was held Tuesday evening, the sixteenth, with an interested company in attendance.

After the disposal of business, Mr. E. N. Gathercoal introduced the subject of the evening, "The Pharmacognosy of the Rhamnus Barks." He showed specimens of the bark from *Rhamnus Frangula* and *R. cathartica*, which are European shrubs; *R. Purshiana*, *R. californica*, and *R. crocea*, from western United States, and *R. chlorophorus*, a Chinese plant. Also samples of barks used as adulterants of *Cascara* and *Frangula*, including the one found a year or so ago by Mr. Miller of Eli Lilly & Co., in a large lot of *Cascara*.

Mr. Gathercoal discussed the characters of the plant supplying each of these; mentioned its habitat and pointed out the external markings of each bark, their resemblances, as well as the features by which they may be readily distinguished. He stated that the adulterant found, but not identified, by Mr. Miller, disclosed in its internal structure all the ear-marks of a cherry bark, and, as on maceration in water, a slight odor of hydrocyanic acid was observed, it probably was from a species of cherry.

He also presented a review of the litera-

ture on the chemistry of the Rhamnus barks and showed the chemical tests proposed for the monographs of Rhamnus Purshiana and Frangula in the new U. S. P.

His part of the discussion was closed with a projection-microscope exhibit of sections prepared from the various barks and a description of the tissues of each, bringing out points of similarity and dissimilarity in their structure.

Mr. L. E. Warren, of the chemical laboratory of the A. M. A., Professors A. H. Clark, C. M. Snow, G. D. Timmons and W. B. Day and Messrs. J. H. Wells, Wm. Gray, I. A. Becker and C. F. Storer took part in the discussion.

W. B. DAY, Secretary.



NASHVILLE BRANCH.

(December Meeting.)

At the meeting of the Nashville Branch of the A. Ph. A. held at Furman Hall, December 11th, the By-laws were amended by making the fiscal year concurrent with the calendar year, as is the case with the parent body.

A social get-together meeting of local druggists and their wives was planned for January, and Messrs. Burge, White and Hutton were appointed as a committee to make the necessary arrangements.

Mr. Ira B. Clark then read a very interesting paper on the subject "Window Dressing." He stated that a drug store window was a valuable medium for advertising, although some seemed to think it useful only for the admission of light and as a repository for various drug-store junk. It does not require any special artistic ability to dress a window but a little application of gray matter and judgment in the selection of seasonable and profitable goods. He thought that the color to be used in dressing the window should either harmonize with the color of the article displayed or should be in sharp contrast with it. Red and green, blue and white, and orange and black harmonize well. Special emphasis was laid on price cards, as the story is just half told without them. Toilet articles, a combination of tooth brushes, powder and paste, "own preparations," olive oil, stationery, rubber goods, surgical goods, and occasionally a collection of prescription files, and a percolator in operation make good displays.

In conclusion, he strongly discouraged the

practice of advertising patent medicines in the drug-store window.

Following the reading of this paper a lengthy discussion was had on the subject participated in by M. E. Hutton, J. B. Sand, C. O. Prince and J. M. Rogoff. An amusing experience was told by Dr. Rogoff about a display of moth balls he once made in his window. An Italian who had just arrived in America, walked in and bought two packages. In a few minutes he returned with an angry look on his face and a stiletto in his hand and, approaching the doctor, shouted, "Candy stinks!"

Dr. J. O. Burge read a report on Alcresta, Prof. Lloyd's new alkaloidal reagent, and Dr. E. A. Ruddiman exhibited a sample of it he had just received.

A motion was made by W. R. White looking to the establishment of closer relations with the Academy of Medicine, and a committee was appointed for this purpose.

The Branch then adjourned.

WILLIAM R. WHITE, Secretary.



PITTSBURGH BRANCH.

(December Meeting.)

The initial meeting of the Pittsburgh Branch for the winter season took place Friday evening, December 12, at the College of Pharmacy. Too many strenuous duties devolving upon the officers and the dependable members made it impossible to get the wheels to going around earlier, as they should have done.

This meeting was honored by a short visit from Chancellor McCormick, of the University of Pittsburgh, for the first time.

A communication was read inquiring into the possibility of securing a suitable place in this end of the state at which the 1915 meeting of the Pennsylvania Pharmaceutical Association could be held. After discussion and reference to a number of points that might be considered in this connection, the matter was referred to the secretary as a committee to investigate and if a suitable place can be found it will be presented and recommended at the 1914 meeting of the P. Ph. A.

On motion, President Campbell named the following committee on nominations: J. A. Koch, Louis Saalbach, B. E. Pritchard. After serious consideration as to available candidates who could be depended upon to render

service, the following ticket was named: President, Andrew Campbell; vice-presidents, Chas. E. Willets, P. G. Walter, L. K. Darbaker; secretary, B. E. Pritchard; treasurer, P. Henry Utech. Committee chairmen: Membership, J. S. O'Brien; practice, W. H. McDonald; medical relations, Geo. W. Kutscher; education and legislation, John C. Wallace; publicity, B. E. Pritchard; program, F. J. Blumenschein. The report was on motion received, and there being no objections nor nominations from the floor, the nominees will be voted for at the January meeting in conformity with the by-laws.

From the question box the accompanying prescription was taken with the statement that after having been twice prepared, by different dispensers, it had thrown down a brown precipitate and information as to what caused it was sought for:

Sodium salicylate.....	drams 2
Sodium bromide.....	drams 1½
Caffeine citrate.....	grs. 36
Aqua menthae pip.....	ozs. 1½
Syrup simplex, q. s.....	ozs. 3

The suggestions made were that it was probably due to some impurity present in the sodium salicylate; that a trace of iron due to coming in contact with a spatula in compounding, but as these were merely conjectures the problem was referred to the Committee on Practice for solution.

Louis Breyer, class 1913, Pittsburgh C. of P., favored the Branch with a valuable talk on window displays. He said: "The three cardinal points to be considered in window displays are what to display, how and when. No window display can prove successful in selling goods that has not been given thoughtful consideration and planned for in advance. It is too important a branch of business getting to be gone at in a haphazard, hit or miss manner. Some of my best results from window advertising have been obtained after having given three or four weeks careful study and laying out of plans. In one store where I was employed there was a large stock of a face cream which was considered dead and had been allowed to cumber the stock room until it had become a nuisance. I took hold of that item and made up a striking window display with it as a prominent feature. It had previously been held at the cut rate schedule as to price, but in this exploitation I placed a

card bearing the full retail price, with the result that while it had failed to move before at a reduced figure, during the life of this display we disposed of \$75.00 worth, which proves that it is not essential to demoralize prices to produce results.

On another occasion on an order for five cases of Welch's grape juice there came through an error 50 cases. Upon notifying the shipper he requested that the excess quantity be held subject to order. It occurred to me that while so large an amount was on the premises it might as well be earning something, so I determined to make a big window display while there was plenty of material for the purpose. This plan I carried out so successfully that before the shipper could place the goods elsewhere the entire 50 cases were sold, and at full price, no cut being necessary to make sales. And, mark you, this was not in a big, prominently located city store either. Mr. Breyer described in more or less detail several striking displays that had been pulled off, as well as others which are just in process of evolution for future use. For so young a man Mr. Breyer has splendid ability and bids fair to rise to the top as a window display artist.

During the discussion following Mr. Breyer's talk, President Campbell described a very attractive and novel display for window use involving the arrangement of a series of bottles carrying water under air pressure to simulate the process of distillation, accompanied by a sign which read, "Distilling Witch Hazel for our Trade," which caused quite a run on witch hazel of more than a temporary character. Mr. Campbell made use of the blackboard in showing how this scheme was worked out.

Dr. J. A. Koch was on the program for a talk on "The London Drug Market," but before entering upon that topic he presented a very instructive and interesting report of the proceedings of the International Pharmaceutical Congress at The Hague, to which he and Prof. J. P. Remington were sent as representatives by the A. Ph. A. Dr. Koch took his audience on a very enjoyable and instructive tour through the famous drug market of the world, which is located in Mincing Lane, London, where practically all the crude drugs from every country in the world are primarily marketed. He described the methods in use for conducting the regular public sales at which the market quotations for

crude drugs are fixed. He exhibited a number of lists of such drugs as were to be offered at certain dates in which appeared shipments from almost every drug growing country on earth. There are numerous firms having quarters in the market place, each one specializing in certain products. Some show but one line such, for instance, as what we know as Gum Benzoin, but that name does not appear in the lists; there it is known as Gum Benjamin. Other brokers show only Asafœtida of all sorts and conditions, still others various grades of Tragacanth, while Cardamom Seeds in endless variety engage the attention of others.

The study of methods used by the natives in packing and preparing drugs for shipment from the country of their origin is a revelation to the visitor, as is likewise the very open and fair manner in which the drugs are shown to prospective buyers. No one is ever asked to bid without full knowledge of the character and condition of the article offered, so that cheap, poor quality, worthless drugs found on the market are there with malice aforethought, and not because it just happens to be a bad lot, a fact which shoppers for low prices in drugs should keep in mind.

The pamphlet containing an abstract of all the changes proposed for incorporation in the forthcoming Ninth Revision of the U. S. Pharmacopœia was presented for discussion and consideration, but owing to the lateness of the hour, it was on motion referred to Dr. Louis Saalbach to examine and bring up such portions thereof as he deems worthy of discussion at the January meeting.

B. E. PRITCHARD, Secretary.



SAINT LOUIS BRANCH.

(December Meeting.)

The Saint Louis Branch of the American Pharmaceutical Association held a regular meeting in the Saint Louis College of Pharmacy, Friday evening, December 19, 1913. The meeting was called to order by Vice-President Schulte. The minutes of the previous meeting were adopted as read.

Under the order of new business, Mr. Wilkerson made a motion which carried, that the subject for discussion for the next meeting be the use of shorter names and synonyms for some of the U. S. P. and N. F. preparations. The program was then

taken up. Mr. Schulte presented a paper on "Windows and Window Dressing."

On motion of J. W. Mackelden, seconded by C. T. Buehler, Mr. Schulte's paper was received.

In the discussion of Mr. Schulte's paper so many good points were brought out that it was decided to make it one of the papers for the January meeting.

There being no further business, and on motion, the meeting adjourned.

JULIUS C. HOESTER, Sec'y.

The Pharmacist and the Law

ABSTRACT OF LEGAL DECISIONS.

CONDITIONAL SALE—BANKRUPTCY—PREFERENCES. A soda fountain was sold on a contract of conditional sale about five months before proceedings in bankruptcy were begun against the purchaser. The seller claimed the proceeds in the hands of the trustee. The contract of sale was never recorded as required by the law of Missouri, in which State the bankrupt resided. Three days before the proceedings were begun the bankrupt gave the seller a chattel mortgage upon the property somewhat in excess of the price in the contract, and this was duly recorded. In the interval between the contract and the mortgage the bankrupt incurred other debts in its business aggregating more than the value of the property in question. The seller claimed under the contract and the mortgage independently. It was held that the contract of sale, not being recorded, was void as to subsequent general creditors of the buyer and its trustee. As the bankrupt was hopelessly insolvent when the chattel mortgage was executed, and the claimant's representatives had reasonable ground to believe a preference was intended, and would result from the mortgage, it was held to be void as against the bankrupt's trustee. But it was held that the right of subsequent creditors to urge their objections to the contract and mortgage was defensive merely against the seller so as to invalidate a lien giving a preference on distribution on bankruptcy, and did not entitle the creditors to priority in the distribution of proceeds as against the seller. He

was entitled, on filing his claim as a general one, to participate equally with the subsequent creditors in the distribution of the bankrupt's estate.—*L. A. Becker Co. v. Gill*, 206 Fed., 36.

VALIDITY OF SALE BY BANKRUPT PARTNER.—One of the members of a partnership conducting a soda fountain business, joined in a sale of the stock and fixtures to the father-in-law of his partner, and retired from the business, which was continued by his former partner alone, but in the firm name. On a petition by his trustee to have the sale set aside it was held that the fact that the partner who continued to carry on the business thereafter contracted indebtedness on the strength of his possession of the property afforded no ground for an attack by the bankrupt or his trustee on the validity of the sale.—*In re Young*, 206 Fed., 187.

SALE OF STOCK—SELLER'S REMEDIES—RIGHT TO RETAIN ADVANCE PAYMENT.—In an action to recover back the advance payment made on the purchase of a stock of drugs, it appeared that the plaintiff contracted to purchase the defendant's stock, paying \$2,500 in cash, and agreeing to pay the balance on delivery of the bill of sale when the statute relating to sales in bulk had been complied with, which would require at least five days. The plaintiff took possession and retained it for 24 hours. He then claimed that he had been induced to purchase by fraudulent representations, and demanded that the defendant take back the stock and repay the cash already paid. The defendant took charge of the store and continued to operate it in all respects as though no sale had been made or contemplated, selling a large proportion of the stock and purchasing new goods. It was held that the sale was entirely executory at the time the plaintiff repudiated it, and the defendant, having again taken possession before title passed, could not enforce specific performance. His only remedy was an action for damages for breach of the contract to purchase. The seller would only be entitled to retain the advance payment as damages for the purchaser's breach of contract. That would ordinarily be the difference between the market value of the stock at the time of the sale and the contract price. But the defendant did not counterclaim for damages. All he asked was a dismissal of the case with costs. As he did not deny that he was placed in the identical position in which he was before the plaintiff took possession, his dam-

ages were only nominal. His action in retaking the goods and exercising acts of ownership over them constituted a waiver of his right to either sue upon the contract or bring an equitable action to enforce it. The plaintiff was held entitled to recover the advance payment made.—*McCrea v. Ford*, *Colorado Court of Appeals*, 135 Pac., 465.

SCOPE OF EMPLOYMENT—UNLICENSED CLERK—A master is not liable for every wrong which the servant commits while in the performance of his contract of employment. His responsibility only attaches when the servant is acting within the real or apparent scope of his employment and in line with his duties. Suit was brought against the proprietors of a drug store for injuries to the plaintiff due to the alleged negligence of an unlicensed clerk in putting pure trikresol on the plaintiff's arm, which was thought to be blood poisoned. The complaint alleged that after a physician who was in the store at the time had requested the clerk to prepare a 1 percent solution of trikresol for use on the plaintiff's arm, the physician left the pharmacy, and the clerk negligently, and because of his incompetency in undertaking to fill the prescription, prepared for and gave to the plaintiff a quantity of pure and unadulterated trikresol, which caused the injury complained of. It was held that the substantive act alleged was the supplying of a dangerous solution of medicine, when a harmless or beneficial one had been prescribed, and that this constituted negligence within the scope of the clerk's employment, for the result of which the master was liable. It was also held that the sale of the trikresol by the unregistered clerk was conclusive evidence of negligence under the Oregon Statute L. O. L. 4750, declaring that it shall be unlawful for any person to sell any drug, medicine, or chemical, or to dispense or compound any prescription of a medical practitioner, unless such person be a registered pharmacist, or a registered assistant pharmacist. Judgment for the plaintiff was affirmed.—*Goodwin v. Rowe*, *Oregon Supreme Court*, 135 Pac., 171.

RECORDING SALE OF POISONS—CONSTRUCTION OF STATUTE.—The Delaware statute, 24 Del. Laws, c. 140, 14, provides that before delivering to a customer strychnine, arsenic or corrosive sublimate or any poisonous compound, combination, or preparation, thereof "there shall be recorded in a book kept for the purpose the name of the article, the quantity delivered, the purpose for which it is al-

leged to be used, the date of delivery, the name and address of the purchaser, and the name of the dispenser." In the first case under the statute it appeared that the defendant had sold bichloride of mercury to a customer and entered the sale on a slip of paper showing the sales for the day, which with other daily slips were regularly put in an envelope kept in his safe. It was held that this was a violation of the statute; but in view of the defendant's evident desire to abide by the law, only the minimum fine was imposed.—*State v. Hopkins (Del.)*, 88 Atl., 473.

CONTRACT FOR SALE OF DRUG STORE FIXTURES.—An offer and acceptance for the sale of drug store fixtures were in the following form: "We propose to furnish and erect complete in your store at Charleston, W. Va., the following fixtures: 25-foot wall case (McLean style); 18-foot tincture shelving; 11-foot patent medicine case; 6-foot tobacco case and humidor; 6-foot mirror; 12-foot B work counter; 12-foot B partition; 18-foot 6-inch settee upholstered in green leather; 7-foot 6-inch mirror, above settee; 14-foot 6-inch "L" case; 36-foot cases; 5-foot wrapping counter, glass front and sliding floor; 10-foot laboratory table. Exposed parts of alcove in solid veneered mahogany, all glass bevel plate and all mirrors No. 1 grade same, metal back; all cases to be all plate—plate shelves 10-inch marble base; finish—best quality, hard polished and rubbed. Complete plans, specifications and details to be submitted and approved by purchaser. Price, \$2145. Bernard Glocker Co., per Leon Shipman. Accepted: Jas. A. Carr, Carr's Drug Store." In an action for damages for breach of the contract by the defendant, the defendant argued that until complete plans, specifications and details were submitted by the plaintiff and approved by the defendant, the contract was incomplete, not binding on, and therefore revocable by either of the parties. The court did not agree to that conclusion, because Carr did not give the plaintiff an opportunity to prepare and submit plans and specifications for his approval. Within an hour after accepting the order, he arbitrarily sought to revoke it, assigning as the only reason that he had purchased the same fixtures from another company at a materially reduced offer. It was held that the contract was mutually binding on both parties and that Carr could not revoke it. His refusal to take the fixtures in conformity with the contract was a breach thereof.

The contract was not invalid because of the concluding clause thereof. It was sufficiently definite in description of the fixtures.—*Bernard Glocker Co. v. Carr, West Virginia Court of Appeals*, 79 S. E., 732.

SALE OF COCAINE—PROOF.—On appeal from a conviction for an unlawful sale of cocaine it was held that if the sale was made upon the prescription of a physician, that fact lay particularly within the knowledge of the defendant, and consequently it devolved upon him, and not upon the state, to establish it. There was no direct evidence that the negro boy to whom the sale was made was not a physician or dentist; but the presumption was that he was neither, and therefore, if he was a physician or dentist, it devolved upon the defendant to prove it. There was a prima facie presumption that the person to whom the sale was made did not belong to the exceptional class of persons to whom the right to practice medicine or dentistry has been given; the presumption relieving the state from the necessity of proving the negative.—*Miller v. State, Mississippi Supreme Court*, 63 So., 269.

ALTERATION OF CONTRACT AFTER DELIVERY OF GOODS.—Action was brought upon a contract for the sale of a quantity of hair tonic to a drug store. The defense was alteration of the contract after delivery of the goods. The contract provided that the plaintiff agreed to contract with a certain advertising company for a certain number of lines of advertising, specifying the Tribune and Journal newspapers, which were published in the defendant's town, the advertising to be executed during a year following delivery of the goods. It further provided that the plaintiff agreed to take back at invoice price all goods remaining unsold in the hands of the purchaser "at the end of the Iowa advertising contract." The defendant claimed that the word "Iowa" had been added to the contract after delivery, which was denied by the plaintiff. The jury found for the defendant. On appeal it was held that the alteration of the contract after delivery by the insertion of the word "Iowa" was material, since that made the rights of the parties depend, not upon the contract for advertising in the particular papers specified, but upon the termination of such Iowa advertising contracts as the plaintiff might have made. Judgment for the defendant was affirmed.—*Hessig-Ellis Drug Co. v. Todd-Baker Drug Co., Iowa Supreme Court*, 143 N. W., 569.

NOTICES OF JUDGMENT— FEDERAL.

No. 2448—*Adulteration and Misbranding of Orangeade*. Labeled "Orangeade." Consisted of a solution of invert sugar and tartaric acid, flavored with orange oil and colored. Frances Croppe Co., Chicago, Ill., shippers. Condemnation consented to. Minnesota.

No. 2450—*Misbranding of Turpentine*. Substitution of at least 21 percent of mineral oil. Southern States Turpentine Co., Cleveland, Ohio, shippers. Product destroyed. New York, S. D.

No. 2459—*Adulteration and Misbranding of Extract of Peppermint*. Substitution of peppermint, water and alcohol. Moses R. Stern, New York, shipper. Plea of guilty. Sentence suspended. New York, S.

No. 2463—*Adulteration of Tincture of Iodine*. Standard of strength and purity differed from test laid down in U. S. Pharmacopoeia. W. C. Field, Washington, D. C., seller. Plea of guilty. Fine of \$5. Dist. of Columbia.

No. 2475—*Adulteration of Oil Coriander*. Contained approximately 20 percent of caraway oil. James B. Horner, New York, shipper. Plea of guilty. Sentence suspended.

No. 2476—*Adulteration and Misbranding of Oil of Cloves*. Mixed with ethyl alcohol. Crandall Pettet Co., New York, shippers. Plea of guilty. Fine of \$50. New York, S.

Council Business

COUNCIL LETTER No. 6.

PHILADELPHIA, PA., Dec. 8, 1913.

To the Members of the Council:

Motions No. 10 (Appropriation of \$250 for Committee on Membership), No. 11 (Appropriation of \$25 for Women's Section), No. 12 (Increase of Salary of Editor of Journal), and No. 13 (Election of Members, applicants Nos. 9 to 17, inclusive), have each received a majority of affirmative votes.

Motion No. 14 (Appropriation of \$25 for National Drug Trade Conference). Moved by J. H. Beal, seconded by J. A. Koch, that the sum of Twenty-five Dollars be appropriated for the use of the National Drug Trade Conference. The motion has been approved by the Committee on Finance.

Motion No. 15 (Election of Members). You are requested to vote on the following applications for members:

No. 18. Julius C. Hoester, 108 S. 4th St., St. Louis, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

No. 19. Alexander Benjamin Journeaux Moore, 12 Winchester Ave., Westmount, Pro. Quebec, Canada, Dean of the Montreal College of Pharmacy, rec. by J. W. England and J. H. Beal.

No. 20. Mary R. Hamilton, Pinney St., Rochester, Pa., rec. by Mary L. Creighton and J. H. Beal.

No. 21. Miriam Grace Truby, Penn and West Sts., Wilksburg, Pa., rec. by Mary L. Creighton and J. H. Beal.

No. 22. John Francis Walsh, 12 Fort Square, Greenfield, Mass., rec. by Elie H. LaPierre and Chas. E. Hoey.

No. 23. Lawrence Stanton Brigham, 1 Gordon St., East, Savannah, Ga., rec. by Robt. A. Rowliniski and J. H. Beal.

No. 24. John Abner Handy, P. and P. Department, Larkin Co., Buffalo, N. Y., rec. by Joseph P. Remington and J. H. Beal.

J. W. ENGLAND,
Secretary of the Council.



COUNCIL LETTER No. 7.

PHILADELPHIA, PA., Dec. 13, 1913.

To the Members of the Council:

The following Budget of Appropriations for 1914 is submitted by the Committee on Finance:

Proposed Budget of Appropriations for 1914.
Item.

1	Salaries	\$ 6,500
2	Journal	5,000
3	Printing, postage and stationery..	1,000
4	Clerical expenses, Secretary's office	1,000
5	National Formulary.....	1,000
6	Miscellaneous expenses.....	300
7	Drayage, freight and expressage..	150
8	Stenographers	250
9	Traveling expenses.....	300
10	Committee on membership.....	750
11	Committee on unofficial standards.	300
12	Proceedings and Year Book.....	2,500
13	Badges and bars.....	50
14	Certificates	50
15	Premium on Treasurer's bond....	50
16	Insurance	50
17	Journal for reporters.....	35
18	Section on Scientific Papers.....	25
19	Section on Education and Legislation	25
20	Section on Commercial Interests.	25
21	Section on Practical Pharmacy...	25
22	Section on Historical Pharmacy..	50
23	Section on Pharmacopoeias and Formularies	25
24	Women's Section.....	25
25	National Syllabus Committee.....	25

\$19,510

While the appropriation for the JOURNAL is fixed at \$5000, and warrants will be drawn against this, the net cost of the JOURNAL will be much less by reason of the receipts from advertisements.

Do you approve of budget of appropriations for 1914 as above proposed? This will be regarded as *Motion No. 16 (Approval of Budget of Appropriations for 1914)*.

At the Nashville (1913) meeting the following resolution was adopted:

"Resolved, That the Council be authorized to approve the production of a convenient button or pin style of the official badge of the Association, that may be worn conveniently at all times by members, and that this form of the official badge be distributed to dues paid members by the Treasurer."

In accordance with this resolution, bids from several makers of badges were obtained. In the judgment of President Beringer and General Secretary Beal, the designs and bid submitted by the Whitehead & Hoag Co., of Newark, N. J., are the most satisfactory.

Design No. 3 was selected.

"Sketch No. 3 shows the round button, 9/16" with a white field, shield enameled blue with a gold border. No. 3-A is the layover which shows what the cutout shield would be with a gold border and a blue ground. The enamel surface will be nicely stoned and polished.

We can furnish any of these designs at the following net prices, f.o.b. Newark, N. J.

In lots of	Gold finish and hard enamel	Gold Plate and hard enamel	Double Gold Plate with rolled gold shoe and hard enamel
1000.....	.11 each	.14 each	.19 each
2000.....	.10½ each	.13½ each	.18½ each
<i>Future Order Prices</i>			
500.....	.11 each	.15 each	.19 each
1000 and			
2000.....	.10 each	.13 each	.18 each

The prices quoted provide for furnishing the emblems with regular screw buttons, jeweler's catch pins or stick pins; or an assortment of these styles may be had in an order without extra charge."

(The Whitehead & Hoag Co., Charles S. Robbins, Mgr., Philadelphia Badge Department.)

Motion No. 17 (*Appropriation of \$250 for badges and pin buttons*). Moved by G. M. Beringer, seconded by J. H. Beal, that the sum of \$250, or as much as may be necessary, be appropriated for badge buttons and pins in accordance with the resolution of the Nashville (1913) meeting, that the badges and pins be supplied to dues-paid members of the Association at the price of twenty-five cents each, which shall include cost of postage, and that the Secretary of the Council be authorized to order one thousand badges and pins, assorted, of best quality, design No. 3, as per bid submitted by the Whitehead & Hoag Co.

The appropriation is approved by the Committee on Finance.

The suggestion has been made to present the badge free to new members, but it is felt by General Secretary Beal that this proposition should be left to a later date, probably about the time the State Association meetings are being held.

F. T. Gordon, who presented the resolution at the Nashville Meeting for a button badge, writes:

"My opinion is that we should have a button badge worth wearing and keeping, and that such buttons should be sold to present members at cost, and that they should be presented by the Association free to each new member on becoming a member of the Association, as a badge of membership. New members could also purchase the present official badge, if desired, but the button badge would, as President Beringer writes, be an excellent aid to the Committee on Membership if given without cost to new members. Present members, I am sure, would be willing to pay 20 or 25 cents for a button badge that would last for years and be worthy of the Association. As a matter of fact, I firmly believe that a good test of the interest of members in the Association could be made just this way, notifying them through the JOURNAL that the button badges could be obtained at cost and that the other expenses would be defrayed by the Association. Those who are worth-while members would get them, the others would probably pay no attention to the matter."

J. W. ENGLAND,

Secretary of the Council.

UNITED STATES PUBLIC HEALTH SERVICE.

(Changes in Pharmacists' Assignments, etc.)

Phelps, E. B., Professor of Chemistry. Directed to proceed to Wilmington, via Raleigh, N. C., upon request of the State Board of Health, for the purpose of investigating the local water supply and making recommendations in respect thereto. Nov. 21, 1913.

Voegtlin, Carl, Professor of Pharmacology. Directed to proceed to Savannah, Ga., for conference with the officers engaged in pellagra investigations. Nov. 21, 1913.

BOARDS CONVENED.

Board of medical officers convened to meet at the Bureau for the purpose of preparing questions for the mental examination of eight pharmacists of the Service, to determine their fitness for promotion. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Surgeon J. W. Schereschewsky, recorder. Dec. 2, 1913.

Boards of medical officers convened for the purpose of conducting the mental and physical examination of certain pharmacists of the Service to determine their fitness for promotion to the grade of pharmacist of the first class:

Marine Hospital, Detroit, Mich. Senior Surgeon H. W. Austin, chairman; Assistant Surgeon J. Bolton, recorder.

Marine Hospital, San Francisco, Cal. Surgeon R. H. Woodward, chairman; Assistant Surgeon L. O. Weldon, recorder.

Marine Hospital, Chicago, Ill. Surgeon J. O. Cobb, chairman; Assistant Surgeon D. S. Baughman, recorder.

Marine Hospital, Key West, Fla. Passed Assistant Surgeon H. M. Manning, chairman; Acting Assistant Surgeon S. D. W. Light, recorder.

Marine Hospital, Savannah, Ga. Passed Assistant Surgeon R. M. Grimm, chairman; Acting Assistant Surgeon A. M. Cleborne, recorder.

Marine Hospital Building, Cincinnati, O. Passed Assistant Surgeon W. H. Frost, chairman; Assistant Surgeon H. M. Weill, recorder.

Board of medical officers convened to

meet at Fort Stanton, N. M., for the purpose of conducting the mental and physical examination of Pharmacist Harri D. Leach to determine his fitness for promotion to the grade of Pharmacists of the second class.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.

<>

TANNER, THOMAS B.,
From Cleveland, Ohio.
To Residence Unknown.

SCHEIPS, THEO. I.,
From 534 Oakdale Ave., Chicago, Ill.
To 143 N. Wabash Ave., Chicago, Ill.

GREYER, J.,
From Vine and Findlay Sts., Cincinnati, O.
To 1926 Race St., Cincinnati, O.

DECOURCY, L.,
From 827 8th, Cincinnati, Ohio.
To N. E. Cor. 8th and Baymiller, Cincinnati, Ohio.

ACKERMAN, P. J.,
From 548 N. High St., Columbus, Ohio.
To 549 N. High St., Columbus, Ohio.

ANDERSON, W. M. O.,
From 315 Greene St., Brooklyn, N. Y.
To 315 Greene Ave., Brooklyn, N. Y.

COMBS, DELTA E.,
From St. Louis, Mo.
To 948-58 Wolfram St., Chicago, Ill.

WILLIAMS, FRED. R.,
From Manila, P. I.
To Residence Unknown.

DILLY, OSCAR C.,
From 2101 W. Walnut St., Louisville, Ky.
To 104 W. Chestnut St., Louisville, Ky.

MILLER, E. R.,
From Auburn, Ala.
To 214 N. Murray St., Madison, Wis.

Improved Bacterial Therapy

SEROBACTERINS

(Sensitized Bacterial Vaccines)

"Action sure, rapid, harmless and durable."—A. Besredka.

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PROPOSED BICHLORIDE LEGISLATION.

AS might have been anticipated by one familiar with the manner in which American legislation is initiated, the widely reported case of the Georgia banker who by mistake swallowed mercury bichloride tablets instead of headache tablets has resulted in a flood of all sorts of bills to regulate the manufacture and sale of tablets containing poisonous substances. Three or more such measures are now pending in Congress, and an indefinite number in the state legislatures which are in session, besides an innumerable crop of proposed city ordinances.

No two of these measures seem to be alike, and most of them contain provisions which would be absolutely impossible of enforcement, or could not be enforced without causing far greater harm than any benefit that could result from their observance.

Practically all of them exhibit the layman's ignorance as to the meaning of the word poison. Most laymen, and also some druggists and physicians who might be presumed to know better, seem to imagine that it is possible to draw a distinct line between poisons and non-poisons, while, as a matter of fact, nearly every known medicinal agent may be regarded as either poisonous or non-poisonous accordingly as the dose is large or small, and it might fairly be said that the only persons who feel confident of their ability to correctly define a poison are those who have not sufficiently studied the subject to know what they are talking about.

In other words, practically every agent which is capable of producing a pronounced therapeutic or physiological effect will also act as a poison if the dose be sufficiently large. Any definition of a poison is, therefore, imperfect unless it includes a consideration of the dosage, and any enactment which provides

simply that "poisons or poisonous substances," without further limitation of these terms, shall be kept and sold only in tablets of certain forms and colors is a dangerous menace to all who prescribe or dispense medical substances. For example, if a druggist or physician were on trial for dispensing or administering a poisonous tablet, the prosecution would undoubtedly introduce the evidence of toxicologists to prove the guilt of the defendant, and by such evidence it could be shown that very many commonly used drugs and medicines have occasionally produced death when administered in excessive doses or under improper conditions. In certain parts of the country common salt mixed with corn meal and water is a favorite poison for the neighbors' chickens, and cases of human poisoning from common salt, with fatal results, have also been occasionally reported. It is also alleged on good authority that salt is the suicidal agent most commonly used in China, occupying in that country in frequency of use the place that phenol does in this.

Druggists and physicians generally are aware of the fact that society contains numerous individuals who are so dissatisfied with the world and with their place in it that they would cheerfully seek relief in death if it were not for the stigma which attaches to suicide, and to the friends and families of those who are reputed to have destroyed themselves. To such unfortunates the Georgia case furnished an inspiration, since the taking of the bichloride tablets could be pretended to be accidental. And since the newspapers also reported the death as painless, the two greatest deterrents to the commission of suicide, shame and pain, were removed. Within a comparatively short time after that case perhaps a hundred or more cases of alleged accidental bichloride poisoning were announced; a number many times greater than had occurred in all the previous years during which mercury bichloride tablets have been known and used. When the cases became so common that newspapers ceased to feature them under scareheads, the epidemic began to decline, and we may expect that until the newspapers shall discover some other poisonous substance that can easily be taken by mistake and produce a painless death* we shall not have another epidemic of alleged accidental poisonings.

It would take us too far afield to consider all of the proposed legislative measures to regulate the subject. Those pending in Congress are sufficiently illustrative of the inanities and incongruities of the whole crop.

The Ashhurst Bill, S. 3392, would make it unlawful to import, export, or transport in any manner in interstate commerce "any substance or poisonous compound known as bichloride of mercury," except in the form of green colored cubes, "so as to be readily distinguishable from non-poisonous tablets of similar appearance in common use."

Just how green-colored cubes of mercury bichloride are to be made readily distinguishable from non-poisonous tablets of *similar appearance* is not set forth in the bill.

Neglecting this no doubt unintentional incongruity, a more important objection to the bill is that it would prevent the transportation in interstate commerce of mercury bichloride in any other form than green colored cubes. Consequently

*Poisoning by mercuric chloride is, of course, quite the reverse of painless.

any one desiring this salt for use as a reagent or for any one of the numerous chemical and technical operations in which it is employed would be compelled either to manufacture his own supply from the original ingredients or purchase it from some other manufacturer within the same state.

The L'Engle Bill, H. R. 9113, would make it unlawful to "produce, import, manufacture, compound, deal in, dispense, sell or give away any *poisonous* tablet, lozenge or troche not cubical in shape," or to "produce, import, manufacture, compound, deal in, dispense, sell, distribute or give away any *non-poisonous* tablet, lozenge or troche not in spherical or disc shape."

Aside from the fact that this bill would not apply to poisonous agents except when in the form of tablets, lozenges or troches, the bill is a curiosity in that it would apply within the territorial limits of the several states as well as in interstate commerce, in spite of the limitations of that excellent instrument popularly known as the United States Constitution.

The Cary Bill, H. R. 9237, which applies only to the District of Columbia, provides that it shall be "unlawful for any person licensed as a physician, pharmacist or druggist" "to prescribe, compound, or sell" "any drug, chemical, or compound of a poisonous character, especially bichloride of mercury in any form," without making a record of the prescription or order, the name, date, and address of the prescriber, the name and address of the person for whom intended, and the name and address of the purchaser, who in no instance shall be under twenty-one years of age. The prescription or order must be in triplicate,—one copy to be retained on file in the establishment where the substance is compounded or sold, one copy to be filed with the Health Department, and one copy with the Police Department.

Some of the curiosities of the Cary Bill are as follows:

(1) It applies only to "licensed physicians, pharmacists or druggists," and consequently any person not so licensed, e. g., a barber, street vendor or newsboy, might so far as this bill is concerned, sell poisonous substances of any character without limitation or restraint.

(2) It would apply to physicians' prescriptions containing among its ingredients any substance that might under any circumstances be alleged to be poisonous, which means that it would apply to the majority of useful medicinal agents.

(3) The patient if under twenty-one years of age, could not take his own prescription to the drug store, but would have to employ some one who had attained his legal majority to have the prescription filled for him.

The mild (?) penalty for any physician, pharmacist or druggist "failing to comply in any manner with the provisions of this act is a fine of one thousand dollars or imprisonment at hard labor for one year, or both. If the offense is repeated, the license of the physician, pharmacist or druggist is to be cancelled, "disqualifying such person from acting in that capacity," "directly or indirectly, forever."

It will be seen from the examples cited that mercury bichloride legislation is a live subject, and it behooves all who have anything to do in any capacity with the dispensing of drugs and medicines to actively unite in defeating such legislation or in securing its proper amendment.

In considering this subject early last year, the *Journal of the American Medical Association* made the wise suggestion that the U. S. P. Committee of Revision

should incorporate in the forthcoming Pharmacopœia suitable directions for the shaping and distinguishing of highly poisonous tablets. The same subject was also discussed editorially in this Journal, August, 1913, page 929.

The A. Ph. A., at the Nashville meeting adopted a resolution making the same recommendation to the Committees of Revision of both the United States Pharmacopœia and the National Formulary (see Sept. Journal, page 1041), and resolutions bearing upon the same topic and to the same effect were adopted by the National Drug Trade Conference at its recent meeting in Washington, reported elsewhere in this issue.

If the U. S. P. Committee of Revision will awaken to the importance of the subject, and adopt suitable regulations for the distinguishing of mercury bichloride and other dangerous tablets, it will relieve the situation in two ways:

1. The recognition of the fact that these regulations will shortly become a part of the law as the standard of the Federal and of the various State Food and Drugs Acts, will check the fury of legislators to secure special enactments upon the subject.

2. Those who insist upon immediate legislation will be likely to follow the lines of the Committee's regulations in their enactments.

It is to be hoped that the Committee of Revision will recognize the importance of the subject to medicine and pharmacy and utilize the opportunity which the occasion presents.

J. H. BEAL.



TRADE PIRATES AND OTHER THINGS.

RECENTLY the writer was consulted by a clergyman concerning the probable cost of making an analysis of a proprietary rheumatism remedy.

Upon gently suggesting that the expense of an analysis would probably exceed the cost of half a dozen packages of the stuff and also that it might be safer to consult a physician for the treatment of a case of "rheumatism," it developed that the sample had been furnished by a physician who had been using it in his private practice with extraordinary success, and that if the formula could be obtained he and his ministerial emissary were to go "cahoots" in its manufacture and sale to rheumatic humanity.

Other interesting details were likewise developed, but the most significant features of the negotiations were the theologian's complete inability to sense the moral obliquity of appropriating the fruits of some one else's labors without consent or compensation, and the readiness of the Aesculapian, who is a man of "some standing" in medical circles, to exchange the garment of professional regularity for the purple and fine linen of a patent medicine king, provided his actual connection therewith could be concealed under the convenient and all-embracing disguise of Co.

While it may be uncommon to find divinity and medicine uniting in a project of this kind, it is not unusual to find both physicians and laymen who condemn the use of patent medicines in the abstract but are quite ready to engage in the manufacture of one, provided they can find a good seller, their idea of a "good

seller" being one that already enjoys a good sale, and to appropriate without compunctions of conscience the ideas and enterprise of other men for their own benefit.

Nor is the practice of piracy in the 20th century confined solely to the patent medicine business. Drop into the first emporium you pass, whether of hardware or software, of dry goods or wet goods, and note how comparatively few of the articles displayed represent really original ideas, and how the majority are piratical imitations made by twisting, or coloring, or reshaping the ideas of other men in some unimportant detail, or by sticking together the portions stolen from different men.

The world may have gone without safety razors for 10,000 years, but let some one, by extensive advertising, create a demand for the article, and a legion of imitations immediately appear to appropriate the market created by the enterprise of the original successful man. Let some one devise a new soda water flavor, or a new game, or a striking method of advertising, or a new anything that is successful, and the sky is nearly obscured with its substitutes.

Apparently the bulk of the real thinking of the world is done by a comparatively few men, while the most of us consciously or unconsciously, just appropriate their ideas and turn them around or inside out, and persuade other people, and perhaps ourselves as well, that they are our very own. In fact a real new thought is about as rare as a new chemical element; most of those we think are new are combinations of thought elements that are as old as Greek philosophy.

Of course, there is a kind of special smartness required for the marketing of ideas, and this of itself is a kind of creative ability deserving of a certain amount of credit. So, also, a new combination of old things, or the standing of an old idea the other end up may add real value not present before the combination or inversion, and for these improvements the combiners or inverters may justly claim reward. Most of those, however, who supply substitutes and imitations are pure commercial pirates, appropriating the fruits of other men's labors without compensation, mere business hoboes whose mercantile progress is made by riding on the brake beams of other men's advertising trains.

The great naturalist, Alfred Russell Wallace, said the other day that the natural morality of man had not progressed beyond that of the maker of the first stone implement. From which, if correct, we may infer that for what seeming morality there is, we are indebted to art rather than to nature, and that 20th century honesty is either the enforced honesty of blue sky laws, and pure food and drugs acts, or the mechanical honesty of cash registers, and other automatic devices of wood and metal.

J. H. BEAL.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

THE FIELD FOR DRUG-PLANT BREEDING.

DR. W. W. STOCKBERGER, PHYSIOLOGIST IN CHARGE OF DRUG-PLANT INVESTIGATIONS,
BUREAU OF PLANT INDUSTRY, U. S. DEPT OF AGRICULTURE.

In the decade which has just passed great advances have been made in the knowledge of breeding, and during the same period the practical service which breeding has rendered in the field of plant production has come to be very generally recognized and appreciated. The art of the plant breeder has now been exercised upon a large number of the plants from which materials for food or clothing are obtained or which serve for ornamental and decorative purposes, and as a result the number of new or improved varieties and strains of useful plants has been enormously increased.

In the face of all this progress the fact that, with a few notable exceptions, our medicinal plants have been almost entirely neglected by plant breeders seems to deserve an explanation. A brief statement, therefore, of the probable causes of delay in the inclusion of medicinal plants among the subjects of the plant breeder's art, and of the possibilities which the exploitation of this field seems to offer may be of more than passing interest to pharmacists generally.

Although the term breeding has become very familiar in recent years, a brief statement of the sense in which it is used in this discussion may contribute somewhat to clearness. The improvement of a plant, the object of which is to render it more serviceable to the purposes of man, may be effected by continually selecting for propagation such plants as conform most closely to the ideal sought, by the selection of spontaneous variations or sports, by the isolation and live breeding of forms presenting morphological variations, by the breeding of the so-called ever-sporting varieties, and by hybridization. Other methods of procedure might be mentioned but those just named will serve to indicate some of the various avenues through which the problem of plant improvement may be approached, and to gage the wide sense in which breeding is used in this paper in contrast to a narrow usage occasionally encountered which restricts the term to changes produced in plants as a result of sexual reproduction.

It was long since recognized that the medicinal qualities of plants are easily affected by culture, but practical breeders have been very slow to avail themselves of this knowledge. There can be little doubt that this failure to grasp the opportunity presented was largely due to the fact that the criteria of progress in medicinal plant breeding are of an order almost entirely unlike that which

includes the standards of fitness commonly employed by plant breeders. Such standards are usually based upon characteristics which are readily perceived by the senses, e. g., form, size, color, odor, agreeableness to the taste; or by those which are readily estimated by simple physical means, e. g., weight of yield, strength of fiber, hardness of grain; or again by those characteristics estimated by comparison, e. g., hardness, resistance to disease, drought, etc. On the other hand, the characteristics which the breeder of medicinal plants must use as his main guide can be determined only through the use of the technique and methods of the pharmaceutical chemist or of the pharmacologist. Probably few, if any, of the practical breeders have either the inclination or necessary skill for the estimation of the active principles which condition the value of medicinal plants, and the natural result is that their activities are directed along other lines.

A second cause for the small consideration given to medicinal plant breeding may be found in the disparity which exists between cultivated drug plants and many other economic plants with respect to their importance as marketable products. It is but natural that plants which have long been widely cultivated or which possess great commercial possibilities should be among the first to attract attention to the desirability of their improvement.

A third but by no means unimportant consideration is the relatively imperfect state of our knowledge with respect to the essential facts concerning the cultural requirements of many drug plants and the prevailing uncertainty as to the possible modifications in the nature or quantity of the active constituents of these plants which may be induced by variations in soil, climate or other environmental factors.

It may be well at this point to disavow any intent in the foregoing paragraphs to disparage in any way the very creditable work that has been done in recent years along the line of drug plant breeding, or to disregard the fact that the cultivation of a small number of drug plants has been successfully carried on in several localities in this country. On the contrary the object has been to show that as a whole medicinal plant breeding is as yet largely an untried field.

In this as in other new fields of endeavor it is advisable to heed the homely proverb, "make haste slowly," and misguided enthusiasm must not be mistaken for ability to produce practical results. The practical breeder will hesitate long before undertaking a line of work which may require years of time and the outlay of thousands of dollars to bring it to completion. First of all he will seek to establish an *ideal*, a clear cut mental picture of the end to be attained. This ideal will be a composite built up from a definite understanding of what is required, and from a thorough knowledge of the relationships and the morphological and physiological characteristics of the species which he is seeking to improve. The formation of these ideals must be preceded by a period of experimentation and study in order that the breeder may become familiar with the nature, requirements, adaptability and behavior of the plants in question. This preliminary course is all the more necessary since many of the medicinal plants upon which the breeder must work have been brought to this country from foreign lands, and many more which are indigenous here must be brought under cultivation in the course of which they may be expected to undergo certain modifications.

In the opinion of the writer the constructive work of the immediate future in the field of drug plant breeding will consist largely in extending our knowledge of the chemical constituents of these plants, in determining the relative value and relationship of their various characteristics and in fixing standards of breeding which will lead to definite economic results. Then as pharmaceutical chemistry leads the way and gives us further information concerning the nature of the active principles, there is every reason to believe that the selection of different pure lines of superior potency and their subsequent hybridization will result in the attainment of standards of production far in advance of those to which we are accustomed.

The work of the Bureau of Plant Industry on medicinal plant breeding was inaugurated by Dr. R. H. True, formerly Physiologist in Charge of Drug Plant Investigations. That he early recognized the necessity for a thorough preliminary study of the materials later to be used in breeding is evident from a paper prepared by him in 1906, in which with reference to breeding drug plants he says, "The pioneer work of finding out the necessary preliminary facts concerning culture methods and the demands made on soil and climate is only now being done. As soon as these fundamental conditions are fairly well understood, the cultivator will be in a position to refine and increase his product by the application of new methods." In harmony with the principle here expressed, the work has since been consistently carried on and in the Office of Drug Plant Investigations two correlated lines of work are now in progress, one a series of laboratory studies on the quantitative variation of the active constituents in a number of plants, and the other a series of comparative cultural tests conducted in widely separated localities.

The character of the laboratory investigations is well illustrated by the paper by Mr. A. F. Sievers, entitled, "Individual Variation in Belladonna Plants as a Basis for Improvement by Selection," and by that of Mr. Frank Rabak entitled, "The Effect of Geographical Source on the Volatile Oil of Hops," both of which have just been presented for your consideration. The cultural tests carried on at the several field stations have for a common object the determination of the fitness of a large number of drug plants for the conditions offered by each locality, a study of the possibility of bringing under cultivation various wild plants yielding important drugs, the selection of strains or individuals which promise to serve as valuable material for the further purposes of breeding, and the acquiring of data relative to the localities of situations offering the most favorable economic conditions for the commercial production of certain medicinal plants.

At Madison, Wisconsin, where the Office of Drug Plant Investigations is conducting its investigations in co-operation with the University of Wisconsin, there are now under observation approximately forty-five species of which belladonna, henbane, stramonium, a number of the mints, cannabis and grindelia may be mentioned. At the two stations located near Washington the number of species being studied is much larger. Here some solanaceous species and others yielding valuable essential oils are receiving special attention. A study of the perfume roses is also in progress, the purpose of which is to select and improve the varieties best suited for the production of oil of rose in this country.

At Timmons ville, S. C., the work is largely concerned with cannabis, species of capsicum and a few oil bearing plants. In Florida, where the station is at present located at Orange City, we find one of the most interesting parts of our field. Here the opportunity for the selection and improvement of plants yielding essential oils is very promising and the data so far secured with respect to camphor, monarda, rose geranium, lemon grass, citronella grass, and a number of other species clearly show that further important results will be obtained by continuing the present line of investigations. For example, strains of *Monarda punctata* have been developed by selection which give an unusually high yield of an oil containing the valuable constituent thymol. We are now seeking to increase the percentage of thymol in the oil through suitable modifications in the conditions of growth of this plant.

To extend this discussion further would perhaps be a presumption upon privilege but if the remarks just made on the work of the Office of Drug Plant Investigations have suggested something of the scope of the field of Drug Plant Breeding, the purpose of this paper is fulfilled. It may be permitted to say in closing that the breeding of medicinal plants not only offers much in a very practical way but also affords a field for the greatest scientific activity.

THE PAPAIN OF COMMERCE.

WILLIAM MANSFIELD, NEW YORK.

Much has been said and written about papain, yet much more needs to be said and written about it before its adulteration can be stopped, and before it will be possible for it to occupy the place in our materia medica that it should.

Papaw—*carica papaya*—is a tree cultivated in southern Florida, tropical America, and in all tropical countries. It is supposed that the parent trees from which the present cultivated forms were derived originally grew wild in the West Indies. In proof of this, it is definitely known that the papaw tree was not known in India and other tropical countries before the discovery of America. Under favorable conditions a tree grows to a height of twenty feet. The unbranched trunk is light green and smooth, except for the leaf scars. The leaves are light green above, paler beneath, five to seven lobed, the lobes again divided into smaller lobes; the petioles of the leaves are frequently 1.5 dm. long. The leaves occur in greatest numbers at the top of the stem where they stand nearly erect. The older, larger leaves droop and finally fall away as the trunk increases in length. There are three types of flowers borne on as many different trees. The fragrant staminate flowers are in slender panicles, one to three dm. long; the calyx 1.5 mm. long; the corolla is saucer shaped, 3 cm. long; the slender tube is dilated at or near the top. The lanceolate lobes of the corolla are shorter than the tube. The ovary, if present, is rudimentary and no stigma is developed. The pistillate flowers occur singly or in groups of two or three. The calyx is about 5 mm. long and does not fall off after fertilization. The lanceolate petals stand erect to a height of 2.5 cm. The egg-shaped ovary is bluntly five-angled. The perfect flowers are bell-shaped, the lobes standing erect.

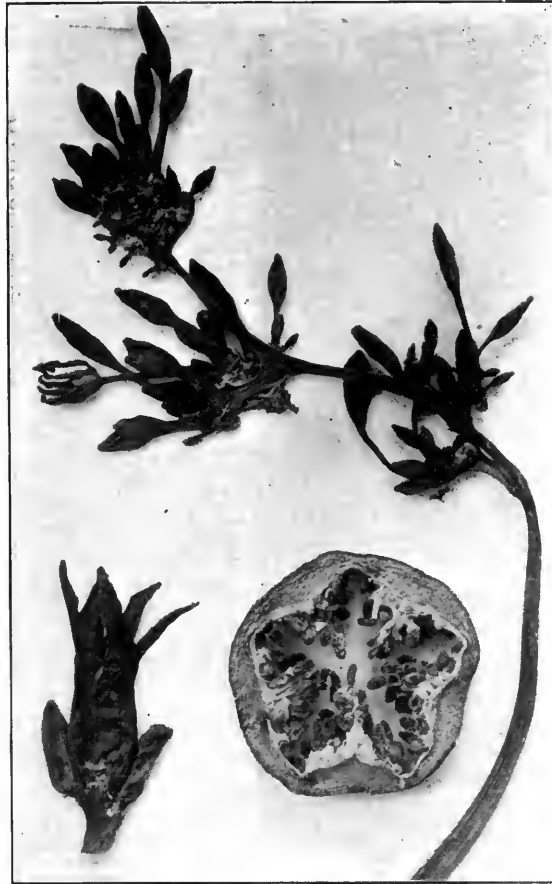
There are five stamens and an oblong ovary. The ripe fruit, which is produced at all seasons of the year, varies in color from yellow to orange. The outer rind is thick and tough while the inner portion is fleshy and edible. Imbedded in the pulp surrounding the central cavity are hundreds of small black pitted seeds possessing similar constituents and a similar taste to black mustard seed. The trees bearing pistillate flowers only, produce rotund fruits having the general appearance of our common field pumpkin; the trees bearing perfect flowers develop oblong fruits resembling the ordinary squash; while the trees developing staminate flowers only, never produce fruits. Often great loss of money and time is incurred when a large percentage of the trees planted in an orchard develop staminate (male) flowers. There is, therefore, a great deal of uncertainty con-



Papaw (*Carica Papaya*).

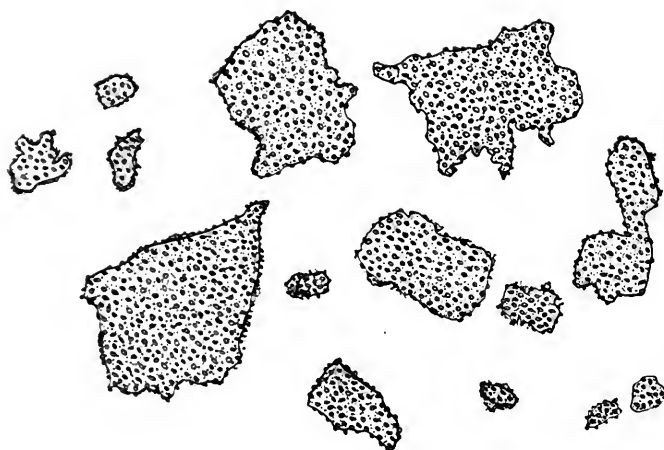
nected with the papain industry at the present time. The papaw trees are planted first for the production of the ripe fruit which is an important article of food and is used by all classes in a variety of ways. During the past winter papaw was obtainable even from the small fruit dealers. They are grown secondly for the purpose of producing papain. The well-developed green fruits are cut or scraped in order to sever the latex tubes, from which flow the milky juice which is collected and prepared for market either by drying or by dissolving the juice in water, filtering, and finally precipitating by alcohol, and drying. Papain of commerce occurs usually in the form of irregular pitted fragments of variable size. The pieces are so brittle that they are readily crushed between the thumb and finger. Papain has an acrid, soapy taste, and if left on the tongue for a few minutes will produce a stinging sensation, and the

part of the tongue in contact with the papain afterwards becomes extremely sensitive to touch. This is doubtless due to the action of the papain on the outer layer of the tongue. The color of papain varies according to the method of production, from nearly white to blackish brown. White papain is nearly odorless, while the brown commercial variety has an odor resembling dried smoked beef. All samples of whole papain become lighter when powdered. Viewed under the microscope papain is structureless, yet all the fragments are

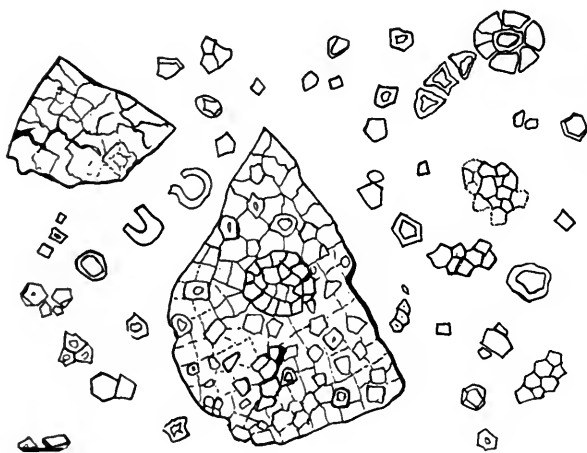
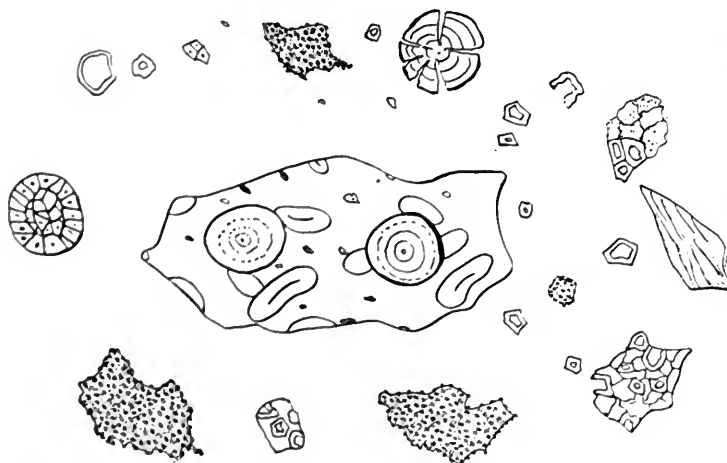


Staminate Flowers, Pistillate Flowers and a Cross Section of the young Fruit of *Carica Papaya*.

irregular and they appear to be made up of small white and black circles or dots, which give the powder a characteristic microscopic appearance. The quality or digestive efficiency of papain, which is active in the presence of the acid secretions of the stomach or in the presence of the alkaline secretions of the intestines, is usually determined by its action on fresh egg albumen, or on meat fibrin, one part of papain converting about two hundred parts of fresh egg albumen or fibrin into peptones and *albumoses*. Different samples of pure papain vary in digestive activity, this variation is due primarily to the variation of the



Microscopic Appearance of True Papain.

Microscopic Appearance of Rice Bread
Papain.Microscopic Appearance of a Spurious Papain
composed of Papain, Rice Bread and
Wheat Bread.

maturity of the fruit at the time when it is incised, the method of collection, the type of tree, and its subsequent purification.

People looking about for ways and means for reducing the high cost of living have overlooked papain. A round steak treated with a solution of papain for an hour or so before cooking becomes as tender and palatable as the best tenderloin.

Papain is too valuable a drug to be discredited and forced into disuse merely because of an insatiable desire for profits. During the past few years it has been a common practice to adulterate papain. This practice has become so preva-



True Papain.



Spurious Papain.

lent that many of the foreign buying samples which are submitted for examination are wholly spurious and are quoted at a higher price than the genuine article. The adulteration of papain was cleverly conceived, and is so cunningly executed that often it requires an expert to distinguish any physical difference between the spurious and the genuine drug. It is supposed that pure papain is whiter than the impure variety. The fact is, its color is no criterion of its strength and purity. Pure papain, if prepared by one process, may be white, while if prepared by another may be brown. This general idea that whiteness means purity may account for the fact that European exporters invariably demand a higher price for the white spurious papain. Many of the spurious samples proved upon

microscopical examination to be composed of unleavened rice bread. A careful search of a number of samples revealed the presence of several pieces of the outer smooth part of the bread, which had been in contact with the baking pan. Other samples contained a mixture of unleavened wheat and rice bread. These spurious samples varied quite as much in color as the pure papain. In some cases the bread had been scorched in order to make it more closely resemble the darker commercial variety, while other samples were grayish-white and resembled the whiter papain of commerce. Still other samples examined showed that the rice bread had been saturated with papain and dried. Selling rice bread for papain yields large profits. Rice bread costs about eight cents per pound. (No yeast or salt is used in its preparation.) This same eight-cent bread when sold as papain brings over two dollars per pound, thus netting a profit to the adulterator of about 2400 per cent. Schemes for extracting gold from sea water, or selling gold bricks are christian acts compared to the getting-rich-quick, and the safe (to date) practice of selling rice-bread for papain.

The surest and the quickest way to put a stop to the present practice of adulterating papain is to make the drug official.

THE TESTING OF LINSEED OIL FOR GLOSS OIL.

AZOR THURSTON, GRAND RAPIDS, OHIO.

In the examination of linseed oil the writer has found some difficulty in detecting "gloss oil," prepared from rosin, even if present in considerable quantity, by employing the pharmaceutical test, that is the Liebermann-Storh reaction.

Although Lewkowitsch¹ and Spayd² give directions for applying the above test somewhat different than found in the U. S. P. the modified method does not give satisfactory results in case of gloss oil.

Spayd's² modification is as follows: "by taking 2 cc. of the suspected oil and boiling with 10 cc. of acetic anhydride, adding about 10 cc. of water and allowing to thoroughly cool; then drawing off the aqueous portion, filtering through a wet filter and cautiously adding a drop of concentrated sulphuric acid to the clear filtrate. If the rosin or rosin oils to the amount of 0.5 percent. to 1 percent. are present a beautiful fugitive color will be produced.

The objections to the old method, that is the one of slightly warming with glacial acetic acid and adding a drop of strong sulphuric acid to the clear portion, are: First, nine times out of ten, the acid is not clear. Second, in a number of experiments that I made using other oils such as cottonseed, tongue, lard and linseed, I found they gave color reactions hindering the fugitive development to such an extent that one could not definitely say whether resin or resin oils were present or not. By using the modification, I was able to positively detect as low as 2 percent. of resin or resin oils in a mineral oil mixture, and as low as 3 or 4 percent. in linseed oil."

¹Lewkowitsch Oils, Fats and Waxes, page 384.

²Chemical Engineer, Vol. 3, page 224.

Even when gloss oil is present up to fifty percent. the above reaction is negligible.

The simple test of adding nitric acid to the suspected oil furnishes a more positive index of purity. In applying acid, four or five drops of the oil should be dropped into the cavity of a porcelain plate and one drop of concentrated nitric acid allowed to run down the side of the cavity without agitation. This test was applied to gloss oil also to 5, 10, 25, and 50 percent. gloss oil and the balance linseed oil.

Gloss oil will give a fugitive violet-red,³ tint 2, changing to a red-violet tint 2.

Fifty percent. gloss oil with 50 percent. linseed oil, the color produced is as pronounced as in pure gloss oil.

With 25 percent gloss oil and 75 percent linseed oil the color is green-yellow, medium, after standing four or five seconds. Permanent for some time.

With mixtures of 10 percent. gloss oil and 90 percent. linseed oil and 5 percent. gloss oil and 95 percent. linseed oil the color produced with concentrated nitric acid is yellow, tint 2. Color not fully developed until after several seconds.

The U. S. P. saponification test for rosin products in linseed oil is too indefinite in case of adulteration with small quantities of rosin products which are more or less saponifiable.

It appears it would be desirable to have an official quantitative method for determining mineral oil in linseed oil. Allen's⁴ method of saponification and extraction with ether appears practicable.

Linseed oil, mineral oil and rosin products, in many cases have so near the same specific gravity and refractive index that these constants are of no value in the detection of mixtures of the above oils.

THE RELATION OF PHARMACOGNOSY TO THE PRACTICE OF PHARMACY.

HEBER W. YOUNGKEN, A. M., PH. G., PHILADELPHIA.

How often students and practitioners of pharmacy ask the question, "What bearing does pharmacognosy have upon the general drug business?" How often do they sneeringly remark, "Why should I study the methods of cultivating, collecting, preserving, and valuing crude drugs!" It is the writer's object to point out that pharmacognosy considered as a major division of the science of pharmacology does have an important bearing upon the Practice of Pharmacy.

To Professor Alexander Tschirch, of Bern, Switzerland, is due much of the credit for developing pharmacognosy into a distinct science. Tschirch calls attention to the great departments and sub-divisions into which pharmacognosy may be divided, namely pharmacobotany,—including pharmacochemistry, pharmacophysiology, and pharmacoagriculture,—pharmacochemistry, pharmacogeography, pharmacoethnography, and the history of pharmacognosy.

³See Color Standards—Mulliken's Identification of Pure Organic Compounds.

⁴Commercial Organic Analysis, Vol. 11, Part 1, page 112.

Thus the science of pharmacognosy encompasses a wide range of related subjects. Taking up its scope we find pharmacobotany dealing with the inquiry into medicinal plants and their products. Pharmacoanatomy inquires into the structure or form of plants, their organs, tissues, and cells. Through its study we learn how to ascertain the identity and purity of drugs both macroscopically and microscopically. Pharmacophysiology is that department of pharmacobotany which treats of the life processes of medicinal plants. Through its study we learn how to cultivate medicinal plants with a view to increasing their active principle content. No less important a department of pharmacobotany is pharmacoaiculture, dealing with the effects of soil, climate conditions, hybridizing, grafting and budding upon medicinal plants, a comparatively new field of endeavor, which, though but little exploited, promises a future of wondrous revelation, potent in its significance to the profession.

Pharmacochemistry deals with the constituents of plants of medicinal value. In the pursuance of pharmacochemistry we isolate and estimate the active principles of drugs. We value many drugs accordingly.

Pharmacogeography treats of the distribution of medicinal plants over the surface of the earth. By inquiring into the environment of drug plants in their native habitats, valuable information may be gained regarding proper methods of cultivation.

Pharmacoethnography deals with the descriptive characteristics of medicinal plants and their parts. The study of this branch enables us to identify and select crude drugs.

The history of pharmacognosy inquires into the facts and events occurring in the domain of the science since its beginning.

After viewing the vast extent of ground covered by this branch of pharmacologic science, it is evidently impossible for an individual to practice with thoroughness all the arts upon which it depends. A general division would be, pharmacophysiology, pharmacochemistry, pharmacodynamics, pharmacotherapeutics and pharmacy, each providing its own specialty. However, workers in any department of a science should have a thorough knowledge of the basic principles underlying the whole structure.

The profession of pharmacy has arrived at a critical period in its history. Its future depends upon the adoption of straightforward methods by its membership. The vocation will not survive as a profession if pharmacists refuse to realize their duty in conducting their own particular branch of the work.

What then is "The relation of pharmacognosy to the practice of pharmacy?" In the light of the above facts regarding pharmacognosy as a branch of the science of *materia medica*, the practice of pharmacy is absolutely dependent upon pharmacognosy. The pharmacist must be prepared for the identification, estimation and selection of drugs, that he may be fitted to practice pharmacy, or the art of preparing, preserving, compounding and dispensing of drugs and medicines.

DEPARTMENT OF BOTANY AND PHARMACOGNOSY, MEDICO-CHIRURGICAL COLLEGE, Philadelphia.

THE PREPARATION OF AUTOGENOUS VACCINES BY THE RETAIL PHARMACIST.

JACOB DINER, PH. G., M. D., PROFESSOR OF PHARMACY AND PHARMACEUTICAL CHEMISTRY, FORDHAM UNIVERSITY SCHOOL OF PHARMACY.

The advances in pathology and bacteriology during the past 20 years have to some extent revolutionized the art and science of medicine. The recognition of the bacterial origin of many diseases and the careful study of histo-pathological and physiologic-pathological changes wrought by these specific microorganisms and the products of their activity, the toxins, has naturally led the thinking practitioner of medicine from the purely empirical employment of drugs to the adoption of such remedial agents which appear to be "physiologically" indicated. "The physicians first and principal duty is to cure disease and to alleviate suffering." In this endeavor he has from time immemorial studied, experimented and tried, only too often to find disappointment instead of success crowning his work.

I shall not attempt to enter here into the whys and wherefores, the advantages and disadvantages of vaccine therapy. We are confronted with the fact that vaccines, autogenous and heterogenous, are coming more into use, displacing and replacing much of the old time prescription work. It therefore behooves the pharmacist to either fall in line with the procession and supply the legitimate demand for vaccines or see his business dwindle day by day, part, the part that never belonged to him, going to the department stores and corporation drug stores, the other part, professionally and legitimately his, going to the "manufacturing chemists," who were enterprising enough to recognize early the trend toward vaccine therapy and to meet or even anticipate this demand. "But," I hear the pharmacist say, "it takes a good deal of money and considerable experience to start a vaccine laboratory, and I have neither." Now, if you thought that a new \$2000 soda water apparatus would add to the profits of your business and you had neither the money nor the experience to run one, what would you do? I suppose you would borrow the money and hire an experienced soda man to run it. The same principle applied to your vaccine laboratory will work out just as well. To begin with, many things needed in a laboratory should be found in every well regulated pharmacy. For the balance of the equipment about \$500 judiciously distributed will complete your outfit. As to the man, there are any number of young physicians, recently graduated, having a good hospital training in bacteriological work, who would be only too glad to spend part of their time in a well equipped laboratory for a moderate compensation. And a little study on your part during some of the time devoted to stock quotations, to racing charts and to base-ball scores, will soon enable you to grasp the fundamental principles of this, relatively new, branch of therapeutics and ere long you will be interested enough to want to know more about it.

Historical.—Vaccines as therapeutic agents are by no means new. It is only the recognition of its rationale that is new.

From time immemorial attempts have been made to cure disease by the causative agent of that disease. "A hair of the dog is good for the bite" is an old saw. Pliny suggests that the natural immunity of the Psylli against snake venom is probably due to their habit of drinking water from wells inhabited by venomous snakes. Other tribes were in the habit of producing what we now would call "actively acquired immunity" by cutaneous applications of small doses of snake venom. And a most drastic example of vaccination as a prophylactic measure is of course Jenner's application of cow virus against smallpox.

It may be of some little interest to follow up the history of smallpox vaccination for some time before Jenner's discovery, or rather rediscovery.

Arabian physicians were acquainted with the nature and treatment of smallpox. They probably were the first to whom it occurred to produce the disease by inoculation. Avicenna, of Bokhara, is credited with the discovery. It was carried by the Tartars and Chinese to Surat, Bengal and China.

Circassia: Dr. De la Motraye saw the operation of vaccination performed on a girl in 1711.

Constantinople: Dr. Kennedy reports seeing it done in 1715.

Dr. Timoni also saw it there in 1715, and Dr. Pylarini in 1716.

Cassem Aga, Ambassador in England from Tripoli, describes it in 1728.

India: Howell describes inoculation against smallpox in 1767. In Hindostan inoculation was performed by a particular tribe of Brahmins, who were delegated annually for this service.

China: D'Enrecolles speaks of it as being practiced there in 1718, but meeting with a good deal of opposition.

France: Dr. Boyer mentions it under the year 1717.

Spain: Here it was introduced in 1729, but not practiced until 1772, when it was used by Dr. Miguel Gorman.

Italy: According to Monsieur de la Condamine inoculation had been secretly practiced by the people of Naples from time immemorial. During the outbreak in Rome, in 1754, inoculation was publicly introduced by Peverini.

Germany and Austria: Inoculation was first performed in Hannover in 1724. Mr. Maitland operated on H. R. H. Prince Frederick and afterward on eight children of a Baron.

Holland: Inoculation introduced by Dr. Tronchin, who first operated on one of his own sons.

Denmark, Sweden and Switzerland: Inoculation is mentioned in the years 1754, 1754, 1751, respectively.

Russia: Operation performed in 1768 by Dimsdale.

America: In 1721 Dr. Zabdiel Boylston inoculated 244 people.

Scotland: In 1726 operation performed by Mr. Maitland.

Ireland: In 1723 first operation performed at Dublin by Dr. Bryan Robinson.

England: In 1717, yielding to the persuasion of Lady Mary Wortly Montagu, the operation was performed by Mr. Maitland on an old Greek woman.

Jenner's attention was first attracted to inoculation in 1776. Nothing further

was heard of this until 1788. His first paper on the subject appeared in 1797. In 1796 the first successful vaccination was performed by Jenner on James Phillip.

Rationale of Vaccine Therapy.—The rationale of vaccine therapy briefly stated is this: When the pathogenic microorganisms invade the animal system there ensues a war between invader and invaded. The body mechanism endeavors to ward off the attack first by “non-specific” agents of defense, that is agents opposed alike to *all* pathogenic bacterial infections, and secondly by the production of *specific* agents of defense—that is—agents directed against that particular species of microorganism which is the individual disturbing factor at that particular time. As this is not to be a treatise on the specific action of vaccines, but rather a description of the methods of preparation of such vaccines, I will content myself by stating that these *specific* agents of defense are called antibodies, immune bodies, etc. Now, broadly speaking, according to whether these antibodies are present in sufficient numbers to overcome the invading disease-producing bacteria or not the patient will either recover or succumb. Let me impress this point: Nature *always* produces *some* antibodies in every bacterial infection—it is merely a question of producing *enough*. By the introduction of vaccine into the peripheral tissues these are stimulated to produce the *specific* antibodies and send them to the aid of the antibodies already being produced at the seat of lesion—in a case of existing infection—or, when used as a prophylactic measure, such as vaccination against smallpox or typhoid fever, we stimulate the tissues by carefully measured doses of the bacterial toxin to the production of *specific* antibodies, which, stored within the animal body, are ready, for a greater or lesser period of time after vaccination, to meet that particular invading enemy and destroy him—or rather—make the animal non-susceptible to the action of that particular microorganism or its toxin. This then, in brief, is the principle of vaccination; an artificially but actively acquired immunity against a specific microorganism or its toxin.

Classification of Vaccines.—Having given a brief outline of the history and rationale of vaccine therapy, we will next consider the classification of vaccines. Vaccines are divided into two great classes: The heterogenous and the autogenous vaccines. In the heterogenous the bacteria used for the preparation of the vaccine are obtained from outside of the body of the patient—that is—some other animal, of the same or different species, is the source of supply and the vaccine is made in advance of the arising need and held ready for therapeutic or prophylactic use—stock vaccines. In the case of the autogenous vaccines the microorganism is recovered from the patient, either from some accessible focus of infection or from the circulating blood, and is then used for the preparation of the vaccine for that particular patient, so that the very same strain of bacteria which causes the disease is used for the making of the vaccine to combat that disease.

Obtaining the Specimen.—When we consider that (1) the skin and mucous membranes are always the seat of numerous microorganisms, and (2) frequently pathological lesions are due to a mixed infection, it becomes at once apparent that the obtaining and isolating of the causative microorganism is of prime importance. I shall therefore mention a few fundamental rules whose observance

in taking the specimen for the making of autogenous vaccines are the "sine qua non" of vaccine making.

1. Take the specimen yourself or have a well trained assistant from your laboratory attend to that. Many physicians, with the best intentions in the world, will fail in the observance of what, to them, seems a minor detail, with the result of contamination of specimen.

2. Observe the highest degree of asepsis in all your work—prepare as carefully for the taking of the specimen as the most careful surgeon prepares for a major operation.

3. Do not use an antiseptic on the skin or over the surface of the lesion from which you are about to gather your material—in the case of a surface infection, such as acne, carbuncle, etc., but wash the place with plenty of sterile water and gather your material from the depth of the lesion.

4. If a blood culture is to be made cut down on the vein, after the dry skin has been painted with tincture of iodine, and give yourself a liberal field to work in.

5. Do not fail in all cases to make a few primary smears, on clean glass slides or cover glasses direct from the lesion.

6. Having obtained your specimen do not delay any longer than absolutely necessary in preparing the vaccine.

After collecting the specimen and staining the primary smear, determine whether the infection is caused by a single species or whether it is a mixed infection. Even though the primary smear shows the presence of only one species a plate culture should always be made. In the case of mixed infection the numerical relation of the various microorganisms should be ascertained.

Having obtained the offending microorganism or microorganisms in pure culture the actual preparation of the vaccine begins.

Utensils Needed.—A good surgeon always lays out every instrument which may be required in the course of the operation and prepares for any emergency which might arise. We, too, will proceed to collect all the paraphernalia needed for the making of our vaccine. Hence the following articles should be on hand:

1. Twenty-four-hour pure culture of the microorganisms.
2. Sterile agar slants (two).
3. Sterile pipettes, graduated 10 cc.; 5 cc.; 1 cc. (six each).
4. Normal salt solution in 250 cc. flasks (two).
5. Sterile test tubes (6x $\frac{5}{8}$) thick walled, soft glass (six).
6. Water bath held at 60° C. and water bath for melting agar.
7. Blast lamp.
8. Special Bunsen burner with "sparflamme."
9. Glass knife, spool of adhesive plaster 1", Tr. Iodine 25 cc.
10. Sterile capillary pipettes in glass tube.
11. Watch crystals (6).
12. Glass dish with 0.25 percent Lysol.
13. Sheet lead with wire attached.
14. Green soap, cotton, alcohol.
15. Smearing slides (6), plain slides (6).
16. Wright stain, glass pencil, staining rack, distilled water.

17. Tubes of 1 percent Dextrose agar (2).
18. Sterile vaccine bottles, plugged and capped with paper (6).
19. Rubber caps for same.
20. Small casserole, small funnel.
21. Trikresol 25 cc.
22. Pair of heavy forceps.
23. Melted paraffin.
24. Counting eye piece, microscope, immersion oil, etc.

How to Make Some of These Things.—Capillary pipettes: Take a piece of No. 4 glass tubing about 5" long; heat the centre over the blast flame to redness, wait till it cools off a little, then with slight rotary motion pull the two ends apart, and cut in the middle. This will give two pipettes.

Smearing slides: Take an ordinary glass slide, mark with glass knife on one edge and break off along line.

Counting eye-piece: Take the eye-piece of your microscope, unscrew top lense, cut out a round piece of cardboard to fit inside of eye-piece; in this cardboard cut out a square piece, and lay two hairs across this square opening. These may be fastened with a drop of balsam.

Making the Vaccine.—Everything needed being on hand, we proceed with the making of the vaccine.

1. Put about 5 cc. of sterile normal salt solution into a sterile test tube ($6 \times \frac{5}{8}$).
2. Start water bath to be held at 60° C.
3. Make a thick emulsion of the microorganism to be used in the salt sol. (step 1), rubbing small quantities against the sides of the tube until thoroughly emulsified before mixing with the main bulk of the salt solution in the tube.
4. Hermetically seal this tube of emulsion in the blast flame.
5. After cooling, shake the emulsion vigorously for at least 15 minutes.
6. Cut and break off the end of the sealed tube over 0.25 percent Lysol sol.
7. With a sterile capillary pipette enter the tube and withdraw a small quantity of the emulsion and deposit it on a watch crystal.
8. Put the capillary tube in Lysol sol.
9. Cover the watch crystal with another watch crystal, to prevent evaporation.
10. Reseal the tube containing the emulsion.
11. When cool, wrap the tube in sheet lead to which a wire has been attached, and sink in the water bath held at 60° C. Keep there for 1 hour.
12. Put 1 or 2 cc. NaCl sol. in another watch crystal.
13. Mark 5 capillary pipettes about 1 inch from the small end and fit with rubber nipple.
14. Prick cleansed finger tip and allow a small drop of blood to accumulate.
15. With a marked capillary pipette suck up 1 unit (up to mark), admit a bubble of air.
16. In same pipette suck up one unit of salt sol., admit a bubble of air.
17. Suck up, in same pipette, one unit of emulsion from watch crystal.
18. Mix these on a clean slide by alternately sucking up and expelling, avoiding air bubbles.

19. Deposit a drop of this mixture on 2 clean glass slides and smear with smearing slide, same as ordinary blood smear.

20. Repeat 15, 16, 17, using 2 units of salt sol. instead of 1, and proceed as in 18 and 19.

21. When dry, stain these films, marked for identification, with Wright's stain.

22. Limit the ocular field by cross hair preparation (counting eye-piece).

23. Examine stained smears by high power, and if satisfactory—

24. Examine under oil immersion.

25. Count the bacteria and the red corpuscles in successive fields until 500 red blood cells have been counted.

26. Determine the number of bacteria per cc. by the following equation:
R. B. C. : Bacteria :: 5000 million : X.

27. Decide upon the dose per cc. and the total quantity of vaccine to be supplied, and from this determine the quantity of undiluted emulsion to be put into the dispensing bottle (vaccine bottle).

28. After the one hour has elapsed (step 11), cut tube and pipette off the quantity desired, which put into dispensing bottle.

29. With a sterile pipette remove about 1/10 cc. of emulsion, which put into a tube of melted dextrose agar, held at about 45° C. Make a shake culture.

30. Re-seal tube.

31. Add the necessary quantity sterile salt sol. to the emulsion in the dispensing bottle, thoroughly mix.

32. Remove about 1/10 cc. from bottle and put into melted dextrose agar (29).

33. Mark tube step 29 "emulsion," and tube step 32 "bottle."

34. Put into the completed vaccine 0.25 percent trikresol.

35. Put sterile rubber cap on dispensing bottle.

36. Paraffin and label.

This, gentlemen, completes the making of the vaccine, excepting the delivering and collecting of fee.

Again I want to impress upon you the necessity of extreme cleanliness and the need of using nothing but sterile appliances. Furthermore, the vaccine should not be released until 24 hours incubation of the tubes (steps 29 and 32) prove the absence of living micro-organisms.

I trust that I have succeeded in demonstrating to you that the making of autogenous vaccines is not as difficult a proposition as would appear at first glance and that the average pharmacist, with a little training, can prepare these vaccines successfully to the benefit of the patient, the satisfaction of the physician, the enrichment of himself and the credit of his profession.

THE MANUFACTURE AND ASSAY OF HYPOPHOSPHOROUS ACID.

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This acid was introduced into the United States Pharmacopoeia of 1890, and retained in the eighth revision, largely because of its value as a preservative of pharmaceutical preparations containing iodides, which are liable to decomposition by exposure to light and air.

It does not require a very long memory to recall the difficulties experienced in keeping these preparations, and the losses sustained by pharmacists as a result of failure to prevent oxidation or decomposition.

In 1888, Mr. John Devine conducted a series of experiments to determine the value of hypophosphorous acid as a reducing agent in the preservation of ferrous compounds, and the minimum quantity required for the purpose.

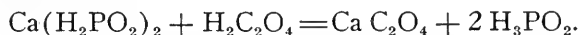
He embodied the results of his work in a paper read before this Section at the 1889 meeting.

Its use for this purpose met with more or less objection at that time, but now has official sanction.

Various processes have been suggested for the preparation of hypophosphorous acid, but it seems that purity of product did not receive much consideration, if one may judge by the results obtained by some, if not most, of the methods given.

As is often the case, the most direct method, and the best from the standpoint of product obtained, is not the one which lends itself most readily to easy and speedy manipulation; the method referred to is that by which barium hypophosphite is prepared by boiling a solution of barium hydroxide with phosphorus and afterward decomposing the barium hypophosphite with the exact equivalent of sulphuric acid. The method is direct, the by-products few and easily eliminated, and with a reasonable amount of care, the product is of a high degree of purity. But prolonged boiling is required, the method is slow and tedious and, because of limited solubility of barium hydroxide, a large volume of water is required in proportion to the amount of final product. This method is suitable only for operations on a rather large scale.

Another method given in the Dispensatories, and also mentioned in several standard works on chemistry, is the decomposition of calcium hypophosphite, in solution, by means of oxalic acid, and the equation illustrating the reaction is usually given:



This is a good example of a large class of equations which do not tell the whole truth; it works out to a nicety on paper and to all appearances it is only necessary to filter out the calcium oxalate and have hypophosphorous acid.

Here is where the utility of the U. S. P. ammonia test is shown: neutralize a portion of the acid, made in this way, with ammonia, and a precipitate appears at once.

Calcium oxalate is insoluble in water but is soluble to a considerable extent in hypophosphorous acid, consequently the product in this case is hypophosphorous acid saturated with calcium oxalate.

This was pointed out in 1887 by Mr. George Lunau (*Phar. Jour. and Trans.*, Mch 19, 1887), and in view of the poisonous character of the impurity the method should have been abandoned long ago, and mention of it either dropped from chemical text books or attention directed to the true character of the products of the reaction.

In the first issue of the National Formulary in 1888 a formula is given for the preparation of hypophosphorous acid by decomposing potassium hypophos-

phite with tartaric acid in presence of dilute alcohol and water and the formula was retained in the second and third editions.

This process is less objectionable than that in which oxalic acid is used because the impurity is not poisonous, but the product is very impure nevertheless, and there is an additional objection because of the expense due to alcohol lost in the operation.

In the American Journal of Pharmacy (Dec., 1908, p. 583), Dr. Gunnar Heikel proposes a method by which calcium hypophosphite in solution is decomposed by a solution of ammonium oxalate; the products of the reaction being calcium oxalate, precipitated, and ammonium hypophosphite in solution in which the calcium oxalate is completely insoluble. After filtering, the solution is boiled with barium carbonate until decomposition is complete, as shown by the absence of ammonia in the vapor.

In an experiment after this method carried out by the writer, boiling was continued for twenty hours, and at the end of that time ammonia was still being given off in appreciable volume.

Bearing in mind that the hydroxides of the alkalies and alkaline earths readily displace ammonia, a trial of barium hydroxide was made and the result was very satisfactory. On adding $\text{Ba}(\text{OH})_2$ to a cold solution of ammonium hypophosphite, elimination of ammonia begins within a few minutes, and on warming, the reaction is accelerated and about two hours' heating on a steam or boiling water bath is sufficient to expel all the ammonia, and a solution of barium hypophosphite with some insoluble residue, remains.

This is to be filtered, and filter and residue washed with hot water until a small portion of the washings gives little or no precipitate on the addition of a few drops of dilute sulphuric acid.

The formula in detail is as follows:

Calcium Hypophosphite	350 Gm.
Water	2000 Cc.
Oxalic Acid	190 Gm.
Strong Ammonia Water.....	qs.
Barium Hydroxide	630 Gm.

Dissolve the calcium salt in the water by gentle heat and, while hot, add the oxalic acid. Stir a few minutes, then remove from heat and add strong ammonia water until in slight excess. Allow to stand until cold, then test a portion of the clear liquid by adding a little oxalic acid; if this causes a precipitate, more oxalic acid must be added to the solution until no further precipitate is produced, keeping the solution alkaline by the further addition of ammonia if necessary. Now filter and wash the residue with hot water. To the mixed filtrate and washings add the barium hydroxide and heat on a steam or water bath, with frequent stirring, until free from ammonia, at the same time allowing the solution to become concentrated by evaporation.

The mixture must not be allowed to evaporate to dryness, however, as that would cause decomposition with the production of the highly poisonous phosphine gas.

When free from ammonia, which may be ascertained by holding a strip of moistened red litmus paper in the ascending vapor, filter and wash the residue

with hot water. Mix the filtrate and washings and weigh, then determine accurately the percentage of barium in the solution. From this calculate the weight of standardized dilute sulphuric acid required to exactly decompose the barium compound.

Mix, heat on steam or water bath until the volume is reduced at least one-half, then allow to cool and filter. The product should be entirely free from barium and give only a faint test for sulphuric acid.

As a matter of interest, some experiments were carried out using barium dioxide to decompose the ammonium hypophosphite.

Adding the barium dioxide to a warm and fairly concentrated solution of the ammonium salt, vigorous reaction set in at once, accompanied by brisk effervescence, the development of considerable heat and the rapid elimination of ammonia.

After standing until the reaction had somewhat abated, the mixture required but a short period of heating on a steam bath to complete the decomposition.

Considering the character of the constituents of this reaction, one would expect that a portion of the hypophosphite would be oxidized to phosphate; on filtering the mixture, washing the residue, dissolving a portion in nitric acid and applying the molybdate test, a heavy yellow precipitate of ammonium phosphomolybdate was produced.

The barium dioxide was tested in the same way and shown to be free from phosphate.

No phosphate was found in the filtrate, but that was scarcely to be expected in view of the alkaline condition of the solution.

The assay of hypophosphorous acid is best conducted by the method worked out in this laboratory by Mr. Horace North and published in the American Journal of Pharmacy for April, page 147.

Put 1 cc. hypophosphorous acid in a tared, stoppered Erlenmeyer flask and weigh accurately.

Add 20 cc. of water recently boiled, to expel CO_2 , and a few drops of phenolphthalein solution. Titrate with $\text{N}/5 \text{ Ba}(\text{OH})_2 \text{ V.S.}$ (standardized against $\text{N}/5 \text{ HCl V.S.}$) until a permanent pink color is produced, and calculate the weight of absolute acid.

Put the flask in a water oven for one hour, then collect any precipitate that may have formed on a 7 cm. Swedish filter, washing with hot water until the filtrate no longer yields a turbidity with a few drops of dilute sulphuric acid, and ignite the filter in a platinum crucible. Deduct the ash of the filter from the residue and divide the corrected weight, in milligrams, by the weight, in grams, of absolute acid in the quantity taken.

The quotient is the barium number and it indicates the proportion of sulphuric, phosphoric or other acids whose barium salts are insoluble under the conditions of the test. If an estimate of the sulphuric acid alone is required, the residue may be treated with hydrochloric acid, washed, ignited and weighed.

In a product fit for medicinal use, the barium number should not exceed 5.

The product may now be concentrated to 50 percent or diluted to 10 percent as required.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-First Annual Convention

BICHLORIDE TABLETS OF THE GERMAN PHARMACOPOEIA.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

Mercury, that is the metal, was already known in the time of the great Greek philosopher, Aristotle (384-322 B. C.), and held the highest place in the mediæval literature. Native mercury was found in the mines of Spain in liquid form and was therefore called *Argentum Vivum*, that is, living silver, or quicksilver. Chemistry, medicine and pharmacy are indebted to the Arabian alchemist, Abu-Musa-Dschafir-Ali-Sofi, commonly called Geber, which is the equivalent of his middle name, who discovered bichloride of mercury about the year 800. This he prepared by the sublimation of mercury, iron vitriol, alum, salt and saltpeter. The German chemist, Johann Kunkel, in 1716 greatly improved this process, which is still in use today, by subliming a mixture of mercuric sulphate and sodium chloride. It was Sir Humphry Davy, in 1810, who determined the chemical composition of corrosive sublimate as mercuric chloride. It is an everlasting credit to Paracelsus (1493-1541), the founder of iatro-chemistry or medical chemistry, to have introduced the mercurials into medicine as a specific against syphilis. Corrosive sublimate became a recognized cure for syphilis at the Vienna School of Medicine. It was there introduced by the celebrated Gerard van Swieten (1700-1772), the Dutch physician and pupil of the immortal Boerhaave. Van Swieten's solution of corrosive sublimate still holds its place in medicine and pharmacy.

The chemical and pharmaceutical industry in the United States most certainly deserves credit for the introduction as well as the evolution of tablet manufacture. Dr. Charles Meigs Wilson, of Philadelphia, in 1884 was the first to suggest the use of tablets of corrosive sublimate, which most decidedly have a great advantage in the extemporaneous preparation of solutions. The tablets suggested by him contain 7.7 grains of corrosive sublimate and 7.3 grains of ammonium chloride, each of which when added to a pint of water will make a solution of 1 in 1000. The addition of ammonium chloride serves three purposes, namely, it prevents the decomposition of the mercuric chloride, it hastens its solubility and produces a permanent solution. Since then these tablets have come into tremendous use.

In 1887, Dr. Angerer, professor of surgery at the University of Munich, and physician to the Bavarian court, recommended tablets composed of equal parts

of mercury bichloride and sodium chloride. These were introduced into the German Pharmacopoeia under the title

"*Pastilli Hydrargyri Bichlorati*" or "*Sublimatpastillen*."

The following is a translation of the monograph of the 5th edition of the German Pharmacopoeia, 1910:

Content about 50 percent of mercuric chloride (HgCl_2 , molecular weight 270.9).

Equal parts of finely powdered mercuric chloride and sodium chloride are well triturated, the mixture is colored red with an aniline dye and is formed into tablets of a cylindrical shape, which are twice as long as thick and which should weigh either one or two grams.

Hard cylindrical pastilles of a red color, easily soluble in water but only partly soluble in alcohol and ether. The aqueous solution should not redden blue litmus paper.

Sublimate pastilles must be dispensed in well closed glass bottles, which must bear a poison label. Each tablet must be wrapped separately with black paper, which in white ink must bear the word "Poison," as well as the amount of corrosive sublimate.

Must be kept preserved from light and moisture.

Must be kept in the poison closet under lock and key.

The fifth edition of the *Deutsche Arzneibuch*, 1910, also contains an assay for the determination of the mercuric chloride in these pastilles. It is the method of Professor E. Rupp, which was first described in *Archiv de Pharmazie*, Vol. 244, page 536. In this elegant method the corrosive sublimate by means of KOH and KI is changed to mercuric-potassium iodide, which with solution of formaldehyde, is reduced to metallic mercury. Diluted acetic acid is then added, as this will prevent any decomposition of tenth normal iodine volumetric solution by the excess of formaldehyde. The iodine solution dissolves the metallic mercury, forming mercuric iodide. The excess of iodine is titrated with tenth normal sodium thiosulphate volumetric solution, from which the amount of mercuric chloride is calculated. Unlike other assays, the red aniline dye Eosine does not interfere with the determination of mercuric chloride in the Rupp assay.

The object of the addition of sodium chloride to the tablet is two-fold: it increases its solubility and it furthermore neutralizes the acid reaction of mercuric chloride. A double salt is formed, namely $\text{HgCl}_2 \cdot 2\text{NaCl}$, which is neutral. For the formation of this double salt 100 parts of HgCl_2 requires 43 parts of NaCl, consequently 57 parts of NaCl are in excess.

The colorless bichloride tablets have been responsible for the great many accidents which have occurred of late in different parts of the United States. Methylene blue has been recommended and has been used for coloring these tablets and solutions. As pointed out by Thomas Wilson, in the *Pharmaceutical Journal*, 1913, page 99, abstracted in *The Practical Druggist*, May, 1913, page 39, methylene blue forms a precipitate with bichloride solutions which are stronger than 1 in 1000. Red has always been considered as a danger signal, and for that reason a red color is to be preferred to a blue or green color in a bichloride tablet, besides being more permanent. The German Pharmacopoeia does not specify the amount of the red aniline dye, but manufacturers are in the habit of using 1 gram of Eosine to 1 kilogram of the mixture.

The German Pharmacopoeia specifies a cylindrical shape, namely, twice as long as thick. This requirement was evidently for the purpose of preventing confusion between the deadly bichloride tablets and any other harmless round tablets.

The foresight of the German authorities can well be seen in the requirement that each tablet must be wrapped individually with black paper, which in white letters bears the word "Poison."

The amount of mercuric chloride must also be stated on each black wrapper with white letters, giving the number of grams contained in each tablet. This is a new requirement in the fifth edition of the German Pharmacopoeia.

The tablets must be kept in the poison closet under lock and key. They must be protected from the light, as this might in time bleach the color somewhat, and they must also be protected from moisture, as the sodium chloride in the tablets is apt to absorb same.

Bichloride tablets must be dispensed in well-closed amber bottles, which must bear a poison label. It is furthermore customary that the German apothecary caution the patient regarding the poisonous nature of these tablets and advise him to keep them under lock and key.

Last, but not least, the sale of these tablets in Germany is restricted to prescriptions only. They cannot be sold to every Tom, Dick and Harry, and this precaution undoubtedly accounts for the fact that no poisonings, accidental or suicidal, with bichloride tablets occur in Germany.

The author has procured tablets of different manufactures in different parts of Germany which are herewith submitted. The danger to the public is unquestionably largely overcome in the German bichloride tablet. No one can possibly swallow such a tablet accidentally during the day or night. The German bichloride pastilles are practically "fool proof."*

It is one of the first duties of the pharmacist to be careful in order to prevent error or to minimize the danger in dispensing poisons. Be careful! This should be the watchword of every pharmacist.

This paper, together with the specimens, may serve as an illustration of how well the German government and the German pharmacist take care of the health and safety of the public. No heterogeneous laws in different parts of the German Empire, but a pharmacopoeial standard and requirement to which every manufacturer and every pharmacist *has to live up to* and *does live up to*.

Let the German bichloride tablet serve as an illustration for our great country and its Pharmacopoeia, so that the latter may deserve the title "Peer of all Pharmacopoeias."

*The writer, however, cannot help but express his great surprise that such a standard work as *Hager's Handbook der Pharmazeutischen Praxis*, nor its supplement, has any comments to make on *Pastilli Hydrargyri Bichlorati*. Merely the formula is stated but no comparisons are made and no comments are given. Truly not a credit to this master work of pharmacy.

REPORT OF THE COMMITTEE ON RECIPE BOOK.

OTTO RAUBENHEIMER, CHAIRMAN.

Far-sighted and foresighted, Prof. Henry P. Hynson, has suggested the idea, has sown the seed, and has thus become "father" of the Recipe Book, a book of standard unofficial formulas, a book which in time will be a great value to the practicing pharmacist.

The A. Ph. A. very wisely appointed a committee of five on this Recipe Book, and perhaps not so wisely appointed the undersigned as chairman. Not because he shirks the work, but because his working days are limited to eighteen hours each and his time is pretty well occupied, it was impossible for him to do as much work on the Recipe Book as he would like to have done.

Nevertheless the work was started and was started on the right basis, as explained in our report at the Boston meeting, which is printed in the JOURNAL, Vol. 1, pages 168 and 169. Thus far, 114 formulas have been gathered at no expense whatsoever to the Association. They are published in installments in the JOURNAL of February, April, May, June, July and November, 1912. The published formulas comprise the following galenicals: medicinal baths, collyria, creams, elixirs, gauzes, glycerites, household ammonia, lotions, lubricating jellies, oils, ointments, pastes, powders, soap solutions and waters. For a number of years, your chairman has acted as a sort of a local, national and even international information bureau, being called upon daily to supply formulas for magistral, hospital and even foreign preparations. Being fortunate in having a rather complete library, I have been placed in such a position as to readily furnish this kind of information. Being aware of how hard it is to locate a formula for many lotions which are frequently prescribed by specialists, your chairman has endeavored to make a compilation of formulas of these lotions as complete as possible, being assisted in this by Dr. Binford Thorne, a former resident of Nashville, now one of Brooklyn's leading dermatologists.

Among the many formulas useful to the pharmacist behind the prescription counter, I might point out the lubricating jellies for catheters and instruments, Beck's bismuth paste, scarlet-red ointment, stainless iodine ointment, ichthyol ointment, Thiersch's powder and solution, sunburn lotions, lanolin cream and lotion, shaving lotions, etc., etc. Quite a number of these preparations have lately been marketed as proprietary or semi-proprietary preparations. From the knowledge of the composition of these preparations, and still easier from a formula for a similar or better preparation, the pharmacist can prepare these himself and offer them to the medical profession. Special care has been exercised that when any of these preparations contain an ingredient which is not well known in the United States, a formula for the same is also given. The numerous favorable comments received by the chairman give evidence that members of the A. Ph. A. are appreciating my somewhat amateur attempt of collecting suitable formulas for the Recipe Book. One pharmacist wrote that in the preparation and sale of *Lotio Delphinii*, published in the JOURNAL, Vol.

1, page 1312, he has saved several times the price of his membership dues of the A. Ph. A.

President Godding in his annual address at the Denver Convention has the following to say about the pharmaceutical formulas: "At the present time the department of pharmaceutical formulas has published one hundred recipes in the Journal of the A. Ph. A. Many are in local use. Heretofore, when needed, they were not to be found without much searching and then with varying success as to reliable directions in compounding. It seems desirable that these formulas should be the forerunner of the Recipe Book of the A. Ph. A., the publication of such a book would probably add prestige and revenue to this Association."

On May 8, 1911, the committee on the A. Ph. A. Recipe Book (see the Journal, February, 1912, page 168) presented a report to the Council as to:

1. Advisability of publication.
2. Scope and character.
3. Plans and details of publication.

It was decided that the proposed formulas should first be published in the "Department on Pharmaceutical Formulas" in the Journal. In Council Letter No. 2, of November 18, 1912 (see Journal, December, 1912, page 1462-63), favorable comments have been made by Messrs. Apple, Main and Wulling. Let us hope that the wise men in the Council will see the desirability, in fact the necessity of the publication of such a Recipe Book by the A. Ph. A. Meanwhile, let the members of the committee, together with the chairman, continue actively in the compilation of desirable formulas for the benefit of the pharmaceutical profession and especially of the members of the A. Ph. A.

AWAKE AT THE TURNS.

Alertness is not jumpiness, nor necessarily speediness; but a concentration which brings to bear all the resources of the mind upon the matter in hand. This concentration is on the first part of the proposition, not the last. That is the distinguishing mark of the alert man. He brings his attention fully and at once to the proposition. In a very few minutes his mind has grasped what is coming in all its details, and he knows whether it is worth while. The inalert man does not pay attention until something big or striking arouses his interest. Then he has lost the clew, and is muddled. Not only does such a man lose many of his best opportunities by not grasping their significance until they are by, but he is a weariness to the flesh with his everlasting, "Now go over that again, won't you?"

Alertness is not solely a gift of Heaven to quick minds. It is a habit, the exercise of sense. Many quick minds are not alert, because they are off woolgathering while they are in a cotton field. Many slow minds are alert, because from sheer force of will they concentrate promptly on the proposition before them.

If a man is ever to get to where he wants to go, he must be awake at every turn of the road.—*The Popular Magazine*.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

REPORT OF THE DELEGATES TO THE NATIONAL DRUG CONFERENCE, 1913.

JOHN C. WALLACE, CHAIRMAN.

At the Boston meeting in 1911, a recommendation was made by Prof. Hynson, as Chairman of the Committee on National Legislation, that a National Conference be called under the auspices of the American Pharmaceutical Association. The recommendation met with opposition and was defeated.

At the Denver meeting in 1912, a similar recommendation was made by John C. Wallace, at that time Chairman of the Section on Education and Legislation. The recommendation met with opposition, not only in the report of the Committee on Chairman's address, but was carried to the floor of the section. Finally a substitute motion was made that the recommendation be referred to the Council and it required the vote of the presiding officer to decide the motion in the affirmative.

At a subsequent meeting of the Council, the following resolutions, offered by J. H. Beal, were adopted:

"(1) That the American Pharmaceutical Association hereby calls a conference to be made up of delegates from the various national pharmaceutical associations to consider the subject of legislation, both state and national, in its relation to pharmacy."

"(2) That the General Secretary is instructed to send invitations to each of the national pharmaceutical associations requesting the appointment of delegates to such conference."

"(3) That such conference shall be held at Washington, D. C., some time prior to January 1, 1913."

"(4) That the Temporary Chairman of the conference shall be appointed by the President of the American Pharmaceutical Association, and the General Secretary of the Association shall act as Temporary Secretary of the same."

"(5) That such conference shall elect its own permanent officers, and after its organization shall be considered as representing all of the associations sending delegates to the same, and shall not be considered as being conducted under the auspices of any particular organization."

The resolution originally provided that the meeting was to be held prior to January 1, 1913, but the time was extended by vote of the Council to February 1, 1913.

President Day appointed as delegates to the Conference, John C. Wallace, Dr. James H. Beal and Samuel L. Hilton, and designated John C. Wallace to act as temporary chairman.

The Conference met at the New Willard Hotel in Washington, D. C., at 10 a. m., January 15, 1913, with the following delegates present:

Representing the American Pharmaceutical Association:

John C. Wallace, New Castle, Pa.
S. L. Hilton, Washington, D. C.
J. H. Beal, Scio, Ohio.

Representing the National Wholesale Druggists' Association:

F. E. Holliday, New York City.
C. Mahlon Kline, Philadelphia, Pa.
E. D. Taylor, Richmond, Va.

Representing the National Association of Manufacturers of Medicinal Products:

Adolph Rosengarten, Philadelphia, Pa.
A. R. L. Dohme, Baltimore, Md.
Charles M. Woodruff, Detroit, Mich.

Representing the American Association of Pharmaceutical Chemists:

Willard P. Stearns, Chicago, Ill.
W. C. Abbott, Chicago, Ill.
R. C. Stofer, New York City.

Representing the National Association of Retail Druggists:

W. C. Anderson, Brooklyn, N. Y.
F. H. Freericks, Cincinnati, Ohio.
J. F. Finneran, Boston, Mass.

A motion was adopted authorizing the temporary officers to act until a permanent organization had been effected.

After considerable discussion the following resolutions, offered by Drs. Beal and Anderson, were adopted:

"(1) That the Chairman appoint a committee of five on Form of Organization and Nominations, and a committee of five on Resolutions, both of the said committees to report at a subsequent session of the Conference."

"(2) That until the aforesaid committees shall be ready to report, the Conference proceed to the consideration of pending national opium legislation."

"(3) That the privileges of the floor be extended to the delegates present from other medical and pharmaceutical associations interested in pharmaceutical legislation."

The Conference at once took up for consideration H. R. Bill No. 25834, known as the Harrison-Wright Anti-Narcotic Bill, as a hearing was to be had at 5 o'clock before the sub-committee of Ways and Means Committee, of which Mr. Francis Burton Harrison, member of Congress, was Chairman.

The hearing before the sub-committee of the Ways and Means Committee had previously been arranged by Dr. William C. Anderson, Chairman of the Committee on Legislation of the National Association of Retail Druggists.

At the third session of the Conference, which was held in the evening, the Committee on Form of Organization and Nominations, and the Committee on Resolutions, made reports which were adopted.

The officers elected were: President, John C. Wallace; First Vice President, Charles A. West; Second Vice President, William C. Anderson; Third Vice President, W. C. Abbott; Secretary-Treasurer, Charles M. Woodruff.

The Executive Committee were Dr. James H. Beal, C. M. Kline, James F.

Finneran, and the President and Secretary of the Conference. On motion the President of the Conference was made Chairman of the Executive Committee.

The Committee on Resolutions presented the following, which was adopted:

"The National Drug Trade Conference-in session in Washington, D. C., this fifteenth day of January, 1913, herewith submit by unanimous resolution that this Conference is heartily in favor of Federal Legislation of such a nature as to bring under control the importation and the interstate traffic in so-called habit-forming drugs in such a manner as to prevent their illegitimate use, without placing unnecessary burdens upon the manufacturer, jobber, retailer, physician, or veterinarian."

A telegram was received from the American Medical Association requesting representation through Mr. M. I. Wilbert, when the privileges of the floor were granted to him, and he proved to be a very valuable acquisition to the Conference, as he is the author of the proposition for the use of the official order blank.

At the hearing before the Committee on Ways and Means we were told that we had sinned away our days of grace and should not come in at the eleventh hour, and object to the measure, when we had had a number of years to consider it, and that several branches of the trade had already approved of it. We, however, succeeded in convincing the Committee that possibly we had some information that might be valuable to them, when Mr. Harrison and Dr. Hamilton Wright agreed to give us another hearing, when we had succeeded in drafting a measure that would meet with the approval of the Conference.

The Conference prepared a draft of a bill, which was presented to Mr. Harrison, by a special committee, it was introduced in the House by Mr. Harrison on January 20, and is known as H. R. Bill No. 28277.

The delegates having returned home and taken up the study of H. R. No. 28277, concluded that it needed still further revision. Much correspondence ensued and many changes were suggested.

On February 20 the chairman of your delegates to the Conference went to Washington in order to find out the true status of the Harrison Bill and Mr. Harrison's intentions. He learned that owing to the congested condition of affairs in Congress in relation to the appropriation bill, Mr. Harrison had concluded not to report H. R. Bill No. 28277 out at this session, but that it was his intention to present the bill immediately after the convening of the special session of Congress, and to use every effort to have it enacted. Mr. Harrison felt that a draft prepared by the Conference should be the foundation of the new Harrison Bill. The President of the Conference immediately notified each of the delegates of the conditions as he found them, and recommended that they offer such suggestions and amendments as they might have to the Conference Bill, have them submitted to a special committee or to the Executive Committee, and have the draft prepared by the committee, together with the different suggestions, submitted to the Conference, ready for its approval or correction, at a meeting which should be held early in April.

A hearty response was received from the delegates, and a meeting of the Executive Committee was called, to be held at the New Willard Hotel at 11 a. m., Wednesday, April 9, and a meeting of the Conference for April 10. Previous, however, to the meeting of the Executive Committee, Mr. Harrison introduced

H. R. Bill No. 1969, which eliminated the official order blank and required records and reports of purchases and sales.

At the meeting of the Executive Committee, all of the drafts, suggestions and amendments were taken up and considered, a new bill drafted and presented to the Conference on April 10, and the Executive Committee were directed to present to Mr. Harrison the bill as approved by the Conference.

At this time, the Committee on Tariff were caucusing behind closed doors, and the committee were unable to get in touch with Mr. Harrison, but left a draft of the same with his secretary, after explaining many of its provisions. The committee were advised that we doubtless would be able to see Mr. Harrison Monday or Tuesday of the following week, and the Chairman of the Executive Committee was directed to return to Washington on Tuesday, April 15, and go over the provisions of the bill with Mr. Harrison. On the fifteenth Mr. Harrison was still extremely busy and unable to give an audience to your representative.

This draft was subject to many suggestions and proposed amendments.

It became apparent that another conference would be necessary, when Conference Resolution No. 2 was adopted. It was as follows:

WHEREAS, Present indications are that an emergency may require immediate representation of the National Trade Conference at Washington, D. C.; therefore be it

Resolved, That President John C. Wallace be authorized to represent the Conference in such emergency and to call to his assistance such delegates to the Conference, as are within convenient traveling distance of Washington.

On May 21, Mr. Albert Plaut, of New York, and John C. Wallace had a long conference with Dr. Hamilton Wright, discussing the proposed narcotic legislation, Mr. Harrison at the time being out of the city.

Dr. Wright was very insistent that we get together and have a final conference on the bill immediately upon Mr. Harrison's return, as the government officials were very anxious that the bill should be reported out of the committee. During this conference a number of changes were agreed upon; at this time Dr. Wright waived the keeping of records of sales by retailers.

On Tuesday, May 27, the Chairman of the Executive Committee received a telegram from Mr. Harrison, asking for a conference of the special committee for Wednesday, May 28.

On Wednesday, May 28, Mr. C. M. Kline, Mr. Adolph Rosengarten, Samuel Rosengarten, Dr. Dohme and John C. Wallace met Dr. Wright and Mr. Harrison at the latter's office, and went over the drafts that had been prepared. After thorough discussion of the two drafts in Mr. Harrison's possession, he asked that we remain over with Dr. Wright and prepare a draft to be submitted at the final meeting of the committee representing the conference, and the committee representing the government, not to be later than June 9.

Samuel Rosengarten and John C. Wallace remained in Washington on Thursday and Friday; spent both days with Dr. Wright at his office and prepared another draft. This draft was sent to all the members of the Executive Committee and a meeting of this committee called for June 9, at the New Willard Hotel in Washington.

The committee met in Washington on June 9, all the members being present except Mr. Finneran, who was represented by Dr. William C. Anderson.

The bill was considered paragraph by paragraph, and after an agreement had been reached, a conference was held with the committee representing the government, at the office of the Assistant Secretary of the Treasury. This conference did not prove entirely satisfactory, as a conclusion could not be reached on two vital points. The committee reconvened, prepared a memorandum, to be attached to the bill as approved by the Conference, and a committee appointed consisting of John C. Wallace, Dr. James H. Beal and Charles M. Woodruff, to present the same to Dr. Hamilton Wright at the State Department on the following morning. After a conference of considerable length with Dr. Wright and Mr. Talbot of the Internal Revenue Department, a satisfactory agreement was reached, and the bill, H. R. No. 6282, was introduced in Congress by Mr. Harrison on June 23, referred to the Committee on Ways and Means, reported out of the committee with a favorable recommendation, and was passed, with but two slight amendments, by the House of Representatives on June 26, and presented to the Senate on June 27. There it was read twice and referred to the Committee on Finance.

John C. Wallace, while in Washington on August 1, learned that amendments had been proposed by Senator Penrose to H. R. Bill No. 6282 which, if enacted, would nullify the entire bill. After discussing the matter fully, the senator directed his secretary to advise the Chairman of the Finance Committee that he wished to withdraw the proposed amendments.

Your delegates feel that the creation of the Conference and the result of its labors have marked another epoch in the American Pharmaceutical Association.

It has not only brought all of the drug interests into the greatest harmony but it will save the trade a very large amount of money by a reduction in the license fee, these having been reduced from \$100 for wholesalers and \$25 for retailers to a flat rate of \$1 for all dealers.

Anti-narcotic legislation was the subject of special messages to Congress by President Wilson and by Secretary of State Bryan, and it seems probable that the measure will be enacted in substantially its present form at an early session of Congress.

The calling of the Conference and its work have met with the approval of all of the branches of the trade, have been commended on the floor of the House of Representatives and by the pharmaceutical press of the country. The latest of these to reach us is from the Journal of the National Association of Retail Druggists, under date of August 7, and is as follows:

"Every branch of the drug trade was represented by able men, the government itself participating in the Conference by a representative of the State Department, a representative of the Bureau of Chemistry, and by members of Congress. The result was a finished product in the form of a measure which has received general approval and which fits in with the international scheme of illicit narcotic drug suppression fathered by the The Hague Conference, in which the important governments of the world are parties of interest."

The idea of such a conference was taken up by the manufacturers and producers of food products and a National Food Trades Conference was formed at

Atlantic City last June, a full report of which appeared in the New York Journal of Commerce, on June 9.

While your delegates are free to admit that, viewed from a single or selfish standpoint, the bill might in some ways be improved, but considering the great diversity of interests represented, they feel that it is not only a credit to the various associations represented but an honor to the A. Ph. A., under whose guiding hand it was brought into existence.

The spirit of harmony which prevailed through all of the deliberations of the Conference, when the great diversity of interests is considered, is worthy of more than passing notice.

We recommend continued affiliation with the Conference.

We desire to make public acknowledgement of the many courtesies extended and the consideration received at the hands of the Hon. Francis Burton Harrison, of New York, Dr. Hamilton Wright of the State Department, and Mr. Harrison's efficient secretary.

All of which is respectfully submitted.

JOHN C. WALLACE.

J. H. BEAL.

S. L. HILTON.

PHARMACY LAWS PROPOSED, ENACTED OR AMENDED DURING 1912-1913.*

FRANK H. FREERICKS.

(Continued from January Issue)

DEFEATED PENNSYLVANIA PHARMACY BILL.

Section 1. Definitions (a) That the term pharmacy when not otherwise limited shall for all the purposes of this act of Assembly be taken to mean a retail drug store or any place other than a licensed store or licensed pharmaceutical laboratory as hereinafter defined where drugs, medicines or poisons are compounded, dispensed, prepared or sold at retail.

(b) A licensed store shall for the purposes of this act be deemed to mean a store other than a pharmacy licensed under the provisions hereof to sell drugs and poisons for medicinal use but only in original packages put up by or under the supervision of a pharmacist or a licensed pharmaceutical laboratory and properly labeled as to dose and directions for use.

(c) A licensed pharmaceutical laboratory for all the purposes of this act of Assembly shall be taken to mean a place other than a pharmacy or licensed store where drugs are compounded.

(d) That the term "drug" as used in this act of Assembly shall include all medicines and preparations recognized in the United States Pharmacopoeia the National Formulary or the American Homeopathic Pharmacopoeia for internal

*Continuation of the report of the secretary of the Section on Education and Legislation. See Journal for January, p. 67.

or external use and any other substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or other animals.

(e) That the term "pharmacist" shall for all the purposes of this act of Assembly be deemed to mean a person who is properly registered and licensed in accordance with this act of Assembly to act as a pharmacist and to compound sell furnish or dispense drugs chemicals and poisons in a pharmacy or licensed pharmaceutical laboratory.

(f) That the term "assistant pharmacist" shall for all the purposes of this act of Assembly be deemed to mean a person who is properly registered and licensed in accordance with this act of Assembly to act as an assistant pharmacist and to compound sell furnish or dispense drugs chemicals and poisons in a pharmacy or a licensed pharmaceutical laboratory conducted under the supervision of a pharmacist.

The certificate of a registered assistant pharmacist shall entitle such person to all the privileges of a registered pharmacist during the temporary absence of the registered pharmacist in charge but shall not entitle such assistant pharmacist to manage or conduct a pharmacy or drug store.

Section 2. That there shall be established in the State of Pennsylvania a board to be known as "The Pennsylvania Board of Pharmacy" to consist of five persons three of whom shall constitute a quorum who shall be appointed for the term of five years by the Governor from among the most skillful pharmacists in Pennsylvania who are not teachers or instructors in any educational institution teaching pharmacy each appointee must have been registered as a pharmacist in Pennsylvania for at least ten years previous to his appointment and he must be actually engaged in conducting a pharmacy or licensed pharmaceutical laboratory at the time of his appointment Provided Whereas a State Pharmaceutical Examining Board has hertofore been created in this Commonwealth and is now instituted and organized as provided in this act of Assembly. The members of the said board heretofore created shall constitute and henceforth be deemed and taken to be the Pennsylvania Board of Pharmacy established by this act of Assembly. That the appointed members of said board heretofore created shall respectively continue to hold office as members of the board established by this act of Assembly until the expiration of the terms for which they were originally appointed. Each member of said board shall receive an annual salary of twelve hundred dollars which shall be in lieu of a per diem compensation allowed them by law and also shall receive all necessary expenses to be paid out of the State Treasury upon certificate of the secretary of said board and warrant approved by the Auditor General the same to be paid quarterly. The officers of said board shall be a president a vice president and treasurer elected from their number. They shall also elect a secretary who must be a pharmacist and who may be a member of the board and who shall discharge such duties as are hereinafter specified and such additional duties specified by the board as may be necessary for the proper enforcement of the provisions of this act of Assembly and the salary of the said secretary shall be a reasonable amount to be determined by the Pennsylvania Board of Pharmacy not to exceed the sum of three thousand (\$3,000) dollars per annum provided however that if said secretary be one of the members of said

board his total salary shall not exceed the sum above limited and the members of said board shall within ten days after their appointment take and subscribe an oath or affirmation before a properly qualified officer of the county in which they reside that they will faithfully and impartially perform the duties of their office which oath or affirmation shall be filed with the Secretary of the Commonwealth And the said board shall have the right from time to time to employ chemists assistant chemists attorneys agents and clerks for the purpose of carrying out the terms and conditions prescribed by this act of Assembly Any vacancy occurring in the said board shall be filled by the Governor of the State of Pennsylvania from among such only as are eligible for appointment under this act of Assembly Provided however if the office of a member shall become vacant before the expiration of the term for which said member was appointed the vacancy shall be filled by an appointment by the Governor for the unexpired term only.

Section 3. That all persons firms or corporations now owning or conducting or who shall hereafter own or conduct a pharmacy or pharmaceutical laboratory in Pennsylvania shall procure a license from the Pennsylvania Board of Pharmacy and renewal thereof each year thereafter The applicant for this license and for each renewal shall state in the application the location of the pharmacy or pharmaceutical laboratory the name or names of the person firm or corporation owning or conducting it and the names of all persons and employes engaged in the conduct or carrying on of the same who are registered as pharmacists or assistant pharmacists with the number and date of their certificates of competency and qualifications. This license shall entitle the holder thereof to own or conduct a pharmacy or pharmaceutical laboratory in accordance with the provisions of this act of Assembly at the place only for which it is issued. A fee of one dollar shall be paid to the Pennsylvania Board of Pharmacy for this license and for each renewal provided that upon application any unexpired license shall be transferred as to the location of the place and in the name of the holder thereof without the payment of an additional fee.

No person firm or corporation shall sell offer for sale or have in possession with intent to sell drugs or poisons at a store other than a pharmacy without first procuring from the said Pennsylvania Board of Pharmacy a license authorizing them to conduct a licensed store and sell same as herein provided. No such license shall be granted for a place within three miles by the most available route of travel to a licensed pharmacy. This license shall entitle the holder thereof to conduct a licensed store within the meaning of this act of Assembly for a period not exceeding one year and shall be used only for the store and place for which it is issued. A fee of one dollar shall be paid to the Pennsylvania Board of Pharmacy for this license. The Pennsylvania Board of Pharmacy shall grant said licenses under the terms and conditions of this act of Assembly and the rules and regulations of the Pennsylvania Board of Pharmacy for the enforcement of this act of Assembly.

Section 4. That the Pennsylvania Board of Pharmacy shall meet at least four times a year in the city of Harrisburg or such other place in Pennsylvania as they may deem expedient and examine all persons in the science of pharmacy and its allied branches who shall make application for registration as pharmacists or assistant pharmacists and that the said Pennsylvania Board of Pharmacy or a

majority of them shall grant to such persons as may be qualified registration and certificates of competency and qualification which shall entitle the holder thereof to act as a pharmacist or assistant pharmacist when duly licensed under the provisions of this act of Assembly.

Section 5 That every person applying to the Pennsylvania Board of Pharmacy for examination and registration as a pharmacist shall be not less than twenty-one years of age and of good moral character and must produce satisfactory evidence of having a certificate of preliminary educational qualification for licensure to practice pharmacy issued by the Bureau of Professional Education of Pennsylvania and of having had not less than four years' practical experience in a pharmacy where physicians' prescriptions are compounded and dispensed under the personal supervision of a registered pharmacist two years of which experience must have been in such pharmacy within the United States also of being a graduate of a properly chartered college of pharmacy recognized by the Pennsylvania Board of Pharmacy.

Each applicant for examination shall pay to the Pennsylvania Board of Pharmacy an examination fee of three (\$3.00) dollars. If the said applicant passes a satisfactory examination and has otherwise complied with the provisions of this act the said board shall grant the applicant registration and a certificate of competency and qualification as a pharmacist upon the payment of a fee of twelve (\$12.00) dollars provided said fee shall be paid to said board within thirty (30) days of the time that the said applicant is notified that a satisfactory examination has been passed.

Section 6. That every person applying for examination and registration as an assistant pharmacist shall not be less than eighteen years of age and of good moral character and must produce satisfactory evidence of having a certificate of preliminary educational qualifications for licensure to practice pharmacy issued by the Board of Professional Education of Pennsylvania and of having had not less than two (2) years experience in pharmacy where physicians' prescriptions are compounded and dispensed under the personal supervision of a registered pharmacist and if the said applicant passes a satisfactory examination and has otherwise complied with the provisions of this act the said board shall grant to said applicant registration and a certificate of competency and qualification as an assistant pharmacist upon payment of a fee of five (\$5.00) dollars provided that said fee shall be paid to the said board within thirty (30) days of the time that the said applicant is notified that a satisfactory examination has been passed.

Section 7. The Pennsylvania Board of Pharmacy shall grant registration under the provisions of this act of assembly without an examination and without fee to all persons registered as pharmacists or assistant pharmacists by the State Pharmaceutical Examining Board of Pennsylvania under the act of May twenty-fourth one thousand eight hundred and eighty-seven and various supplements and amendments entitled "An act to regulate the practice of pharmacy and the sale of poisons and to prevent adulterations in drugs and medicinal preparations in the State of Pennsylvania" as pharmacists or assistant pharmacists respectively and when so registered they shall be eligible to apply for a license to act as a pharmacist or assistant pharmacist as herein provided.

Section 8. That the Pennsylvania Board of Pharmacy shall issue to all appli-

cants who are properly registered under the provisions of this act of Assembly a license to act as pharmacists or assistant pharmacists upon application duly made in conformity with the rules and regulations of the Pennsylvania Board of Pharmacy for the enforcement of this act of Assembly. These licenses shall entitle the holders thereof to act as a pharmacist or assistant pharmacist respectively in a pharmacy licensed as provided in this act of Assembly. The board shall not charge any fee for this license.

Section 9. That any license to act issued by the Pennsylvania Board of Pharmacy by reason of the authority of this act of Assembly may be refused suspended or revoked by the Pennsylvania Board of Pharmacy for any of the following reasons:

First. When the applicant is not of good moral character.

Second. When the registration is shown to have been obtained by fraudulent means.

Third. When the applicant or holder is shown to be addicted to the use of narcotic drugs or stimulants to such an extent as to unfit the applicant or holder of the license for the proper performance at all times of the duties of a pharmacist or assistant pharmacist.

Fourth. When afflicted by mental disease of such character as to render the applicant or holder of the license a menace to the interests of the public if allowed to act as a pharmacist or assistant pharmacist.

Fifth. When the applicant or holder has been convicted twice of a wilful violation of this or any other statute relating to the practice of pharmacy or has been convicted of a crime involving moral turpitude.

And providing that any person who is an applicant for a license to act under this act of Assembly or who is licensed to act against whom are preferred any of the foregoing charges for causing the revocation suspension or refusal of the right to act shall be furnished by the Pennsylvania Board of Pharmacy with a copy of the charges and shall be given a hearing before the board and shall be allowed the privilege of attorney and witness. If it shall appear from the evidence that the license to act of the accused should be revoked suspended or refused then the Pennsylvania Board of Pharmacy shall act accordingly.

When a license to act has been revoked or suspended it shall be delivered to the secretary of the board on formal notice. Any person who shall refuse to deliver to the secretary the license that has been revoked or suspended by the board shall be guilty of a misdemeanor and upon conviction shall pay a fine of not less than one hundred (\$100.00) dollars.

For the purposes of enforcing this section of this act of Assembly the Board of Pharmacy shall have the power to administer oaths and compel the attendance of witnesses.

Section 10. That all licenses to conduct a pharmacy or a licensed store or licensed pharmaceutical laboratory issued under this act of Assembly shall expire on the thirty-first day of December of each year. The first of these licenses issued under this act of Assembly shall bear date of January first one thousand nine hundred and fourteen. Application for the renewal of the same shall be made on or before the first day of December of each year. Any person failing to apply for a renewal of his license in accordance with the provisions of this

section shall pay a penalty of one dollar per month or fraction thereof for each month succeeding the date of expiration.

Section 11 That every pharmacy licensed under this act of Assembly shall at all times keep in the pharmacy a copy of the latest revision of the United States Pharmacopoeia and the latest edition of the National Formulary and if homeopathic remedies are compounded and dispensed a copy of the latest revision of the American Homeopathic Pharmacopoeia or the Homeopathic Pharmacopoeia of the United States. Any person violating this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of ten (\$10.00) dollars and the costs of prosecution.

Section 12. That all certificates of competence and qualification as a pharmacist or assistant pharmacist issued under authority of the Commonwealth of Pennsylvania and all licenses and certificates issued under this act of Assembly shall at all times be conspicuously exhibited in the place of business licensed or where the licensed pharmacist or assistant pharmacist is employed. Any pharmacist violating this section of this act of Assembly as to the display of his own or his employees certificates shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of ten (\$10.00) dollars and the costs of prosecution.

Section 13. No licensee shall permit his license to be used by another for his protection nor shall any licensee permit his license to be displayed at a place where he is not actually employed. No license shall be granted for more than one pharmacy or one licensed store or one licensed pharmaceutical laboratory and any person who shall violate this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall have his license revoked and shall be punished by a fine of not less than one hundred dollars (\$100.00) or by imprisonment in the county prison for a term of six months either or both in the discretion of the court.

Section 14. That the Pennsylvania Board of Pharmacy shall have the right to accept the certificates of the pharmacy boards of other states in lieu of examination for registration as pharmacists. Provided however that such other states have equivalent standards for registration. And provided further that the said states shall grant to pharmacists registered in accordance with the laws of Pennsylvania the same privileges subject to such rules and regulations as may be made from time to time by the said Pennsylvania Board of Pharmacy for the enforcement of this act of Assembly. A fee of twenty-five (\$25.00) dollars shall be paid for such registration.

Section 15. That it shall be unlawful for any person to impersonate an applicant before the Pennsylvania Board of Pharmacy who shall be applying either for a license or a certificate under the provisions of this act of Assembly. Any person violating this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of one hundred (\$100.00) dollars or to undergo an imprisonment of six (6) months in the county prison or either or both in the discretion of the court.

Section 16. That the Pennsylvania Board of Pharmacy shall from time to time make uniform rules and regulations subject to the approval of the Attorney General for the enforcement of this act of Assembly.

Section 17. That the Pennsylvania Board of Pharmacy shall make an annual

report to the Governor of Pennsylvania of the work performed by the board during the year together with a complete financial statement of all moneys received and all moneys paid out. Two thousand (2,000) copies of this report shall be printed by the State Printer of Pennsylvania and two (2) copies of each sent to each member of the Legislature the remaining copies to be distributed upon application by the Pennsylvania Board of Pharmacy. All papers and records together with the minutes of the board shall be filed in the office of the board.

Section 18. That hereafter it shall be unlawful to sell drugs medicines or poisons at retail or to compound physicians' prescriptions or to conduct a pharmacy or a licensed store or a licensed pharmaceutical laboratory within the meaning of this act of Assembly or to act as a pharmacist or assistant pharmacist except in compliance with the provisions of this act of Assembly provided however that nothing in this act of Assembly shall be so construed as to interfere with students of pharmacy or other employes in a pharmacy or licensed pharmaceutical laboratory from performing such duties as may be assigned to them. Provided that the compounding of medicine in a pharmacy or a licensed pharmaceutical laboratory and the compounding of physicians' prescriptions or the dispensing and selling of poisons at retail shall not be permitted except under the supervision of a pharmacist or assistant pharmacist.

Nothing in this act of Assembly shall be construed so as to prevent authorized practitioners of medicine dentistry or veterinary medicine from administering or dispensing such drugs to bona fide patients as he or she shall deem necessary. Provided however that drugs so dispensed shall conform to the standards of strength quality and purity as fixed by the laws of this Commonwealth. Any person violating the provisions of this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of not less than fifty (\$50.00) dollars nor more than five hundred (\$500.00) dollars or imprisonment for not more than one year or either or both in the discretion of the court.

Section 19. That it shall be unlawful for any person firm or corporation to use the title of pharmacist or assistant pharmacist except when so licensed under this act of Assembly or that of pharmacy licensed store or licensed pharmaceutical laboratory except when holding a license issued under this act of Assembly to conduct the same respectively. It shall further be unlawful to use the title drug store licensed pharmacy licensed drug store for a place where drugs are sold except in compliance with the provisions of this act of Assembly. Any person violating this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of fifty (\$50.00) dollars and the cost of prosecution.

Section 20. That the members of the Pennsylvania Board of Pharmacy or any of their authorized agents shall have the right to enter any place where drugs are compounded dispensed or sold for the purpose of purchasing samples and shall have the right to purchase samples in order that tests can be made to determine whether such drugs conform to the standards of strength quality or purity as fixed by the laws of this Commonwealth. Any person who intentionally prevents or knowingly refuses to permit any authorized person to enter any place where drugs are compounded dispensed or sold for the purpose of pur-

chasing samples or refuses to sell a sample or samples of drugs for the purpose of examination shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of ten (\$10.00) dollars and costs of prosecution.

Section 21. That all drugs sold or offered for sale in Pennsylvania must be labeled so as to show plainly on the package or bottle the name of the article or preparation therein contained. Provided that this section shall not apply to prescriptions of authorized practitioners of medicine dentistry or veterinary medicine. Any person violating this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of ten dollars (\$10.00) and the costs of prosecution.

Section 22. Poisons. That a poison in the meaning of this act of Assembly shall be any drug chemical or preparation which according to standard works on medicine toxicology or materia medica is liable to be destructive to adult human life in quantities of sixty (60) grains or less or any mixture compound or preparation containing in sixty (60) grains or less a sufficient quantity of any such drug chemical or preparation as to make the same liable to be destructive to adult human life if sixty (60) grains or less were to be taken.

No person shall sell at retail or dispense any poisons except as herein provided without affixing to the bottle box vessel or package containing the same a label printed or plainly written containing the name of the article the word "poison" and the name and place of business of the seller nor shall he deliver poison to any person without satisfying himself that the purchaser understands the poisonous nature of the article and that such poison is to be used for legitimate purposes.

It shall be the further duty of anyone selling or dispensing at retail poisons which according to standard works on medicine toxicology or materia medica are liable to be destructive to adult human life in quantities of five (5) grains or less before delivering them to enter in a book kept for this purpose the name of the seller and the name and residence of the buyer the name of the article the quantity sold or disposed of and the purpose for which it is said to be intended which book of registry shall be preserved for at least two years from last date of entry and shall at all times be open to inspection of the coroner police authorities or the agents of the Pennsylvania Board of Pharmacy. No manufacturer wholesaler jobber or other person shall sell any poisons as defined by this section to a retail dealer in drugs or any other person without affixing to the bottle box vessel or package containing the same a label printed or plainly written containing the name of the article and the word "poison." Provided however that the provisions of this section shall not apply to the dispensing of prescriptions of authorized practitioners of medicine dentistry or veterinary medicine specifying poisonous articles nor to the sale of mixed paints of all kinds white lead and colors ground in oil and all lead products for technical purposes. Any person violating this section of this act of Assembly shall be guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of not more than one hundred dollars (\$100.00).

Section 23. This act shall not apply to the sale of poisons for other than medicinal use and not sold or offered for sale as a drug within the meaning of this act of Assembly. Provided however the article is labeled to show plainly that it is not for medicinal use and is sold in compliance with section twenty-two

of this act. Nor shall this act be construed to prevent the sale of proprietary medicines proprietary remedies or proprietary preparations nor the sale of castor oil sweet oil turpentine linseed oil sal ammoniac sal soda baking soda washing soda copperas blue vitriol sulphur epsom salts rochelle salt spices flavoring extracts olive oil flaxseed hydrogen peroxide witch hazel water of ammonia cream of tartar essence peppermint essence Jamaica ginger essence wintergreen essence almonds essence spearmint essence birch chloride lime borax paraffine beeswax spermaceti honey logwood resin saltpetre pine tar moth balls bird seed alum arnica antiseptic face lotion bay rum bay essence brilliantine blood stopping stick blood stopping powder blood stopping cream camphor cream camphor ice caseline pomade cosmetique cold cream dandruff cure face creams hair tonics massage creams mantoline toilet water talcum powders shampoos witch hazel beef iron and wine camphor camphorated oil plasters glycerine petroleum jelly quinine glauher salts seidlitz powders turmeric. Nor the sale of any other article or compound of a like nature or character used other than as a medicine or drug.

Section 24. That all physicians' prescriptions compounded and dispensed shall be filed and kept for a period of at least five years and during that time they shall be open to the inspection of the police authorities upon presentation of an order from the court or to the members of the Pennsylvania Board of Pharmacy.

Section 25. All fees that may be received by said board under the provisions of this act and all fines and penalties recovered for violations of the provisions of this act shall be paid to the secretary of said board or to his agent or agents and by him paid into the state treasury for the use of the Commonwealth.

Section 26. The sum of fifteen thousand dollars or so much thereof as may be necessary be and the same is hereby appropriated for carrying out the provisions of this act for the two years beginning from the date of the approval of this act to be paid out by the state treasurer on the warrant of the secretary of said board approved by the auditor general.

This act shall be in force and effect on and after January first, one thousand nine hundred and fourteen.

OREGON PHARMACY LAW NOW IN FORCE.

Be it enacted by the People of the State of Oregon:

Section 1. It shall be unlawful for any person, from and after the passage of of this act, to manufacture, sell, or dispense any drug, poison, medicine, or chemical, or to dispense or compound any prescription of a medical practitioner, unless such person be a registered pharmacist or a registered assistant pharmacist within the meaning of this act, except as hereinafter provided. Every store, dispensary, pharmacy, laboratory or office for the sale, dispensing or compounding of drugs, medicines, or chemicals, or for the dispensing of prescriptions of medical practitioners, shall be in charge of a registered pharmacist. A registered assistant pharmacist may be left in charge of a store, dispensary, laboratory, or office for the sale, dispensing or compounding of drugs, medicines, or chemicals or for the dispensing of prescriptions of medical practitioners only during the temporary absence of the registered pharmacist. Temporary absence within the meaning of this act shall be held to be only those unavoidable absences which may occur during a day's work, and when

the registered pharmacist in charge shall be within immediate call, ready and able to assume the direct supervision of said pharmacy. No registered assistant shall conduct a pharmacy. Every store or shop where drugs, medicines or chemicals are dispensed or sold at retail, or where prescriptions are compounded, which has upon it or as a sign, the words "pharmacist," "pharmaceutical chemist," "apothecary," "druggist," "pharmacy," "drug store," "drugs," or any of these words, or the characteristic show bottles or globes, either colored or filled with colored liquids, shall be deemed a "pharmacy" within the meaning of this act.

Section 2. Any person in order to be a registered pharmacist must be a licentiate in pharmacy, or a practicing pharmacist.

Section 3. Licentiate in pharmacy are persons who have had four years experience in stores where the prescriptions of medical practitioners are compounded, and shall have passed an examination before the State Board of Pharmacy. Practicing pharmacists are persons who, at the passage of this act, are registered as such, and who shall have on or before the 21st day of May next succeeding the passage of this act, paid to the Board of Pharmacy of this State all moneys due for renewal of registration as required by the acts of the legislature regulating the practice of pharmacy in the State of Oregon, approved February 21, 1891, and February 25, 1895.

Section 4. Registered assistant pharmacists are persons who at the time of the passage of this act are already registered as such, and who shall have on or before the 21st day of May next, succeeding passage of this act paid to the Board of Pharmacy of this State all moneys due for renewal or registration as required by the acts of the legislature regulating the practice of pharmacy in the State of Oregon, approved February 21, 1891, February 25, 1895, and February 25, 1907; provided, that no person shall be examined or registered as a licentiate, unless such person has had four years' pharmaceutical experience in a pharmacy under the supervision of a registered pharmacist; and provided further, that no person shall be examined or registered as an assistant pharmacist unless such person be at least 18 years of age and has had three years pharmaceutical experience in a pharmacy under the supervision of a registered pharmacist.

Section 5. There shall be established in the State of Oregon a board to be known as the "Oregon Board of Pharmacy" to consist of five persons who shall be appointed for the term of five years by the Governor from the most competent registered pharmacists residing in different parts of this State, who are not teachers or instructors in any technical institution teaching pharmacy. Each appointee must have been a registered pharmacist in the State of Oregon for at least five years previous to his appointment, and he must be actually engaged in the practice of pharmacy at the time of his appointment; provided, whereas the Oregon Board of Pharmacy has heretofore been created in this State and is now instituted and organized, as provided in this act, the members of the Oregon Board of Pharmacy heretofore created shall constitute and be termed and taken to be the Oregon Board of Pharmacy established by this act, and the appointed members of said Board heretofore created shall respectively continue to hold office as members and officers of the Oregon Board of Pharmacy established by this act until the expiration of the terms for which they were originally appointed. The board shall organize by electing a president, secretary and treasurer.

The secretary may or may not be a member of the board, as the board in its sound discretion shall determine; provided, however, the secretary so appointed shall be a duly and regularly registered pharmacist under the laws of the State of Oregon. The secretary and treasurer shall each give satisfactory bonds running to the board of pharmacy in a sum not less than \$2000 or such greater sum as the board may from time to time require, for the faithful discharge of their respective duties.

Section 6. It shall be the duty of the secretary to keep a book of registration in which shall be entered under the supervision of the board the names, titles, qualifications and places of business of all persons coming under the provisions of this act.

The secretary shall give receipts for all moneys received by him and pay same to the treasurer of the board, taking his receipt for the same. The treasurer shall disburse the same by order of the board for necessary expenses, taking proper vouchers therefor. All moneys received in excess of the expenses incurred by said Board of Pharmacy shall be held by said Board of Pharmacy as a special fund for meeting further and necessary expenses. It shall be the duty of the secretary of the Board of Pharmacy to erase from the register the name of any registered pharmacist or assistant pharmacist who has died, or who in the opinion of the Board of Pharmacy has forfeited his right under the law to do business in this State. Besides the duties required by this act, it shall be the duty of the secretary to perform such other reasonable duties appertaining to his office as may be required of him by the Board of Pharmacy. The secretary shall receive such compensation as may be fixed by the Board of Pharmacy; if he be a member of the board, then such compensation shall be in addition to his per diem as a member of said board.

Section 7. Three members of the board shall constitute a quorum. They shall hold a meeting at least once in every three months.

Powers and Duties of the Board of Pharmacy.

Subdivision 1. The State board of Pharmacy shall have power

(a) To make such by-laws and regulations not inconsistent with the laws of this State, as may be necessary for the protection of the public, appertaining to the practice of pharmacy and the lawful performance of its duties.

(b) To regulate the practice of pharmacy.

(c) To regulate the sale of poisons.

(d) To employ inspectors of pharmacy and to inspect during business hours all pharmacies, dispensaries, stores or places in which drugs, medicines or poisons are compounded, dispensed or retailed, and to cause the prosecution of all persons whenever there appears to the Board of Pharmacy to be reasonable ground for such action.

(e) To examine and register as pharmacists and assistant pharmacists all applicants whom it shall deem qualified to be such. All persons applying for registration under this act shall pay the following fees therefor to the secretary of the Board of Pharmacy. Every applicant for registration shall pay a fee of ten dollars (\$10) on filling his or her application which shall be compensation to the Board of Pharmacy for examination of the applicant. The said Board of Phar-

macy shall require each and every registered assistant pharmacist to present himself or herself to the said State Board of Pharmacy for examination as a registered pharmacist within two years from the date of his or her first registration as an assistant pharmacist; and the said Board of Pharmacy shall authorize and empower the secretary of said board to cancel the certificate of registration of every registered assistant pharmacist who shall fail to present himself or herself for examination within the period hereinbefore specified.

(f) In the event any person having registered shall have lost his or her certificate of registration, or the same has been destroyed, or if he or she desires the renewal of same, a new certificate may be issued by said Board of Pharmacy upon the applicant paying therefor the sum of three dollars (\$3); provided further, that where the original certificate is not lost or destroyed, then the certificate shall be surrendered before a renewal of same shall be issued, and, provided further, that the board shall have power to require satisfactory evidence from the applicant of the loss or destruction of the certificate; and, further provided, that where the applicant is delinquent for the annual dues required by this act then he or she shall be required to pay to said board sufficient fees to recover his delinquency in that behalf before he or she shall be entitled to re-issue of the certificate in this subdivision provided for.

(g) To provide by proper rules and regulations for the revocation by said board of licenses issued under the provisions of this act whenever the holder of such license shall be guilty of habitual intemperance or addicted to the use of narcotic drugs, or shall have been convicted of a felony or shall have been convicted of two or more violations of any of the provisions of this act.

Section 8. The members of the board shall receive the sum of five dollars (\$5.00) for each day actually engaged in its services and all legitimate expenses incurred in attending meetings of said board; said expenses shall be paid from the fees received by the board under the provisions of this act. The board shall render an annual report of the work it has accomplished to the Governor and render an accounting of all moneys received and disbursed by them pursuant to this act.

Section 9. Every person holding a certificate from said Board of Pharmacy shall renew annually their registration with said Board, and every registered pharmacist and every registered assistant pharmacist who desires to retain his registration on the books of the Board of Pharmacy in this State, shall annually after the expiration of the first year's registration and on or before the 21st day of May of each year succeeding pay to the secretary of the Board of Pharmacy a renewal fee to be fixed by the board, which shall not exceed one dollar (\$1) for registered pharmacists and one dollar (\$1) for registered assistant pharmacist, in return for which fee a renewal certificate of registration shall be issued. A penalty of five dollars (\$5) for registered pharmacists and two dollars and fifty cents (\$2.50) for registered assistant pharmacists will be added to the renewal fee of every registered pharmacist and every registered assistant pharmacist who fails to comply with this provision within sixty days from and after the 21st day of May of each year, and if said renewal fee is not paid with all penalties due thereunder before the first regular quarterly meeting of the Board of Pharmacy, thereafter the certificates of every registered pharmacist and every

registered assistant pharmacist failing to comply with the provisions heretofore mentioned will be cancelled, and the certificates so cancelled can only be renewed thereafter by an examination before the Board of Pharmacy as required by all persons presenting themselves for registration as registered pharmacists or registered assistant pharmacists.

Section 10. Every person upon receiving a certificate of registration under this act or who has heretofore received a certificate of registration in this State, shall keep his certificate and last receipt for re-registration conspicuously exposed in his place of business. Every registered pharmacist and every registered assistant pharmacist shall within 30 days after the changing of his place of business as designated on the books of the Board of Pharmacy, notify the secretary of the board of his new place of business, and upon receipt of said notification the secretary shall make the necessary change in his register.

Section 11. Every proprietor or manager of a pharmacy or drug store shall be held responsible for the quality of all drugs, chemicals and medicines sold or dispensed by him, except those sold in the original package of the manufacturer, and also excepting those articles or preparations known as patent or proprietary medicines. Any person who shall knowingly, willfully or fraudulently falsify or adulterate, or cause to be falsified or adulterated, any drug or medical substance, or any preparation authorized or recognized by the pharmacopoeia of the United States or used or intended to be used in medical practice, or shall mix or cause to be mixed, with any such drug or medical substance any foreign or inert substance whatever, for the purpose of destroying or weakening its medicinal power or effect, or of lessening its cost and shall willfully, knowingly or fraudulently sell the same or cause the same to be sold for medical purposes, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars (\$50) and not more than two hundred dollars (\$200) or by imprisonment for a period of not exceeding two hundred (200) days, or by both such fine and imprisonment. Every registered pharmacist shall file or cause to be filed all physicians' prescriptions, or a copy thereof, compounded or dispensed in his pharmacy or store and all prescriptions so filled shall be preserved for at least five years from the date of the filling thereof. Any person who shall willfully fail so to do shall be liable to a fine not exceeding fifty dollars (\$50) and for each subsequent offense shall be liable to a fine of not less than fifty dollars (\$50) and not more than one hundred dollars (\$100.)

Section 12. Any person who shall attempt to secure or secures registration for himself or herself or any other person under this act by making or causing to be made any false representations, or who shall fraudulently represent himself to be registered shall be deemed guilty of a misdemeanor and upon conviction thereof shall be liable to punishment by a fine not exceeding one hundred dollars (\$100) or by imprisonment for a term not exceeding fifty days or by both such fine and imprisonment. Any person who shall permit the compounding of prescriptions of medical practitioners, or the selling of drugs, medicines, chemicals or poisons in his or her store or pharmacy, except by a registered pharmacist or registered assistant pharmacist or who violates any of the provisions of this section of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be liable to punishment by a fine of not less than one hundred

dollars (\$100) and not more than two hundred dollars (\$200) or by imprisonment of not exceeding 50 days, or by both such fine and imprisonment; provided, however, that nothing in this act shall apply to or interfere with any practitioner of medicine or dentistry who is duly registered as such by their respective State Board of Examiners of this State, with supplying his own patients, as their physician or dentist and by them employed as such, with such remedies as he may desire, and who does not keep a pharmacy, open shop or drug store, advertised or otherwise, for the retailing of medicines or poisons; nor does this act apply to the exclusive wholesale business of any dealer, nor to the manufacture or sale of proprietary medicines or patent medicines, or to the sale of any household remedies and medicines, by general dealers not druggists, in the original packages, when properly labelled; nor does this act apply to the supplying by veterinary surgeons duly registered under the laws of the State of Oregon of remedies required in the practice of their profession; nor to the sale by grocers and dealers generally of the following named poisons, to wit: Fly paper, ant poison, squirrel poison, gopher poison, blue stone and arsenical poison used for orchard spraying when sold in the original unbroken packages and labelled with the name of the dealer and the word "poison."

Section 13. Any proprietor of a pharmacy who shall fail or neglect to place in charge of such pharmacy a registered pharmacist, or any proprietor of a pharmacy who shall by himself or any other person permit the compounding of prescriptions or the vending of drugs, medicines or poisons, in his or her store or place of business, except by a registered pharmacist or a registered assistant pharmacist, or any person not being a registered pharmacist who shall take charge of, or act as manager of any pharmacy or store, or who, not being a registered pharmacist or registered assistant pharmacist, retails, compounds or dispenses drugs, medicines or poisons, shall be guilty of a misdemeanor, and upon conviction thereof shall be liable to a fine of not less than one hundred dollars (\$100) and not more than two hundred dollars (\$200) or by imprisonment for a term of not exceeding 50 days, or by both such fine and imprisonment.

Section 14. Any person who is a duly and regularly registered and licensed pharmacist under the laws of any state of the United States of America, and is in good standing in the state in which he or she shall be registered, or any other person who may furnish satisfactory evidence to the secretary of the State Board of Pharmacy that he or she is qualified to become a registered pharmacist under the laws of the State of Oregon may make written application to the secretary of the State Board of Pharmacy and a temporary certificate of registration to practice pharmacy in the State of Oregon, until the next regular meeting of the State Board of Pharmacy may be issued. Every applicant for a temporary certificate of registration shall pay a fee of five dollars (\$5) on filing his or her application for a temporary certificate, which shall be compensation to the State Board of Pharmacy for investigation or examination of the applicant. The secretary may examine the applicant orally or in writing. If, in the judgment of the secretary, the applicant is qualified, he shall issue to said applicant a temporary certificate to practice pharmacy in the State of Oregon until the next regular meeting of the State Board of Pharmacy; provided, that the secretary shall issue but one temporary certificate to the same applicant and no temporary

certificate shall be granted to any person whose application has been denied by the State Board of Pharmacy, and no temporary certificate to practice pharmacy in the State of Oregon shall be issued by the secretary to an assistant pharmacist; provided further, that no temporary certificate shall be issued by the secretary for a longer period than until the first day of the next regular meeting of the State Board of Pharmacy after the issuance of said temporary certificate; and provided further, that the holder of a temporary certificate to practice pharmacy shall pay the regular fee of ten dollars (\$10) upon the filing of his or her application to become a registered pharmacist by examination before the State Board of Pharmacy, as provided for in this act.

Section 15. It shall be the duty of the Board of Pharmacy, by resolution, at least annually, to request of the chief of police, marshal, or constable of every city, town, or township in this state, and the sheriff of every county in this state, to furnish a list of all drug stores, together with the names of the owners, managers and all employes in said stores, and a brief statement of the capacity in which said persons are employed in said stores, and also the firm name of all stores retailing drugs, medicines, or poisons. Upon such request in writing it shall be the duty of the chief of police, marshal, constable, or sheriff of said city, town or township or county, to require the patrolmen or deputies under their command to obtain such lists as are in this section specified, and to deliver same to the Board of Pharmacy. It shall be the duty of the owner or manager of any drug store or other store dealing or retailing drugs, medicines or poisons, when called upon by an officer as above set forth, or by a member of the Board of Pharmacy, or by a duly authorized inspector, to furnish said officer, member of the Board of Pharmacy, or duly authorized inspector with the information required by the provisions of this section. Any person refusing to furnish the information, or willfully furnishing information that is false or untrue, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than fifty dollars (\$50) nor more than one hundred dollars (\$100) or by imprisonment for not less than 10 days and not more than 35 days, or by both such fine and imprisonment.

Section 16. It shall be unlawful for any person from and after the passage of this act to vend, sell, give away or furnish, or cause to be vended, sold, given away or furnished, either directly and indirectly any of the following poisons, to wit:

Arsenic and its preparations, white precipitate, biniodide of mercury, cyanide of potassium, hydrocyanic acid, strychnine, essential oil of bitter almonds, aconite, belladonna, nux vomica, oil of savin, oil of tansy, ergot, cotton root, cantharides, carbolic acid (phenol), corrosive sublimate, corrosive sublimate tablets, antiseptic tablets containing corrosive sublimate, and other deadly poisons in original packages or otherwise without labeling the box, vessel or bottle in which said poison is contained, with the name of the article, and the word "poison" and the name, and place of business of the seller; nor shall it be lawful for any person to deliver or sell said poisons unless upon inquiry it be found that the purchaser is aware of its poisonous character.

Deadly poisons, within the meaning of this act, shall be any drug, chemical or

preparation which, according to the standard works on medicine, toxicology or materia medica is liable to be destructive to adult human life.

It shall be unlawful for any person to give a fictitious name or make any false representations to the seller or dealer when buying any of the poisons aforesaid. It shall be unlawful to sell or deliver, or cause to be sold or delivered, any of the poisons aforesaid without making or causing to be made an entry in a book kept solely for that purpose, stating the date, hour of the sale, the name and address and the signature of the purchaser, the kind and quantity of the poison sold, a statement by the purchaser of the purpose for which it is required, and the name of the dispenser, who must be a duly registered pharmacist or a duly registered assistant pharmacist. Said book shall be in the following form:

Date and Hour	Name of Purchaser	Residence	Kind and Quantity	Purpose of Use	Signature of Druggist	Signature of Purchaser
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This book shall always be open for inspection by the proper authorities and shall be preserved for at least five years after the date of the last entry therein; provided further, that nothing herein contained shall apply to the dispensing of physicians' prescriptions of any of the poisons aforesaid, nor to the manufacture, making, or selling at wholesale any poisons; provided, each box, vessel or package in which said poison is contained (except physicians' prescriptions) shall be labeled as herein provided. Any person violating any of the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars (\$50) nor more than two hundred dollars (\$200) or by imprisonment for a period not exceeding one hundred days, or by both such fine and imprisonment.

Section 17. When, in the opinion of the State Board of Pharmacy, it is in the interest of the public health, they are hereby empowered to further restrict or prohibit the retail sale of any poison by rules, not inconsistent with the provisions of this act, by them to be adopted, and which rules must be applicable to all persons alike. It shall be the duty of the board, upon request, to furnish any dealer with a list of all articles, preparations, and compounds, the sale of which is prohibited or regulated by this act.

Section 18. It shall be unlawful for any person, firm or corporation to vend, sell, furnish or give away, or cause to be vended, sold, furnished or given away, or offer to sell, vend, furnish or give away, or cause to be offered to be vended, sold, furnished or given away, or to have in his or their possession any cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, nova caine, or chloral hydrate, or any of the salts, derivatives or compounds of the foregoing substances or any preparation or compound contained in or containing any of the foregoing substances or their salts, derivatives or compounds, excepting upon the written order or prescription of a physician or dentist or veterinary surgeon licensed to practice in this state, which order or prescription shall be dated and shall contain the name of the person for whom prescribed written in by the person writing such prescription, or if ordered by a veterinary surgeon it shall state the kind of animal for which ordered and shall be signed by the person giving the prescription or order. Such order or prescription shall be permanently retained on file by the person, firm or corporation who shall com-

pound or dispense the articles ordered or prescribed and it shall not be again compounded or dispensed. No copy or duplicate of such written order shall be made or delivered to any person, but the original shall be at all times open to inspection by the prescriber and properly authorized officers of the law and shall be preserved for at least three years from the date of the filing thereof; provided, that the above provisions shall not apply to sales at wholesale by jobbers, wholesalers and manufacturers to pharmacies; and, further provided, that the above provisions shall not apply to preparations sold or dispensed without a physician's prescription containing less than two grains of opium, or one-fourth grain of morphine, or one-half grain of codeine, or one-sixth grain hereoin, or one-sixth grain cocaine, or one-sixth grain eucaïne, or one-sixth grain nova caine, or one-sixth grain beta eucaïne, or ten grains chloral hydrate in one fluidounce, or if a solid preparation, in one avoirdupois ounce; and, further provided, that the above provisions shall not apply to the sale or compounding of remedies used for veterinary purposes and liniments. Any person violating any of the provisions of this section shall upon conviction be punished as follows: For the first offense by a fine of not less than one hundred dollars (\$100) and not more than two hundred and fifty dollars (\$250) or by imprisonment for not more than one hundred days, or by both such fine and imprisonment; for the second offense by a fine of not less than two hundred dollars (\$200) nor more than five hundred dollars (\$500), or by imprisonment for not more than two hundred days, or by both such fine and imprisonment; and for the third offense by imprisonment in the state penitentiary for not less than one year nor more than five years.

Section 19. Any itinerant or traveling vendor or hawker of any drug, nostrum, ointment or application of any kind for the treatment of any disease or injury, before offering any such drug, nostrum, ointment or application for sale shall pay to the treasurer of the Oregon Board of Pharmacy an annual fee of two hundred dollars (\$200) upon the receipt of which the secretary of the board shall issue a license for one year from the date of said payment; one-half of all such license fees shall be devoted to defraying the expenses of the board and the remainder shall be paid as it is received by the treasurer of the Oregon Board of Pharmacy into the state school fund. Itinerant vendors under the meaning of this act shall include all persons who carry on the business above described by passing from house to house, or by haranguing the people on the public streets or in public places, or use the various customary devices for attracting crowds and therewith recommending their wares and offering them for sale. Any violation of this section shall be a misdemeanor and any person shall upon conviction thereof pay a fine of not less than two hundred dollars (\$200) nor more than three hundred dollars (\$300), and in default of such payment shall be imprisoned in the county jail for the period of one day for each two dollars (\$2) of such fine. In case of prosecution under this section it need not be proven that the defendant has not a license, but the fact that he has a license may be a matter of defense; provided, however, that nothing in this act shall be construed to prevent the collection of any tax or license that may be imposed by any county or municipal authority.

Section 20. All actions for the recovery of the several penalties prescribed in

this act shall be prosecuted by the district attorney for the proper county in the name of the State of Oregon, upon the information of himself or any member of the State Board of Pharmacy, or the duly authorized agent or agents of the State Board of Pharmacy; and it shall be the duty of the district attorney to prosecute all persons violating any of the provisions of this act, and to sue for all penalties herein provided for upon proper complaint being made. All penalties collected under the provisions of this act unless otherwise provided, shall inure one-half to the State Board of Pharmacy and the remainder to the county treasurer for the use of the school fund of the county in which the prosecution was conducted.

Section 21. All moneys recoverable under the provisions of this act shall be paid by the magistrate or other officer receiving the same to the treasurer of the State Board of Pharmacy.

Section 22. Circuit and justice courts shall have exclusive original jurisdiction for the violation of any misdemeanor contained in this act.

Section 23. Sections 4750 to 4773, inclusive, of Chapter 7 of Title XXXV of Lord's Oregon Laws and all acts and parts of acts in conflict with this act are hereby repealed.

NARCOTIC LAWS PROPOSED, ENACTED OR AMENDED.

CONNECTICUT NARCOTIC LAW OF 1913.

Section 1. No person shall sell, furnish, or give away, except to a licensed physician, pharmacist, dentist, or veterinarian in the manner hereinafter provided, any cocaine, salts of cocaine, or any preparations containing cocaine or salts of cocaine, eucaine or its salts, or heroin or diacetyl morphine and its salts, or dionin or ethyl morphine or any of its salts or derivations, or morphine or any derivation thereof, or any gum or natural opium except in a form adapted to external use only, or in preparations containing not more than one-half grain of morphine, or not more than one-half grain of heroin in one fluidounce, or if a solid preparation, in one avoirdupois ounce except upon the receipt of a prescription properly written and signed by a licensed physician, and only within five days after the date of such prescription. Every such prescription shall be retained by the person who dispenses the same and shall be filled but once, and shall be kept in a separate file or book; and said person shall enter in a book kept for that purpose, the date of the sale, the name and address of the purchaser, and the name of the person making such sale. Such prescription shall contain the date of its issue, the name of the person to whom it is issued, and the prescription in full.

Sec. 2. No person shall sell to any pharmacist, physician, dentist, or veterinarian, any of the preparations referred to in section one of this act, except upon receipt of a written order therefor, which shall contain the date, the name and quantity of the article desired, and the name of the person to whom the article is sold, and said order shall be retained in a separate file or book by the person dispensing the same.

Sec. 3. Every person who shall sell any of the drugs mentioned in section

one upon the orders provided for in section two shall file with the commissioners of pharmacy, on or before the tenth day of each month, a report showing all such sales made during the preceding month, provided licensed pharmacists making sales to licensed physicians, dentists, or veterinarians only shall not be required to make such report.

Sec. 4. The commissioners of pharmacy shall prepare and furnish to all local boards of health and health officers, official order blanks, serially numbered with stubs attached, in book form, upon which blanks must be written in ink orders for the purchase of any of the drugs mentioned in this act, by any physician, pharmacist, dentist, or veterinarian, and such orders shall be furnished, by said boards of health and health officers, to any licensed physician, pharmacist, dentist, or veterinarian. Each of said blanks shall have printed thereon a facsimile of the seal of the state of Connecticut.

Sec. 5. No person shall copy the original prescription or order written by any person authorized to issue the same, in accordance with the provisions of this act, or use a copy of the original prescription or order for the purpose of obtaining any of the drugs mentioned in this act, and no prescription shall be refilled except upon an order written upon the original prescription by the physician who issued it.

Sec. 6. All written orders and prescriptions required by this act and filed, in accordance with its provisions, with any person, jobber, wholesaler, or manufacturer shall be open to the inspection of all prosecuting authorities.

Sec. 7. No person not a licensed physician, dentist, jobber, wholesaler, manufacturer, or pharmacist, shall have in his possession at any time more than five grains of any of the drugs mentioned in section one.

Sec. 8. Any person who shall violate any of the provisions of this act shall be fined not more than five hundred dollars, or imprisoned no more than one year, or both.

Sec. 9. The commissioners of pharmacy, in making payments to the treasurer of the state, as provided by section fifteen of chapter 216 of the public acts of 1909, are hereby authorized to retain, in the hands of the treasurer of said commission, a balance not exceeding five hundred dollars as a reserve fund for the purpose of defraying expenses.

Sec. 10. Chapter 127 of the public acts of 1905 and chapter 30 of the public acts of 1909 are hereby repealed.

Sec. 11. This act shall take effect from its passage.

Approved June 25, 1913.

INDIANA NARCOTIC LAW OF 1913.

(H. B. 277. Approved March 6, 1913.)

Drugs—Sale of Cocaine, Etc.—Prescription.

Section 1. Be it enacted by the General Assembly of the State of Indiana, that it shall be unlawful for any person, except a registered pharmacist to retail, sell or give away any cocaine, alpha, or beta eucaine, opium, morphine or heroin, cannabis indica, or any salt or any compound, or derivative of any of the foregoing substances, or any of their salts or compounds, or derivatives, and they only upon the written prescription of a duly registered physician, licensed veteri-

narian, or licensed dentist; and it shall be unlawful for any duly registered physician, licensed veterinarian or licensed dentist to write, issue, deliver or dictate either directly or indirectly, any prescription to or for any habitual user of any drugs enumerated in this section; every prescription shall contain the name and address of the person for whom prescribed, and the date the same shall have been filled, and shall be permanently retained on file by the person, firm or corporation where the same shall have been filled; and it shall be filled but once, and no copy of it shall be taken by any person, except a copy may be taken by the board of pharmacy, or their agents, and the original shall at all times be open to the inspection of the prescriber, to the Indiana State Board of Pharmacy or their agents, and all officers of the law; except, however, that such cocaine, alpha or beta eucaine, opium, morphine, heroin, or any salt, or any compound, or any derivative of the foregoing substances, or any of their salts or compounds, or derivatives, may be lawfully sold at wholesale by a wholesale jobber or manufacturer upon the written order of a licensed pharmacist, duly registered, practicing physician, licensed veterinarian, or licensed dentist; and provided, that the wholesaler, jobber or manufacturer, shall affix or cause to be affixed to the bottle, box, vessel or package, containing the article sold, and upon the outside wrapper of the package, as originally put up, a label distinctly displaying the name and quantity of cocaine, alpha or beta eucaine, opium, morphine, heroin, or any salt or compound or derivative of any of the foregoing substances, sold, and the word "Poison," with the name and place of business of the seller, all printed in red ink; and provided, also, that the wholesaler, jobber or manufacturer shall, before delivering any of the articles, make or cause to be made in a book kept for that purpose, an entry of the sale thereof, stating the date of sale, the quantity, name and form in which sold, the name and address of the purchaser, and the name of the person by whom the entry is made; and the said book shall always be open for the inspection by the members of the State Board of Pharmacy or agents thereof, and the proper officers of the law, and said book shall be preserved for five years after the date of the last entry therein; and provided, further, that all persons selling or dealing in cocaine, alpha and beta eucaine, opium, morphine, heroin, or any salt, or any compound or any derivative of the foregoing substances, either at wholesale or retail, shall once each month, at a time to be designated by the Indiana Board of Pharmacy, prepare and mail to the secretary of the Indiana Board of Pharmacy, on blanks to be prepared by such board, a report of all sales of cocaine, alpha and beta eucaine, opium, morphine, heroin, and any sale of any compound or any derivative of the foregoing substances made during the thirty days preceding such report, and the dates of such sales, the amount sold and the name of the person to whom such sales were made; provided, also, that nothing in this act shall apply to any preparation, patent, or proprietary, containing not more than two grains of opium, or one-fourth of a grain of its alkaloidal salts, or their derivatives to the ounce, or admixtures of ipecac and opium commonly known as Dover's powders, liniments, suppositories, ointments and plasters, plainly labeled "For External Use Only"; provided, also, that nothing in this act shall be construed to prevent the legitimate administering of said drugs, their salts, compounds and derivatives by a duly registered practicing physician, duly licensed veterinarian or duly licensed dentist.

Penalty.

Section 2. That section two be amended to read as follows: Section 2. Any person violating any of the provisions of the foregoing section on the first offense shall be guilty of a misdemeanor and on conviction shall be fined not less than \$25 nor more than \$500, and imprisoned in the county jail not less than ninety days, nor more than one year; and for each succeeding offense, he shall be guilty of a felony and shall be fined not less than \$200, nor more than \$1,000, and imprisoned in the state prison or reformatory not less than one year, nor more than eight years, and if the person so offending shall have a license as a physician, veterinarian, dentist or pharmacist, such license shall be revoked by the court trying said cause; and it shall be the duty of the prosecuting attorney of the county where such offense is committed to prosecute all persons violating provisions of this act under proper complaint being made, and upon failure of such prosecuting attorney to act, it shall be the duty of the attorney general of the State of Indiana to prosecute any person violating the provisions of section one of this act. It shall be the duty of the Indiana Board of Pharmacy to enforce the provisions of this act and to adopt such rules and regulations as it may deem best to carry out the provisions of this act.

MAINE NARCOTIC LAW OF 1913.

Be it enacted by the people of the State of Maine, as follows:

Section 1. No person, firm or corporation shall manufacture any so-called catarrh powder or catarrh cure, or any patent or proprietary preparation containing cocaine, or any of its salts, or alpha or beta eucaine, or any of their salts, or any synthetic substitute for them.

Sec. 2. No person, firm or corporation shall sell, or expose or offer for sale, or give, deliver or exchange cocaine, or alpha or beta eucaine, or any synthetic substitute for them or any preparation containing the same, or any salts or compounds thereof, except upon the written prescription of a physician, dentist, or veterinary surgeon, registered under the laws of the state in which he resides, which prescription shall be dated and bear the name of the person giving it and of the person prescribed for, and the original prescription shall be retained by the druggist filling the same for at least two years and shall not again be filled, except upon the written order of the original prescriber, and shall at all times be open to inspection by members of the state board of health, members of the state board of pharmacy, and their authorized agents, by state officials and their authorized agents, and by the police authorities and officers of cities and towns. But no practitioner of veterinary medicine shall prescribe any of the above mentioned substances for the use of a human being.

Sec. 3. No person shall sell, furnish, give away or deliver opium, morphine, heroin, codeine, cannabis indica or cannabis sativa, or any salt, compound or preparation of said substances except upon the written prescription or order of a lawfully authorized practitioner of medicine, dentistry or veterinary medicine, which prescription shall be dated and shall bear the name of the person giving it, and the name of the person prescribed for; which original prescription shall be retained by the druggist filling the same for at least two years, and shall not again be filled except upon the written order of the original prescriber. Such

prescriptions shall at all times be open to inspection by members of the state board of health, the state board of pharmacy, state officials and their duly authorized agents, and by the police authorities and officers of the cities and towns. But no practitioner of veterinary medicine shall prescribe any of the above substances for the use of a human being. The provisions of this section shall not apply to sales made by a manufacturer or wholesale or retail druggist to another manufacturer, wholesale or retail druggist; nor to sales made to hospitals, colleges, scientific or public institutions, or to physicians, dentists or veterinary surgeons; nor to the sale of cough remedies and other domestic and proprietary preparations, provided that such remedies and preparations are sold in good faith as medicines, and not for the purpose of evading the provisions of this act, and provided further that such remedies and preparations do not contain more than two grains of opium, one-fourth of a grain of morphine, or one-fourth of a grain of heroin, or one grain of codeine or their salts, in one fluid ounce, or, if a solid preparation, in one avordupois ounce; but such provisos shall not apply to liniments and ointments which are prepared for external use only. Nor shall the provisions of this section apply to preparations containing opium or any of its salts, which are sold in good faith as remedies for diarrhoea, cholera or neuralgia, nor to powder of ipecac and opium, commonly known as Dover's powders, provided, that any such preparation is sold in good faith as medicine and not for the purpose of evading the provisions of this act.

Sec. 4. No practitioner of medicine, dentistry, or veterinary medicine shall prescribe for the use of an habitual user of the same, opium, morphine, heroin, codeine, or any salt or compound of the said substances, or any preparation containing any of the said substances or their salts or compounds, or cocaine, or its salts, or alpha or beta eucaine or their salts, or any synthetic substitute for them, or any preparation containing the same or any salt or compound thereof; nor shall any practitioner of dentistry prescribe any of the said substances for any person not under his treatment in the regular practice of his profession; nor shall any practitioner of veterinary medicine prescribe any of the substances for the use of a human being, provided, however, that the provisions of this section shall not be construed to prevent a lawfully authorized practitioner of medicine from prescribing for the use of any habitual user of hypnotic or narcotic drugs, who is under the professional care of such practitioner, such substances as he may deem necessary for treatment, if such prescriptions are given in good faith and not for the purpose of evading the provisions of this act.

Sec. 5. A manufacturer or jobber of any or all of the drugs enumerated in Sections 2 and 3 of this act, a wholesale druggist, or a registered pharmacist may sell any drug mentioned in said sections 2 and 3 to a manufacturer, jobber, wholesale druggist, or to a pharmacist, physician, veterinarian or dentist, qualified to practice under the laws of this state, or to an incorporated hospital but only upon a written order duly signed by such manufacturer, jobber, wholesale druggist, registered pharmacist, registered physician, registered veterinarian, registered dentist, or the superintendent of such incorporated hospital, which order shall show the article or articles ordered and the date of delivery. The said order shall be kept on file in the laboratory, warehouse, pharmacy or store from which it was filled by the proprietor thereof, or his successor, for a period of not less than two

years from the date of delivery, and shall at all times be open to inspection by officers of the state board of health, members of the state board of pharmacy, or their authorized agents, state officials and their authorized agents, and the police authorities and officers of cities and towns; and such order shall not contain items of any drug not mentioned in Sections 2 and 3 of this act.

Sec. 6. A person not being a physician dentist or veterinary surgeon, qualified to practice in this state, or not being a manufacturer or wholesale or retail dealer in drugs, who has in his possession opium, morphine, heroin, codeine, cannabis indica, cannabis sativa or any other hypnotic or narcotic drug or salt, compound or preparation of said substances, cocaine, alpha or beta eucaine or any synthetic substitute for them, or any preparation containing the same, or any salts or compounds thereof, except by reason of a prescription of a physician, dentist or veterinary surgeon qualified to practice in this state, shall be punished as provided in Section 8 of this act. The provisions of this section shall not apply to a person, firm or corporation while transporting any of the above mentioned drugs from or to a manufacturer or jobber, wholesale druggist, registered pharmacist, registered physician, registered veterinarian, registered dentist, or incorporated hospital, nor to persons who may have the above mentioned articles in their possession in connection with the enforcement of the provisions of this act or with the trial of cases arising thereunder. Possession of any of the drugs mentioned in this section shall be prima facie evidence that such possession is unlawful.

Sec. 7. No practitioner of medicine, surgery, dentistry or veterinary medicine shall dispense, furnish or give away opium, morphine, heroin, codeine, cannabis indica, cannabis sativa, or any salt compound of said substances or any preparation containing any of the said substances or their salts or compounds, or cocaine or its salts or alpha or beta eucaine or their salts or any synthetic substitute for them, or any preparation containing the same or any salt or compound thereof except in good faith as medicines for diseases indicated, and the aforesaid practitioners shall keep a record in a book kept solely for that purpose of the name and address of the patient treated and the name of the disease indicated and the quantity of the drug dispensed, furnished or given away on each separate occasion, which record shall be made within 48 hours of the dispensing or furnishing or giving away and shall be preserved for at least two years, and shall at all times be open to inspection by members of the state board of health, members of the state board of pharmacy or their authorized agents, by state officials or their authorized agents or by the police authorities or officers of cities and towns. But no practitioner of medicine, surgery or dentistry shall dispense or prescribe, except for his own professional use, more than four grains of morphine, cocaine, heroin, opium, or any other hypnotic or narcotic drug, their salts, compounds, or any preparation of the same.

Sec. 8. A person who violates a provision of the foregoing sections, or aids or abets another in the violation thereof, shall be fined not more than one thousand dollars nor less than fifty dollars, or be imprisoned not more than one year, or both. Judges of the municipal and police courts and trial justices shall have original and concurrent jurisdiction with the superior courts of offences under this act.

Sec. 9. The director of the Maine Agricultural Experiment Station shall make

a chemical analysis to determine the composition and quality of any substance mentioned in this act on application of the county attorney of any county of Maine, and shall furnish a certificate certifying to the composition or quality thereof. The certificate under seal of the Maine Agricultural Experiment Station which shall be affixed by the chemist thereof making the analysis shall be prima facie evidence of the composition and quality of the substance analyzed.

NEW YORK COCAINE LAW OF 1913.

Section 1. Section seventeen hundred and forty-six of chapter eighty-eight of the laws of nineteen hundred and nine, entitled "An act providing for the punishment of crime, constituting chapter forty of the consolidated laws," as amended by chapter one hundred and thirty-one of the laws of nineteen hundred and ten, is hereby repealed.

§ 2. Such chapter is hereby amended by inserting therein a new section to be section seventeen hundred and forty-six to read as follows:

§ 1746. Sale of cocaine or eucaine, and regulations respecting their possession. Alkaloid cocaine or its salts, or alpha or beta eucaine or their salts, or any admixture, compound, solution or product of which cocaine or eucaine or their salts may be an ingredient, shall not be sold, offered for sale, furnished, disposed of, given away or possessed by any person except in the manner prescribed in this section and by the persons authorized herein.

(a) It shall be lawful for a licensed pharmacist or a licensed druggist, upon the written prescription of a physician duly registered and licensed to practice in the state of New York, to sell or dispense alkaloid cocaine or its salts or alpha or beta eucaine or their salts. If in such prescription the percentage of such substances to the total contents of the prescription shall exceed one per centum thereof the pharmacist or druggist to whom such prescription is presented shall before filling the same verify the prescription by inquiry of the physician issuing the same. Such prescription shall be retained by the person dispensing the drug, and no copy of such prescription shall be made by or delivered to any person, and such prescription shall be filled but once, except that it shall be lawful for a licensed pharmacist or druggist to refill and to give to the person presenting same a copy of a prescription of which cocaine or eucaine is a component part, if the proportion of such substance to the total content of the prescription does not exceed one grain thereof to each fluid ounce or in the case of ointment does not exceed two grains of such substance to the ounce. When any of such substance is so dispensed or sold upon such written prescription of a physician the person selling or dispensing the same shall simultaneously deliver to the person to whom the same is sold or furnished a certificate stating the name and address of the person selling or furnishing such drug or mixture, the name and address of the physician upon whose prescription the same is sold or furnished, the date of sale and the amount sold. The possession of such certificate shall be a defense to a charge of misdemeanor under paragraph (h) of this section, provided the person possessing such substance shall not have in his possession an amount exceeding the amount specified in such certificate, and provided that such certificate shall not legalize the possession of such substance for more than ten days after its issuance if the proportion of cocaine or eucaine or their salts to the total content of the prescription shall exceed one grain

to the fluid ounce, or, in the case of ointment, two grains to the ounce, unless on such certificate there shall be written by the physician issuing the prescription a statement that the use of the substance is necessary for a longer period, to be named in such statement. It shall be lawful for any physician duly registered and licensed to practice in the state of New York, after personal examination of a patient, to prescribe and himself dispense such substances to such patient, provided he shall execute and deliver the certificate required of a dispensing druggist or pharmacist.

(b) Such substances may lawfully be sold in the original package at wholesale by any manufacturer thereof to any other manufacturer thereof or to a wholesale dealer in drugs, and by any wholesale dealer in drugs to any other wholesale dealer in drugs or to a manufacturer thereof, provided such package shall be securely sealed and labeled as prescribed in this section, and provided a record of such sale shall be kept in the manner prescribed in this section by the person selling and the person purchasing said substances. It shall be lawful for a manufacturer or wholesale dealer in drugs after the purchase in bulk of such substances, to repack the same in other containers which shall be sealed and labeled as prescribed in this section. When so repacked, sealed and labeled such containers shall, for the purposes of this section, be deemed to be original packages.

(c) Such substances may lawfully be sold in the original package to a licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist by any manufacturer of such substances or wholesale dealer in drugs upon the written order of the pharmacist, druggist, physician, veterinarian or dentist to whom the sale is made, provided such package shall be securely sealed and labeled and provided a record of such sale shall be kept in the manner prescribed herein by the person selling and the person purchasing such substance.

(d) Before making any sale provided for in paragraphs (b) and (c) of this section, the manufacturer of such substances or wholesale dealer in drugs shall affix or cause to be affixed to the bottle, box, vessel or package containing the article sold, and upon the outside wrapper of the package as originally put up, a label distinctly displaying the name and quantity of cocaine or its salts, alpha or beta eucaine or their salts sold, and the word "poison" with the name and place of business of the seller all printed in red ink.

(e) The manufacturer of such substances or wholesale dealer in drugs shall, before the delivery of any of such substances sold by him, make or cause to be made in a book kept for the purpose, an entry of the sale thereof, stating the date of sale, the quantity sold, the name and form in which it is sold, the name and address of the purchaser, the name of the person by whom the order is filled, the name of the person by whom the entry is made, a description of the package or container in which the substance is sold, and a statement that such substance was sold and purchased in the original package, that the package was sealed, that the seals thereof were undamaged and unbroken, and that the labels were attached thereto as hereinbefore prescribed, and were not in any manner defaced or damaged, and a statement showing how delivery was made, whether personally or by mail, express, freight or messenger. The record and statement thus made in such book shall be signed by the person filling such order for such substance and may

be received in any court against the person filling such order and the person selling such substance as evidence of the transaction recorded and the facts stated therein. The said book and record shall be kept in the regular place of business in the state of New York of such manufacturer and wholesale dealer and shall be open at all times for inspection by the officers or authorized agents of the state or local board of health, the New York state board of pharmacy and by the police authorities and officers charged with the enforcement of the penal law, and shall be preserved for at least five years after the date of the last entry made therein. The items in such book respecting the sale of said substances shall be consecutively numbered, and upon the receipt by such manufacturer or wholesale dealer of any order for any of such substances there shall be written or stamped upon such order so received the serial number corresponding to the next open numbered entry space in such record book and the said serial number shall also be written or stamped upon the package containing such substances when the same is delivered in pursuance of the said order. Such original orders shall likewise be kept by the said manufacturer or wholesale dealer in a convenient place in the state of New York; and shall be preserved for at least five years after the dates of such orders.

(f) The manufacturer of such substances or wholesale dealer in drugs, licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian, or licensed dentist shall, upon the delivery to him of any of such substances purchased by him, make or cause to be made in a book kept for the purpose, an entry of the purchase thereof, stating the date of purchase thereof, the quantity purchased, the name and form in which it was purchased, the name and address of the seller, the name of the person by whom the purchase is made, the name of the person by whom the entry is made, a description of the package or container in which the substance is purchased, and a statement that such substance was sold and purchased in the original package, that the package was sealed, that the seals thereon were undamaged and unbroken, and that the labels were attached thereto as hereinabove prescribed, and were not in any manner defaced or damaged, and a statement showing how delivery was made, whether personally or by mail, express, freight or messenger. There shall also be recorded in such book the particular place in which such substance so purchased is to be kept by the purchaser, which place shall be easily accessible and shall be within the state of New York and shall not be changed except that at the time of such change an entry thereof be made in such book opposite the original entry of the purchase and signed by the purchaser. The record and statement thus made in such book shall be signed by the person purchasing such substance and may be received in any court against the person receiving such substance and against the person to whom the same is sold as evidence of the transaction recorded and the facts stated therein. Such book and record shall be kept in the regular place of business in the state of New York of such purchaser, and shall be open at all times for inspection by any prosecuting officer in the state or his subordinates and by such persons as may be designated by him. Such book shall be preserved for at least five years after the date of the last entry made therein.

(g) Any person who shall sell, offer to sell, furnish, dispose of or give away alkaloid cocaine or its salts or alpha or beta eucaine or their salts or any admixture, compound, solution or product of which cocaine or eucaine or their salts may be

an ingredient, except under the conditions and to the persons authorized by this section shall be guilty of a felony. Any dentist, veterinarian or physician who shall dispense such substances to a patient without issuing the certificate required by paragraph (a) to be made and issued by him shall be guilty of a felony. Any druggist or pharmacist who shall fill any prescription issued in violation of this section shall be guilty of a felony.

(h) Any person other than a manufacturer of such substances or a wholesale dealer in drugs or a licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist who shall possess any quantity whatever of alkaloid cocaine or its salts or alpha or beta eucaine or their salts or any admixture, compound, solution or product of which cocaine or eucaine or their salts may be an ingredient, shall be guilty of a misdemeanor, unless the said possession is authorized by the certificate described in paragraph (a.)

(i) Any licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist or manufacturer of such substances or wholesale dealer in drugs, who shall possess any quantity whatever of alkaloid cocaine or its salts or alpha or beta eucaine or their salts, or any admixture, compound, solution or product of which cocaine or eucaine or their salts may be an ingredient, in any place other than the place scheduled in the record herein provided for, shall be guilty of a misdemeanor, except that a duly registered practicing physician, licensed veterinarian or licensed dentist, may carry such substances for use in his profession, provided the amount so personally carried and the amount kept in the place scheduled in his record shall not together exceed a total of one and one-eighth ounces of such substance. Any person who shall under the provisions of this section be required to record the possession, disposition, sale, purchase or the place of keeping of such substances who shall fail to record the possession, disposition, sale or purchase thereof or the place in which the substances so possessed or purchased are kept, in the manner and after the form prescribed in this section, shall be guilty of a misdemeanor.

(j) Every manufacturer of such substances, wholesale dealer in drugs, licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian and licensed dentist shall keep an accurate record in a book kept for that purpose of all alkaloid cocaine or its salts or alpha or beta eucaine or their salts or any admixture of cocaine or eucaine disposed of by him, and the possession in the place designated in the record herein directed by paragraph (e) to be kept of an amount less than the difference between the total amount received by him and the amount shown by his record to have been disposed of, shall be presumptive evidence of a sale of the amount of such substances not accounted for in violation of this section. No record of dispositions of such substances need be made by any physician, veterinarian or dentist, except that such persons shall at least once in each six months record the gross amount of such substances disposed of by him.

(k) Within thirty days after this section takes effect every manufacturer of alkaloid cocaine or its salts or alpha or beta eucaine or their salts, or any admixture, compound, solution or product in which cocaine or eucaine or their salts may be an ingredient, every wholesale dealer in drugs, licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian and licensed dentist shall make a record of the amount of each of said substances possessed by

him in a book to be kept for that purpose, which may be the book in which purchases are recorded. Such book shall be kept at the regular place of business of each of said persons in the state of New York, and there shall be specifically stated in such book the amount of each of said substances possessed by the person making the record and the particular place in which the same is kept. Such book shall be open to inspection by any prosecuting officer in the state or his subordinates and by such persons as may be designated by him. Such book and record shall be preserved for at least five years after the date of the last entry made therein. In the event that the amount of said substances possessed at the time this section takes effect by any licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or licensed dentist, shall exceed the amount specified in paragraph (1) of this section, such possession shall not be deemed unlawful provided that the persons possessing the same shall not purchase or acquire in any manner whatever any more of such substances until the amount on hand shall be reduced by lawful disposition thereof to an amount less than that prescribed by paragraph (1.) If any of the persons entitled to possess such substances in any amount shall possess an amount in excess of that authorized by paragraph (1) it shall be the duty of each of such persons to report in writing to the state department of health, within thirty days after this act takes effect, the amount of each of such substances possessed by him and the place where the same is kept. Such reports shall be alphabetically filed in the office of the state department of health and shall be open to public inspection. Any person violating the provisions of this paragraph of this section shall be guilty of a misdemeanor.

(1) It shall be unlawful to possess or have in any pharmacy or drug store in this state more than one and one-quarter ounces of alkaloid cocaine or its salts or alpha or beta eucaine or their salts for each duly registered pharmacist or druggist regularly employed in such pharmacy or drug store, provided, however, that in no event shall there be carried in stock in such pharmacy or drug store to exceed five ounces of such substances no matter what number of registered pharmacists or druggists may be employed therein. It shall be unlawful for any physician, dentist or veterinarian to possess more than one and one-eighth ounces of alkaloid cocaine or its salts or alpha or beta eucaine or their salts. Any person who shall violate any of the provisions of this paragraph shall be guilty of a misdemeanor.

(m) This section shall not apply to nor prohibit the regular and ordinary transportation of such substances as merchandise, provided the same shall be labeled and sealed as prescribed in this section, nor to the possession of such substances by duly authorized officials charged with the enforcement of the law when such substances are possessed by them in pursuance of their official duties and in connection with the apprehension and prosecution of persons offending against this section.

(n) It shall be lawful for one person in the regular employ of each public hospital or dispensary in this state, to be selected and designated by the managers or board of trustees of such hospital or dispensary to purchase and possess alkaloid cocaine or its salts or alpha or beta eucaine or their salts, provided such purchase and possession shall be for the exclusive use of such hospital or dispensary and provided that such substances shall be kept within the hospital buildings or

dispensary. The amount of such substances so possessed shall not exceed five ounces at any one time, and the person so designated by such managers or trustees of such hospital or dispensary shall keep the same record of purchases and dispositions as is hereinabove directed to be kept by other persons purchasing and possessing cocaine or eucaine or their salts, and he shall be liable to the same penalties as hereinabove provided. The record directed herein to be kept shall be open to inspection by the same authorities as are hereinabove provided, and the record shall be preserved in such hospital or dispensary for at least five years after the date of the last entry made therein.

§ 3. This act shall take effect immediately.

OHIO NARCOTIC LAW OF 1913.

Sec. 12672. Whoever sells, barter, furnishes or gives away, directly or indirectly, or has in his possession for the purpose of selling, bartering, furnishing or giving away, any quantity of cocaine, alpha or beta eucaine or alypin, * * * morphine, acetyl-morphine, di-acetyl-morphine, di-acetyl-ester-morphine, ethyl-morphine, opium, or any of their alkaloids, salts, derivatives or compounds, or any synthetic equivalent thereof either as to the physical properties or physiological action, except upon the original written prescription of a physician duly licensed under the laws of this state, which prescription shall contain the name of the physician issuing it, the date of issue and the name of the person for whom it is issued; or fails to keep such prescription on file for at least two years, in such manner that it is accessible at all reasonable times to the inspection of the proper officer or officers of the law and the members of the state board of pharmacy and the secretary of the state board of pharmacy, or fills said prescription more than once, shall be fined not less than twenty-five dollars, nor more than five hundred dollars, or imprisoned in the county jail not less than thirty days or more than six months, or both at the discretion of the court, for the first offense, and for each subsequent offense shall be imprisoned not less than one year or more than five years in the penitentiary. If it be made to appear to the court that the person so convicted is addicted to the use of any of the above mentioned drugs or substances, the court, with the consent of such person may commit such person to a hospital or other institution for the treatment of such person. This section does not extend to sales at wholesale of any quantity of the above mentioned drugs to duly registered pharmacists physicians, dentists, or veterinary surgeons, and shall not apply to liquid preparations sold in good faith as medicines containing not more than two grains of opium, or not more than one-fourth grain of morphine, or not more than one-fourth grain of heroin, or not more than one-eighth grain of alpha or beta eucaine, or not more than ten grains of chloral hydrate in one fluid ounce, or if a solid preparation in one avoirdupois ounce.

Sec. 12672-1. The finding in the possession of a person who is not a wholesale dealer in drugs, a registered pharmacist, physician, dentist or veterinary surgeon, of any quantity of cocaine, alpha or beta eucaine or alypin, morphine, acetyl-morphine, di-acetyl-morphine, di-acetyl-ester-morphine, ethyl-morphine, opium, or any of their alkaloids, salts, derivatives, or compounds, or any synthetic equivalents thereof, either as to the physical properties or physiological action shall be prima facie evidence of the violation by such person of section 12672 of this chapter.

Section 3. That said original Section 12672 and 12674 of the General Code be, and the same are hereby repealed.

[Effective August 6, 1913.]

THE DEFEATED NARCOTIC BILL OF PENNSYLVANIA.

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and it is hereby enacted by the authority of the same. That it shall be unlawful for any person firm or corporation to sell furnish give away or deliver any opium morphine heroin codeine their salts derivatives or compounds or any substances or preparation containing opium heroin morphine codeine or their salts derivatives or compounds except upon the bona fide written prescription of a duly registered practitioner of medicine dentistry or veterinary medicine which prescription shall be filled but once and of which no copy shall be taken by anyone and which shall be retained and kept on file by the dispenser thereof for a period of at least five years and be open to inspection at all times by the prescriber and properly authorized officers of the law or agents of the State Pharmaceutical Examining Board provided that any such prescription may be refilled upon the written order of the original prescriber.

Provided that the provisions of this section shall not apply to sales made by any manufacturer of drugs or chemicals wholesale druggists or owner of a pharmacy to another manufacturer of drugs or chemicals wholesale druggist or owner of a pharmacy or to hospitals colleges scientific or public institutions or Practitioners of Veterinary Medicine nor to the sale or dispensing by registered pharmacists of written prescriptions of registered physicians dentists or veterinarians if such prescriptions contain not more than two grains of opium or not more than one-fourth grain of morphine or not more than one-third grain of heroin or not more than one grain of codeine or not more of any salt or derivative of opium morphine heroin or codeine in the proportion herein named for the drug from which such salt or derivative is prepared in one fluid ounce or if a solid preparation in one troy ounce nor to the sale or dispensing of prescriptions for plasters liniments and ointments containing any drug or derivative thereof herein named when prescribed for external use only nor to the sale of cough remedies proprietary medicines or other medicinal preparations provided they are sold as medicines and not for the purpose of evading the provisions of this act of Assembly or supplying habitues to the use of opium morphine heroin codeine their salts derivatives or preparations with any of these drugs if they contain not more than two grains of opium or not more than one-fourth grain of morphine or not more than one-third grain of heroin or not more than one grain of codeine or not more of any salt or derivative of opium morphine heroin or codeine in the proportion herein named for the drug from which such salt or derivatives prepared in one fluid ounce or if a solid preparation in one avoirdupois ounce and not more than one of the drugs or more than one of any salt or derivative of any drug herein named nor to the sale of plasters liniments and ointments containing any drug herein named when prepared and sold for external use only nor to the sale of paregoric brown mixture brown mixture tablets compound syrup of white pine compound syrup of white pine tar Dewee's carminative Dalby's carminative Bateman's drops

Godfrey's cordial Dover's powder sun cholera mixture Squibb's diarrhoea mixture or Warburg's tincture nor to the sale of any compound mixture or preparation into which any drug or any derivative of any drug named in this section of this act of Assembly may enter provided such compound mixture or preparation contains sufficient of another ingredient or other ingredients as to render it unfit for use by an habitual user of any drug or drugs to which this act of Assembly applies.

And provided also that before delivering any of the articles or within twenty-four hours thereafter there shall be made in a book kept for the purpose an entry of the sale thereof stating the date of sale the quantity name and form in which sold the name and address of the purchaser and whether said purchaser is a wholesale druggist or owner of a pharmacy manufacturer of drugs or chemicals or practitioners of veterinary medicine and the said book shall be always open for inspection by the proper authorities and shall be preserved for a period of five years after the last entry therein.

And further it shall be the duty of all dealers in drugs and manufacturers to make monthly reports to the State Pharmaceutical Examining Board of their sales of all articles to which this act of Assembly applies excepting articles sold or dispensed upon prescription of a registered practitioner of medicine dentistry or veterinary medicine in such form as may be required and upon blanks to be provided by said State Pharmaceutical Examining Board Every practitioner of medicine who prescribes or administers or dispenses any of the drugs to which this act of Assembly applies for the use of any person known to him as an habitual user of any such drugs when such prescribing administering or dispensing is for the cure of a drug habit shall keep a record of the name age and address of the person the name and quantity of the drug so prescribed or administered and report the same in monthly reports to the State Pharmaceutical Examining Board.

Section 2. That no practitioner of medicine dentistry or veterinary medicine shall prescribe sell or furnish opium morphine codeine heroin their salts compounds derivatives or preparations for the use of any person known to him as an habitual user of the same nor shall any practitioner of dentistry prescribe any of the foregoing substances for any person not under his treatment in the regular practice of his profession nor shall any practitioner of veterinary medicine prescribe any of the foregoing substances for the use of any human being Provided however that the provisions of this act of Assembly shall not be construed to prevent any duly registered practitioner of medicine from administering or dispensing to any person or prescribing in good faith for the use of any habitual user of narcotic drugs who is under his professional care such substances as he may deem necessary for his treatment when the same are not administered dispensed or prescribed for the purpose of evading the provisions of this act of Assembly or perpetuating the habitual use of any of the articles subject to the provisions of this act of Assembly by any habitual user thereof.

Section 3. That any person who shall violate any of the provisions of this act of Assembly shall be guilty of a misdemeanor and for each offense upon conviction thereof shall be sentenced to pay a fine of not more than five hundred (\$500.00) dollars and undergo an imprisonment of not more than two years in the county prison or either or both at the discretion of the court.

Section 4. That it shall be unlawful for any person who is not a practicing physician dentist or veterinarian or manufacturing chemist or analytical chemist or manufacturing pharmacist or wholesale druggist or owner of a pharmacy or manufacturer of proprietary or patent medicine or for any educator or instructor or investigator in any recognized educational or scientific institution to have in his possession any opium morphine heroin codeine or their salts derivatives or compounds or any patent or proprietary medicine containing opium morphine heroin codeine or their salts derivatives or compounds in such form or quantity as to make the same subject to the provisions of this act of Assembly except by reason of a prescription of a registered practitioner of medicine dentistry or veterinary medicine and any person violating the provisions of this act shall be guilty of a misdemeanor and upon conviction thereof be sentenced to pay a fine of not more than fifty dollars (\$50.00) and undergo an imprisonment of not more than six months or either or both at the discretion of the court.

Section 5. That it shall be the duty of the State Pharmaceutical Examining Board to enforce the provisions of this act who shall receive as compensation for their services the sum of twelve hundred dollars (\$1200) per annum which shall be in lieu of all compensation allowed them by law They shall be allowed their necessary expenses incurred in the enforcement of the provisions of all acts which they may be authorized to enforce The compensation and expenses shall be paid quarterly by the State Treasurer on the certificate of the secretary of the said board and upon warrant of the Auditor General The said board is hereby authorized to employ such agents attorneys and assistants as may be necessary in enforcing the provisions of this act All fines and penalties imposed and recovered for violations of the provisions of this act shall be paid forthwith to the secretary of the said board or his agent and by him immediately paid into the State Treasury for the use of the Commonwealth.

Section 6. That the sum of twenty-five thousand dollars or so much thereof as may be necessary be and hereby is appropriated for enforcing the provisions of this act to be paid out of the State Treasury upon warrants duly signed by the secretary of the State Pharmaceutical Examining Board and upon warrant of the Auditor General.

Section 7. The provisions of this act shall not apply to the sale of any patent or proprietary remedy containing opium morphine heroin codeine or any salt derivative compound or preparation of the same by any dealer which were in such dealer's stock in this State at the time of approval of this act Provided That the package or other container in which the remedy shall be contained shall be plainly and distinctly marked "On Hand"_____ (date of approval.)

Section 8. That all acts and parts of acts inconsistent herewith be and hereby are repealed.

UTAH NARCOTIC LAW OF 1913.

1727x2. It shall be unlawful for any person, firm, association or corporation to sell or otherwise dispose of or have possession of cocaine, morphine, heroin, codein, alpha eucaine, beta eucaine, nova-caine or opium, or any of the derivatives of opium, except upon the prescription of a reputable licensed practicing physician, licensed dentist or licensed veterinary surgeon, and said prescription shall not be refilled, which prescription shall be dated and shall contain the name of

the person for whom prescribed written in by the person writing said prescription and if prescribed by a veterinary surgeon it shall state the kind of animal for which ordered, and every prescription shall be signed by the person giving the same, provided, that the above provisions shall not apply to possessions by or sales at wholesale by jobbers, wholesalers, and manufacturers to retail druggists, nor to possession by or sales at retail by retail druggists to a regular reputable licensed practicing physician, dentist or veterinary surgeon, nor to sales made to or possession by manufacturers of proprietary or pharmaceutical preparations for use in the manufacture of said preparations, nor to sales to or possession by hospitals, colleges, scientific or public institutions; and provided, further, that the above provisions shall not apply to such preparations as are recognized by the United States Pharmacopoeia or to standard proprietary remedies: Provided, further, that no practitioner of medicine, dentistry, or veterinary medicine shall furnish to or prescribe for the use of any habitual user of the same any cocaine, morphine, heroin, codeine, alpha eucaïne, beta eucaïne, nova-caine or opium, or any of the derivatives of opium, or any salt or compound of any of the foregoing substances, or any preparations containing any of the foregoing substances or their salts or compounds; and no practitioner of dentistry shall prescribe any of the foregoing substances for any person not under his treatment in the regular practice of his profession, and no practitioner of veterinary medicine shall prescribe any of the foregoing substances for the use of any human being, provided, however, that the provisions of this section shall not be construed to prevent any lawfully authorized practitioner of medicine from administering in good faith, for the use of any habitual user of narcotic drugs, who is under his professional care, such substances as he may deem necessary for his treatment, when such administration is not for the purpose of evading the provisions of this act. Provided, further, that all such wholesale jobbers, wholesalers and manufacturers in this Section mentioned shall before delivery of any of the articles in this section enumerated make or cause to be made in a book kept for that purpose only, an entry of the sale of any such article stating the date of such sale and quantity and name of the article and form in which sold, the true name and true address of the purchaser, the name of the person by whom such entry and sale was made, also a statement showing how delivery was had, whether delivered personally or forwarded by mail, express or by freight, which book shall be substantially as follows:

Date of Sale	Quantity and Name of Article	Name of Purchaser	How Delivered	Name of Person Selling
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and said book shall always be open for inspection by any peace office or any member of the board of pharmacy or any inspector by them authorized, and such book shall be preserved for at least five years after the date of the last entry therein.

The possession of pipes used for smoking opium, (commonly known as opium pipes), and the usual attachments thereto, is hereby made a misdemeanor.

All narcotic drugs specified in this section and also all pipes used for smoking opium (commonly known as opium pipes) and the usual attachments thereto, seized under the provisions of this act, shall be ordered destroyed by the judge of the court in which final conviction was had; said order of destruction shall contain the name of the officer charged with the duty of destruction as herein required.

1727x3. Any person, firm or association or corporation violating any of the provisions of this chapter, except as otherwise provided, shall be deemed guilty of a felony and shall be punished by imprisonment in the state prison for not less than one month and not more than five years, or by a fine of not less than one hundred dollars (\$100.00) and not more than five thousand dollars (\$5,000.00) or by both such fine and imprisonment.

Section 2. This act shall take effect upon approval.

Approved March 14, 1913.

WYOMING NARCOTIC LAW OF 1913.

Section 2907. Except as hereinafter provided it shall be unlawful for any person, whether acting for himself or as agent, to possess, or sell or otherwise dispose of cocaine, eucaine, beta eucaine, alpha eucaine, morphine, heroin, chloral, chloral hydrate, Indian hemp, opium, or any salt, compound or derivative thereof, except upon the prescription of a licensed practicing physician registered in this State. No person filling the prescription shall refill the same nor give any copy thereof to the party presenting said prescription. The said prescription shall be kept on file and open to inspection by the State Board of Pharmacy Commission, City or County authorities, or of the State Board of Medical Examiners, at any time, provided that the above provisions shall not apply to sales at wholesale, by jobbers, wholesalers and manufacturers to retail druggists, nor to sales at retail by retail druggists to regular licensed practicing physicians registered in this State, or dentists or veterinary surgeons registered in this State, nor to sales to State, County or private hospitals. And provided, further, that the above provisions shall not apply to such preparations as are recognized by the United States Pharmacopœia or National Formulary, or pharmaceutical preparations to be used in the filling of prescriptions written by a regular registered practicing physician in this State."

Section 2. That Section 2908 of the Wyoming Compiled Statutes of 1910 be and the same is hereby amended and re-enacted to read as follows:

"Section 2908. Any person found guilty of any violation of the provisions of Section 2907 or 2909 of the Compiled Statutes of Wyoming of 1910, shall be deemed guilty of a felony and shall be fined not less than \$500.00 nor more than \$1,000.00, or imprisoned in the State Penitentiary for a term of not less than one year nor more than three years, or punished by both such fine and imprisonment in the discretion of the court."

Section 3. That Section 2909 of the Compiled Statutes of Wyoming, 1910, be and the same is amended and re-enacted to read as follows, to-wit:

"Section 2909. No practitioner of medicine, druggist, or veterinary medicine

shall furnish to or prescribe for the use of any habitual user of the same, any cocaine, eucaïne, beta eucaïne, alpha eucaïne, morphine, chloral, chloral hydrate, Indian hemp, opium, or any salt or compound of any of the foregoing substances, or preparation containing any of the foregoing substances, to any person not under his treatment in the regular practice of his profession, and no practitioner of veterinary medicine shall administer any of the foregoing substances to any human being. Provided, however, that the provisions of this section shall not be so construed as to prevent any lawfully authorized practitioner of medicine from prescribing or administering in good faith, cocaine not exceeding 2 grains to any one person within the period of 24 consecutive hours; morphine not to exceed 4 grains to any one person within the period of 24 consecutive hours; codeine, Indian hemp, eucaïne, alpha eucaïne, beta eucaïne, opium or any of its derivatives, not to exceed 4 grains within any consecutive period of 24 hours; chloral not to exceed 30 grains within any consecutive period of 24 hours. Provided, that the provisions of this act shall not be so construed as to prevent the use of the foregoing substances in hospitals in any quantity deemed necessary by the attending physician when such administration is not for the purpose of evading the provisions of this act. When any physician shall administer or prescribe in excess of the dosage of drugs mentioned in this section, within any 24 hours, he shall within 5 days make a report of such action to the Secretary of the State Board of Health, stating fully name of patient and conditions under which drugs were administered or prescribed. It shall be the duty of the State Pharmacy Commission to enforce these sections."

Section 4. This act shall take effect and be in force from and after its passage.
(To be continued)

· ADVERTISING NEGATIVELY.

There is a strong temptation at all times to tell in your advertising space certain things that you do not sell or that you do not do in your store. Most of these things might better be left unsaid. Some druggists advertise that they have no connection with any chain of stores. That this is true is no recommendation to the people who are habitually buying from those stores. In fact the patrons of the chain stores will construe it as rather a slap at them and it will work to make them less rather than more inclined to patronize the advertiser. Its effect on the people who already do not buy of the chain stores may not be to send them there, but it at least will have the tendency to make them give more thought to those stores. Other druggists claim they do not sell certain lines of goods they say are "trust made." Well, what does the man who likes those "trust made" goods care about the trust part of it? He wants the goods and he certainly will not go for them to the store that boasts it does not handle them. As for the man who does not use those goods, there is certainly no advantage in mentioning them to him in any way at all. To advertise that you do not do or sell any particular thing is rarely a recommendation. Negative advertising rarely produces a positive result in trade development.—*The Spatula*.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

SOME DISPENSING HINTS.

FRANKLIN M. APPLE, PHAR. D., PHILADELPHIA.

The following dispensing hints are submitted with a realization of the fact that they may not be new to all of our members, but believing that at least some one may be thankful for one of these suggestions, they are offered for what merit they may possess.

Excipient for Nitrate of Silver Pills.—When dispensing nitrate of silver in pill form, whether prescribed alone or in combination with other medicinal agents, we had used for years, as an excipient, a petroleum residuum, sold by one of the large manufacturing houses; but as the product obtainable of late was not satisfactory, we experimented with various combinations of unctuous substances and decided that the mass resulting from a combination of one part hard paraffin and five parts petrolatum gave the best results.

If the amount of the medicinal agents prescribed is small, it is advisable to add thereto a sufficient amount of powdered althea to make the finished pill about the size of a one (1) grain quinine pill.

No unpleasant odor attaches to this excipient, as is associated with resin cerate; and our medical friends report very satisfactory results from the administration of pills made in this manner.

Charcoal for Children.—Every practical pharmacist well knows the difficulty that attends the administration of charcoal, in powder form, to children (and to many adults); and as we are supposed to serve as pharmaceutic advisers to the medical men, will suggest that your medical friends be made acquainted with the possibility of administering charcoal in powder form by using the crushed charcoal tablets. These can readily be triturated with other medicinal agents and administered without the need of using syrup, honey or some similar heavy fluid, with their drawbacks, owing to the possibilities of fermentation of the sugars contained therein. Very satisfactory results have been obtained in the cases where this method has been used.

Difficulty Experienced with Methyl Salicylate.—We recently had annoying experiences with a lot of methyl salicylate, when dispensed in combination with liniment of camphor and iodine. We had repeatedly dispensed this combination without any complaint being registered by the physician writing the prescription, but after replenishing our supply of methyl salicylate, we encountered objections from the prescriber, as the mixture would become decolorized in a short period of time, indicating absence of free iodine. A series of experiments proved that

it was not due to the liniment of camphor; hence we suggested the substitution of oil of betula for the methyl salicylate and our troubles were at an end. If you wish to use methyl salicylate in combination with iodine would suggest that it be tested first for its iodine absorption value, so as to avoid possible subsequent controversies and explanations.

Home-made Dusting Boxes.—Occasionally we are called upon to dispense small quantities of medicinal agents in a sifting-top box, and as it is desired to concentrate the siftings upon a small space upon the body, we have found it expedient to manufacture the sifting-top boxes extemporaneously by punching the necessary holes in a round utility box with an awl of small size, holding against the under side of the lid a section of a broom handle sawed off at right angles. By placing the label upon the box so as to cover the junction point of the top and of the body of the box (a shouldered one only should be used) there is no danger of the lid being shaken off, with its unpleasant results.

ONE CAUSE OF INSTABILITY IN COMPOUND SYRUP OF THE PHOSPHATES, N. F.

SAMUEL T. HENSEL, PH. G., DENVER, COLO.

When the method of procedure of the National Formulary is rigidly followed in the preparation of this syrup, the product will after a short time become cloudy, finally throwing down a precipitate—the time required varying with the order in which the ingredients are added in making the initial solution of calcium carbonate.

By referring to the N. F. formula it will be observed:

First. That the amount of glycerin employed is very great compared with the aqueous solvent.

Second. In the preparation of the initial solution containing the calcium carbonate, glycerin is the first in the order named, followed by the addition of a comparatively small amount of orange flower water.

If the glycerin is first added to the calcium carbonate, citric acid, potassium bicarbonate, sodium bicarbonate, etc., solution is extremely slow, the mass in the meantime swelling up to an enormous volume, carbon dioxide being expelled very slowly, and owing to the viscosity of the liquid a large percentage of the gas is held in suspension.

If, on the other hand, the orange flower water be first added to the calcium carbonate, citric acid, etc., solution is effected very rapidly, a large portion of the carbon dioxide being expelled at once.

In either case, however, whether we add the glycerin or the orange flower water first, the result will finally be the same, there will be a precipitation of the calcium salt.

Third. By further inspection of the formula, we note that the amount of hot water (8 fluidounces) directed for the solution of the ferric phosphate and ammonium phosphate, is very largely in excess of the amount necessary to dissolve these two very soluble salts. Three fluidounces of hot water would be

sufficient for the solution of these two salts, the other five fluidounces becoming available in effecting the solution of the calcium carbonate, etc.

For a long time I have been confirmed in the belief that the deposit found in this syrup was chiefly calcium carbonate, and that it was to the large amount of carbon dioxide held in suspension by the viscosity of the liquid to which the precipitation is due.

When the glycerin and the orange flower water are added, the viscosity of the resulting mixture is such as to retard the complete elimination of the carbon dioxide set free, and since the coefficient of solubility of carbonic acid is a constant for a given temperature, a definite amount of the acid will be held in solution in its most chemically active state, i. e., in the form of H_2CO_2 .

According to Mendeleeff, the coefficient of solubility of carbonic acid, that is to say, the number of grams by weight saturating 100 grams of water, is for the three different temperatures here given, as follows:

0° C.	20° C.	100° C.
35	18	.....

In other words, at 100° C. carbon dioxide ceases to exist in aqueous solution.

Now, carbonic acid, although a weaker acid than either the citric or phosphoric acids, possesses a strong affinity for calcium and is capable of completely overcoming the excess of the two named acids, hence its tendency is to combine with the calcium to form calcium carbonate.

A short time ago, I made a tentative examination of a deposit found in a syrup which had been prepared for some time.

On first examination, the deposit proved insoluble in both hot and cold water.

I then treated it with diluted hydrochloric acid; solution was immediately effected, accompanied by brisk effervescence, indicating the presence of a carbonate.

I then determined to try my idea of modifying the method of procedure in the preparation of the initial solution of the calcium carbonate by utilizing the five fluidounces of surplus water referred to above, and bringing the mixture to a temperature of 212° F., so as to completely eliminate the last vestige of the liberated carbon dioxide.

The calcium carbonate, citric acid, potassium bicarbonate, sodium bicarbonate, were introduced into a porcelain capsule, five fluidounces of distilled water were added and the mixture brought to the temperature of 212° F., and the glycerin, orange flower water and tincture of cudbear, were then added in the order named. The temperature of 212° F. should not be exceeded, nor prolonged beyond the time necessary for solution, or calcium citrate will be precipitated.

Solution of the ferric phosphate and ammonium phosphate was then accomplished by means of the remaining three fluidounces of hot water, this solution added to the initial solution and the resulting mixture filtered, the sugar added, and the whole agitated until solution was effected, in the manner directed in the National Formulary.

The result was a stable syrup, showing no sign of change after a month's storage under ordinary conditions.

THE LINIMENTS OF THE U. S. P. AND THE NATIONAL FORMULARY.

THOMAS LATHAM, NEW YORK.

The U. S. P. contains eight formulas for liniments, the N. F. an equal number. Though comparatively unimportant as medicinal agents, liniments are frequently dispensed and would long since have been discarded from works of authority were they considered by the medical profession to be entirely useless. I will not attempt a classification of liniments from the point of view of the physician, nevertheless the pharmacist must possess a certain knowledge of their effect when applied to the skin so as to avoid misadventure in their use.

LINIMENTUM AMMONIÆ, U. S. P.

Ammonia Water	350 cc.
Alcohol	50 cc.
Cotton Seed Oil.....	570 cc.
Oleic Acid	30 cc.

Suggested formula:

Ammonia Water	400 cc.
Liq. Paraffin Oil.....	550 cc.
Oleic Acid	50 cc.

The latter remains a constant emulsion, never congealing as when made with vegetable oils. The alcohol is not needed to maintain liquidity.

LINIMENTUM BELLADONNÆ, U. S. P.

Camphor	50 grams
Fluidextract Belladonna Root, to make.....	1000 cc.

Suggested formula:

Camphor	37.5 grams
Lin. Saponis	250 cc.
Fl. Ext. Bellad. Root, to make.....	1000 cc.

More lubricant than the U. S. P., therefore easier to apply, and the camphor is in better solution. This liniment is rarely used alone.

LINIMENTUM CALCIS, U. S. P.

The title of liniment scarcely describes this valuable compound, much used under the name of Carron Oil. The lime water should be of the best and placed in the bottle first. On adding the linseed oil in exactly equal volume emulsification takes place at once.

LINIMENTUM CAMPHORÆ, U. S. P.

Camphor, in coarse powder.....	200 grams
Cotton Seed Oil.....	800 grams

Improved by using yellow paraffin oil at one-third the price of cotton seed oil. There is no valid reason for retaining the cotton seed oil.

LINIMENTUM CHLOROFORMI, U. S. P.

Chloroformi	330 cc.
Soap Liniment	700 cc.

Too strong in chloroform and too expensive for general sale.

Suggested formula:

Chloroform	200 cc.
Methyl Salicylate	50 cc.
Paraffin Oil, colorless.....	750 cc.

May be colored if desired with soluble anilin green.

LINIMENTUM SAPONIS, U. S. P.

Soap, dried and granulated.....	60 grams
Camphor	45 grams
Oil Rosemary	10 cc.
Alcohol	725 cc.
Water to make.....	1000 cc.

The directions are to heat the soap on a water bath with the water until a clear gelatinous mass results. To this the alcohol is to be gradually added, having had the other ingredients previously dissolved in it.

Suggested formula: Dissolve the soap in fine powder in the alcohol containing the other ingredients. Any bottle of sufficient capacity may be used and the operation conducted cold and finished in an hour or two. Filtration concludes it.

LINIMENTUM SAPONIS MOLLIS, U. S. P.

Soft soap	650 grams
Oil of lavender flowers.....	20 cc.
Alcohol to make.....	1000 cc.

Amended by using the cheap methyl salicylate instead of the dear oil of lavender with better covering effect. No need to use imported green soap (which, by the way, is never green), we now having most excellent domestic made with linseed oil at one-fourth the price.

LINIMENTUM TEREBINTHINAE, U. S. P.

Rosin cerate	650 grams
Oil of Turpentine.....	350 grams

Dissolve together with gentle heat.

Suggested formula: Use petrolatum flavum at a much lower price, instead of the rosin cerate, the only purpose of which is to dilute the oil of turpentine.

LINIMENTUM ACONITI ET CHLOROFORMI, N. F.

Fld. Ext. Aconite.....	45 cc.
Alcohol	80 cc.
Chloroform	125 cc.
Soap Liniment	750 cc.

This excellent liniment can be improved by the addition of menthol, 20 grams, in which combination it is a great favorite with physicians.

LINIMENTUM AMMONII IODIDI, N. F.

Iodine	4 grams
Oil Rosemary	15 cc.
Oil Lavender.....	32 cc.
Ammonia water	110 cc.
Alcohol, to make.....	1000 cc.

Suggested formula:

Ammonium Iodide	30.00
Soap Liniment	1000.00

LINIMENTUM IODI, N. F.

Can be considered obsolete, as in more than forty years' practice I have never dispensed it or heard of its being dispensed.

LINIMENTUM OPII COMP., N. F.

Tr. Opium	100	cc.
Camphor	17.5	grams
Alcohol	250	cc.
Oil Peppermint	25	cc.
Ammonia water	375	cc.
Oil Turpentine, to make.....	1000	cc.

On account of its high price and the comparative uselessness of its expensive ingredients, tincture opium and oil peppermint, the following is recommended:

Suggested formula:

Tr. Opium	10	cc.
Tr. Arnica	90	cc.
Camphor	20	cc.
Alcohol	250	cc.
Menthol	2	grams
Linseed Oil	50	cc.
Ammonia Water	400	cc.
Saponin	2	grams
Oil of Turpentine, to make.....	1000	cc.

Add the saponin, menthol and camphor to the alcohol, then the linseed oil and ammonia water, the other ingredients following. A fairly perfect emulsion results.

LINIMENTUM SAPONATO—CAMPHORATUM, N. F.

This old composition is retained chiefly for historical interest and I cannot remember selling it for thirty years. Opodeldoc Liquid, i. e., Soap Liniment, has taken its place; however, it may be made readily with any of the popular brands of white laundry soap which have a mixed base of cotton seed and cocoanut oil and readily solidify or jelly on cooling.

LINIMENTUM TEREBINTHINAE ACETICUM, N. F.

Oil of Turpentine.....	100	cc.
Fresh egg	1	
Oil Lemon	4	cc.
Acetic Acid	20	cc.
Rose Water	85	cc.

Suggested formula:

Oil of Turpentine.....	500	cc.
Water	500	cc.
Saponin	2	grams
Eggs	2	
Ess. Lemon 5%	75	cc.
Acid Acet.....	90	cc.

This deservedly popular liniment has stood the test of about 150 years' use, and when properly made is an elegant emulsion. Made by the present N. F. formula, it thickens on standing, needs shaking and often is difficult to pour out of a narrow-necked bottle.

LINIMENTUM TIGLI AND TIGLI COMPOSITUM, N. F.

In my experience these have never been used, and have never been in my stock. The oil alone is seldom prescribed; occasionally the physician orders it diluted with olive oil as he desires.

The author also recommends the following formulas as yielding preparations which give good satisfaction:

ANALGESIC LIQUID BALM.

Methyl Salicylate	30	cc.
Menthol	2	

"Our sales for Fluidextract Lactucarium have been as follows:

1910—67 pints.

1911—59 pints.

1912—52 pints.

"Our sales for Syrup Lactucarium Concentrated have been as follows:

1910—222 pints.

1911—181 pints.

1912—247 pints.

"The balance of the Lactucarium which we purchased was used in other pharmaceutical preparations which we supply under our label, or a portion of the drug may have been used in some of the preparations prepared through our Private Formula Department for certain customers.

"There is no question whatever in our minds but that the Syrup Lactucarium is admirably adapted and oftentimes prescribed for infants whenever a hypnotic or anodyne is required. This product is also recommended by some physicians for use in the treatment of nervous insomnia of adults."

From the second house, the following is stated:

"Only three preparations are made by this establishment, the Fluidextract, the Syrup and the Tincture. The sale on all of these is quite limited which may be, in part, due to the excessively high price of the drug, but we remember that, even in the past when the drug was considerably cheaper, than it now is, the sale was also restricted."

It would seem from the above that lactucarium has a very limited sale but, in our experience, lactucarium never did have much popularity. This was due largely to its disagreeable characteristics.

Syrup of lactucarium was introduced into the Pharmacopoeia in 1860. The preparations then made were unsatisfactory. In 1870, the formula produced a turbid, unsightly preparation with a very disagreeable odor and taste. In 1880, the syrup was made from the fluidextract which was, like the others, unsatisfactory, the resinous principles being thrown out of solution in the syrup, forming a turbid-looking preparation. In 1890, the tincture of lactucarium was used from which the resin was precipitated and filtered out through the medium of precipitated calcium phosphate, and the syrup made from the filtered liquid. In the 1900 formula, we have a much improved formula. The resinous principles are extracted first from the drug by petroleum ether. From the drug thus deprived of resin, the tincture is made and the syrup is made from it. This preparation has been a difficult one for pharmacists to make satisfactorily and many suggestions for improvement have been made.

That made by Mr. George F. Beringer seems to be of special value, which is as follows:

Lactucarium	50 gm.
Glycerin	250 gm.
Sugar	600 gm.
Stronger Orange Flower Water, q. s.	
Distilled Water, q. s., to make.....	1000 cc.

Beat the lactucarium with about 400 gm. clean sand to a coarse powder and place in a percolator, shaking down evenly but not packing. Put on sufficient of a mixture of the glycerin, orange flower water and 300 cc. distilled water to saturate and leave a layer above. Cork the percolator and cover, let macerate for two days; then percolate slowly, using the remainder of the menstruum,

then distilled water until 400 cc. of distillate is obtained, in this dissolve the sugar, heat on bath if necessary, strain, add water until 100 cc. is obtained.

This makes a beautiful, brownish-colored, agreeable tasting syrup which, owing to the glycerin in it, will keep indefinitely. Glycerin acts as a preservative and also solvent. The orange flower gives the product an agreeable odor as well as taste.

Some two years ago, with the aid of one of the students in the laboratory, a series of all of the preparations of syrup of lactucarium was made and these preparations have been kept in one-half pint bottles up to the present time. Added to the list including that of Mr. Beringer's, was a preparation of our own make which differed from his by substituting for the orange flower water q. s. of oil of anise. Just enough of the oil is used to be perceptible to the taste and odor. This preparation has a very agreeable odor, taste and appearance, and we consider that anise is a very much superior aromatic to that of orange flower for this syrup. Mr. Beringer's preparation furnishes a product that is medicinally, and pharmaceutically, a better preparation than the present U. S. P. article, and I believe should be substituted for it. I firmly believe that syrup of lactucarium should be officially recognized but, if the formula, as recommended by Beringer, be adopted, there is no occasion for the tincture being continued as official. Mr. F. W. Nitardy, of Denver, whose knowledge of the demand and value of pharmaceutical preparations in the west is unquestioned, writes:

The Syrup of Lactucarium should not be deleted from the Pharmacopœia. Its use in our territory is quite limited. A gallon of the syrup lasts about a year. I believe, however, that the drug is of value and should not be omitted from the U. S. P. because it does not enjoy a wide use.

The amount of a drug or preparation prescribed seems a rather poor criterion of its value at any rate—for example, we use about fifty gallons of Compound Syrup of Sarsaparilla, U. S. P., to one gallon of Syrup of Lactucarium. No one can say, however, that as a therapeutic agent the former can be compared to the latter. We should much prefer seeing this polypharmic preparation relegated to the N. F. and the Syr. Lactucarium retained if it is deemed advisable to reduce the number of preparations now in the U. S. P.

ORIGIN OF STOVE-PIPE HATS AND TROUSERS.

Somewhere about 1753 a hatter, named John Hetherington, of London, made and wore the first tall hat, now known as the silk, full dress, plug, or stove-pipe hat. A horse saw him and ran away. The owner of the horse sued Hetherington, but lost his case, the judge doubtless holding that an Englishman has an inalienable right to dress as ugly as he can. One time there was a king who had a deformed knee; he abandoned the knickerbockers which revealed the weakness of the royal leg, and took to long trousers. Hetherington and the king have long since gone to their reward, but their ghosts still ride civilized man, one at one end, and one at the other, from Paris to Tokio; and Lord-a-mercy! we daren't even laugh at the spectacle!—*Frank Crane, The Atlantic.*

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

HISTORY OF THE ORGANIZATION OF THE MASSACHUSETTS STATE PHARMACEUTICAL ASSOCIATION.

E. C. MARSHALL, BOSTON.

The first steps looking to a state-wide organization of Massachusetts pharmacists were taken at a meeting of the Essex County Druggists' Association at a meeting held by that association on Eagle Island, in the Merrimac river, in July, 1881.

This action was the direct result of the failure of the Essex County Association to secure favorable action by the legislature of that year upon its petition for the enactment of a pharmacy law for the state. On motion of Mr. Joseph W. Colcord, a pharmacist then in business in Lynn, the association voted to appoint a committee to consider the question of the formation of a state pharmaceutical association and as to the advisability of the enactment of a pharmacy law, the two questions being thus connected because it was believed that should it be deemed advisable to petition for a pharmacy law, there would be much greater probability of such a law being approved by the legislature, if petitioned for by an association embracing representation from all parts of the state, than if it were to be asked for by the druggists of a single county. The motion of Mr. Colcord was adopted, with the substitution of the standing committee of the Essex county association for a special committee, which the motion contemplated, and after several conferences of that committee it was decided by them to take the consensus of opinion of the druggists of the state as to the formation of an association, and a circular was issued to all the members of the profession in January, 1882, asking for their opinion upon that question.

This circular met with a favorable response from about two hundred and fifty of the druggists, and in consequence of their approval, the committee of the Essex county association called a meeting of those druggists who had responded favorably to their suggestion. This meeting was held at the Revere house on March 8, 1882, with the following persons in attendance:

C. B. Emerson, Haverhill.
H. M. Whitney, Lawrence.
H. A. Estabrook, Fitchburg.
W. W. Hill, Woburn.
A. F. Thompson, Boston.
A. M. Cutler, Holliston.
F. T. Whiting, Great Barrington.

W. H. Flynn, Boston.
J. J. Whipple, Brockton.
Archie Dakin, Wareham.
F. M. Pease, Lee.
W. S. West, Hudson.
E. S. Stebbins, Boston.
E. G. Frothingham, Haverhill.

N. D. Toppan, Brockton.
S. O. Daniels, Natick.
Thos. B. Nichols, Salem.
W. B. Morse, Ind. Orchard.
J. W. Colcord, Lynn.
J. N. Ames, Chelsea.
W. E. Luscomb, Salem.
C. F. Hanson, Taunton.
C. A. Southworth, Hingham.

W. A. Macurda, Fitchburg.
A. K. Tilden, Boston.
C. F. Thayer, Holliston.
W. W. Bartlett, Boston.
G. F. Densmore, Worcester.
A. L. Kimball, Charleston.
E. B. Gordon, Lynn.
G. F. Wheeler, Randolph.
J. H. Lawrence, Boston.

The meeting was called to order by Mr. C. B. Emerson, of Haverhill, who read the call for the meeting and called for nominations of officers for the organization of the meeting. Mr. C. F. Dinsmore was elected as Chairman of the meeting, and Joseph W. Colcord was chosen Secretary. A committee was appointed to draft a constitution and by-laws for the government of the association and also one to nominate officers. After a discussion of the objects and advantages of the proposed organization the gathering adjourned to be called together at a later date.

The next meeting of the organizers was held at Horticultural Hall, Worcester. About one thousand notices were sent out to the druggists of the state, said notices reading as follows:

"IN UNITATE POTENTIA EST."

In response to a circular issued by the Standing Committee of the Essex County Druggists' Association, thirty or more druggists met at the Revere House in Boston, on the eighth of March last to consider the practicability of forming a State Pharmaceutical Association similar to those in existence in many other states. The object and aim of the proposed association having been presented by several gentlemen interested in the subject, it was voted unanimously that such an association be formed in deference to the expressed desire of druggists from every city and important town of the Commonwealth.

The committee to whom was referred the selection of time and place of holding the first annual meeting have decided to accept the generous invitation of the Worcester Pharmaceutical Association, to meet in their city, Wednesday, May 17, in Horticultural Hall. The meeting will be called to order promptly at 10 a. m. It is desired that every pharmacist in accord with the subject of the proposed association shall be present, as prominent members of our profession will address the convention upon topics of great interest to all of us at the present time.

The annual assessment will be made very small so that no one be debarred from becoming a member. It is unnecessary to call attention to the value of concerted action in all professions, more particularly in one like our own. We all know that where the one singly may fail, the many united, achieve success. Exhibits of special value to pharmacists will be welcomed, suitable rooms being assigned for this purpose. Let each one of us so interest himself that our Association shall be second to none in efficiency or membership.

Art. IX of proposed Constitution: The aim of this association shall be to unite all reputable druggists and apothecaries of this state for mutual encouragement and assistance; in improving the existing methods of pharmacy by disseminating the latest discoveries in our art, thereby stimulating to farther discoveries and inventions; to establish closer and more cordial relations between pharmacists, physicians and the public at large; whereby we may promote the general welfare and tend to the mutual advantage of all; to discourage within due limits unwise competition in our own ranks, and to devise means to

prevent our lawful profits being taken by those, outside our profession, engaged simply in commercial pursuits; to elevate the standard of our profession and ultimately to restrain the practice of pharmacy to properly qualified druggists and apothecaries.

If you intend being present please notify previous to May 5, so that the Worcester Association may have ample time to make necessary arrangements for our accommodation.

J. W. COLCORD, Secy. Pro. Tem.

April 15, 1882.

This meeting was called to order by Mr. William Bush, the President of the Worcester Druggists' Association, who delivered an address of welcome and congratulation to those present, after which the convention selected Mr. C. B. Price, of Salem, as President pro tem and J. W. Colcord as Secretary pro tem. A constitution and by-laws were adopted, under the provisions of which the convention proceeded to an election of officers. Mr. S. A. D. Shepherd was elected the first President of the association, and Wm. Bush, H. A. Estabrook and F. T. Whiting, Vice-Presidents; Joseph W. Colcord, Permanent Secretary, and F. B. Butler, Treasurer.

Prof. P. W. Bedford, of New York, was present and read a paper on Alkaloids. The other papers read were "The Pharmacopoeia," by S. A. D. Shepherd; "Hydrostatic Pressure as Applied to Pharmaceutical Purposes," by Henry A. Estabrook; "Pepsin, its Mode of Manufacture and Assay," by W. W. Bartlet, and the "Metric System," by Prof. G. F. H. Markoe.

Thus was the Massachusetts State Pharmaceutical Association born, and thus it entered upon its career of usefulness—not only to the pharmacists of Massachusetts, but to those of the nation, for many of the papers read at its several sessions, during the thirty-one years of its existence have been of positive service to the pharmaceutical profession of the whole country, and its proceedings are a mine of information embracing all subjects, some of most engrossing interest to all the members of the profession. Particularly has its labors been crowned with success in the legislative field, where its work has been of inestimable service to the pharmacists of our state.

Its legislative committee soon secured the passage of the law establishing a pharmacy board and regulating the practice of pharmacy in the state, and the continuous and unwearying work of that committee has been demonstrated, not only in securing the passage of many bills of advantage to the Pharmacists, but also in obstructing and preventing the approval by the legislature of many proposed measures, whose operations would have been trying, vexations and burdensome to the members of the profession.

To show the important work achieved and the influence upon legislation exercised by its legislative committee, I have only to say that of the more than two hundred bills considered by the general court of Massachusetts at its last session which affected directly and indirectly our profession, not one bill was enacted into law which was opposed by the legislative committee of the association, and that every bill which that committee approved was passed and put upon our statute books.

A history of the Massachusetts Pharmaceutical Association which would present an adequate and complete idea of its activities and usefulness would be

manifestly impossible within the limits of such a paper as this. A proper presentation with its elaborate detail of facts, however interesting, would become wearisome to the listener before a tithe of the pages such a history would fill could be read. It is, therefore, with much regret that leaving unwritten a complete history of the thirty-one years of its career of usefulness, embracing the names of many of those eminent and loved in our profession, I submit this fragment of its history to your honorable body, which paper only describes the preliminary steps leading to the foundation of the Massachusetts State Pharmaceutical Association, and to the ultimate success of that work, and leave to time and some abler pen the writing of its fuller history.

SOME IMPORTANT DATES IN PHARMACAL CHRONOLOGY SINCE 1700.

J. F. LLEWELLYN, MEXICO, MO.

- 1700. Franklin sold drugs for ten years.
- 1700. Kew Garden began on 11 acres, now 270 acres.
- 1702. Amonton calculated absolute zero —240, and expressed the opinion that air could be frozen solid.
- 1711. First patent medicine in U. S. "*Tuscora Rice*" to cure consumption.
- 1713. Erection of the first "Anatomical Theater" in Berlin by King Frederick Wilhelm I.
- 1716. Apothecaries of Boston cut price of bleeding to sixpence.
- 1728. John Bartram established near Philadelphia the first botanical garden in U. S.
- 1740. Hellott distilled anilin from indigo.
- 1743. Lavoisier born (1743-1794).
- 1760. Haller injected aqueous extract of putrid matter and found that death resulted (1708-1777).
- 1766. Hydrogen discovered by Cavendish.
- 1747. Marggraf, an apothecary, discovered magnesia and alumina and showed identity of cane and beet sugar. He is the "Father" of Industrial Chemistry.
- 1771. Linneaus knew 8551 species of plants (1707-1778).
- 1750-1790. Period of Black, Cavendish, Watt, Priestly, Davy, Bergman, Scheele, Lavoisier.
- 1759. Braun at Moscow froze mercury.
- 1765. First medical school in U. S. established at Philadelphia.
- 1772-83. Scheele discovered manganese, chlorine, baryta, arsenite of copper, molybdenum, uric, lactic, mucic, gallic, oxalic, hydrocyanic and malic acids, and glycerin.
- 1772. Rutherford isolated nitrogen.
- 1774. Oxygen discovered by Priestly.
- 1776. Apothecary General for revolutionary army created, re-enacted 1789, abolished 1802, revived 1812, abolished 1822.

1777. Oersted born, son of a pharmacist, apprenticed to his father 1789; 1813 published "Researches on the Identity of Chemical and Electric Forces" (1777-1851).
1777. Wenzel of Saxony found first principles of chemical equivalents; 1789 Higgins of Dublin added to this and suggested atomic theory, and claimed priority 1814.
1778. First American pharmacopoeia published.
1772. Richter's first work on combination published.
1785. Schoepf's *Materia Medica Americana* published.
1794. Priestly arrived in America.
1794. First Irish pharmacopoeia published.
1796. Jenner's first vaccination.
1795. Trommersdorf established at Erfurt a chemico-pharmaceutical institute; instructions given in logic, mathematics, physics, botany, zoology, mineralogy, chemistry and pharmacy. This school, together with the influence of its founder, raised the practice of pharmacy to the dignity of a profession in Germany.
1798. Barton's Collection for a Vegetable *Materia Medica*, part first, published.
1799. *Nux vomica* official in *Pharmacopoeia Borussia*.
1800. Dumas born; he was apothecary, chemist, diplomat, and perpetual secretary of the French Academy of Science (1800-1884).
1800. Nitrous oxide studied by Davy.
1800. Volta made electric chemistry possible.
1801. Hare invented the ox-hydrogen blowpipe.
1802. Drug store established at Poughkeepsie, N. Y.; now in existence.
1803. Dalton announced his atomic theory.
1803. Liebig born; was ten months in an apothecary shop (1803-1873).
1804. Seguin found a crystalline substance in opium.
1805. Peter Wolfe, last of the alchemists, died in London.
1805. Morphine found by the German apothecary Sertürner.
- 1807-08. Potassium, sodium, strontium, calcium, boron and magnesium isolated as elements by Davy.
1807. Person recognized 20,000 species of plants.
1808. Gay-Lussac researches on gases.
1808. *Pharmacopoeia* of Massachusetts Medical Society published.
1809. De Candolle recognized 30,000 species of plants.
1809. Charles Darwin born (1809-1882).
1810. Asa Gray born (1810-1888).
- 1811-40. Berzelius perfected atomic theory.
1811. Iodine discovered by Courtois.
1812. Davy published "Elements of Chemical Philosophy."
1813. Elementary nature of iodine discovered by Davy and Gay-Lussac.
1815. Act of parliament requiring examination and license for apothecaries, which first recognized apothecaries as legitimate practitioners. In 1819 first conviction under this act.
1818. Faraday suggested use of ether as an anesthetic.

1818. Ultramarine blue made accidentally. In 1828 it was an article of commerce, price \$2.66 a pound.
1818. Hydrogen peroxide discovered by Thenard.
- 1820-30. Achromatic and aplanatic microscope perfected.
1820. Quinine discovered by Pelletier and Caventon.
1820. First U. S. Pharmacopoeia published in Latin and English.
1820. A pure food stir in London. Alum in bread scare.
1821. First College of Pharmacy in U. S. founded in Philadelphia.
1822. Gauze over windows and sleeping under nets found to lessen attack of malaria.
1823. Faraday liquified chlorine.
1826. Balard, a French pharmacist, discovered bromine.
1826. Wöhler first obtained aluminum.
1828. Wöhler's synthesis of Urea.
1830. Nux vomica official in U. S. P.
1831. John M. Maisch born (1831-1893).
1831. Liebig, Soubeirane and Guthrie discovered chloroform.
1832. First drug store in Chicago.
1832. Runge obtained anilin from coal tar; 1834 phenol; 1837 anilin colors.
1835. Thielen produced liquid carbonic acid.
1837. Bunsen began work on cacodyl compounds; cacodyl cyanide 1845.
1839. Schönbein discovered ozone.
1840. Liebig published "Organic Chemistry as Applied to Agriculture;" 1842 "Animal Chemistry."
1840. London Society of Apothecaries increased studies of candidates, specifying course of lectures and number of lectures; example followed by the College of Surgeons.
1840. Crum Brown first used term valency.
1840. Hoffman and Fritsche prepared anilin.
1841. Pharmaceutical Society of Great Britain founded.
- 1841-2. Charles Jackson showed that ether made surgery painless.
1842. Dr. Long, of Georgia, performed the first surgical operation with ether.
1842. A Roman "patent-medicine die" found in Ireland, probably used 100 B. C.
1844. Ibsen six years an apothecary.
1844. Dr. C. W. Wells used nitrous oxide in extracting teeth.
1848. Danielssen used thermometer in fevers.
1848. Lord Kelvin (then Wm. Thompson) calculated absolute zero —273.
1848. Joule calculated the mechanical equivalent of heat.
1849. Wurtz and Hoffman discovered ethyl, methyl and phenyl compounds, calling them ammonia type compounds.
1851. Corti used stains in microscopic work; Welker and Osborne in 1856; Gundlach in 1858.
1851. Goodyear combined sulphur and india rubber.
1851. American Pharmaceutical Association founded.
- 1853-4. Pichon used electric arc for smelting.
1855. Bunsen burner invented.
1856. Perkins made mauve anilin dye.

1856. Panum isolated putrid poison and found it compared in toxicity with snake venom.
1857. Pasteur shows that lower organism caused putrefaction.
1857. Livingstone just missed discovering relation between mosquitoes and malaria.
1858. Shaws garden established. In 1913 has 700,000 specimens.
1858. Austin Goodyear Day made hard rubber.
1859. Gun Cotton discovered by Seimens and Schonbein.
- 1864-69. Newlands, Meyer and Mendeleef discovered periodicity of elements.
1865. Pasteur began his work in Bacteriology.
1865. Kekulé's "Benzol Ring" theory announced.
1866. Jones and Dupre obtained from liver animal chinoidine.
1867. Lister used phenol as an antiseptic.
1868. Bergam and Schmeidaberg obtained from putrid yeast and blood "Sulphate Sepsin," 0.01 gramme injected killed a dog.
1869. Hyatt made celluloid.
1870. Selmi suggested name Ptomaine and did work of great value in study of Ptomaines.
1870. Cheseborough made vaseline.
1872. Scheffer improved process for making pepsin (1821-1874).
1874. Wm. Procter, Jr., died (1817-1874).
1876. Nenki made the first ultimate analysis and determined the formula of a ptomaine.
1879. Saccharin made by Fahlberg at Johns Hopkins University.
1879. Castner process for Aluminum.
1880. Lavernon found malarial parasites in blood of patients; confirmed by Sternberg 1886.
1881. Dr. Carlos Finlay suggested transmission of yellow fever by mosquitoes. Cingalese writers, sixth century, mentioned 67 varieties of mosquitoes; and that four varieties of fever were caused by the bite of mosquitoes.
1883. Wroblowski liquified oxygen.
1883. Eighty-three pounds of Aluminum produced.
1884. 281,000 pounds of Bromine made in U. S.
- 1884-5. New York and Brooklyn Formulary published.
1885. Wroblowski and Olzewski liquified aid and hydrogen.
1886. Fluorine isolated by Moisson.
1888. National Formulary published by the A. Ph. A.
1893. Cryoscopy used to study Benzene series.
1894. Manson suggested that mosquitoes served as intermediate host for malarial parasite, confirmed by Manson and Ross, 1900.
1895. Roentgen Rays discovered.
1895. Linde invented Liquid Air apparatus.
1896. Phila College of Pharmacy celebrated 75th anniversary; one member of the first class then still living.
1898. Dewar liquified hydrogen; claim of 1885 thought to be an error
1898. Tripler made commercial liquid air.
1898. Radium discovered by M. and Madame Curie.
1898. Demonstrated that mosquitoes cause malarial fever.

1900. Brassuer and Sampole produced color photographs.
1900-01. Dr. Reed demonstrated that yellow fever is conveyed by mosquitoes.
Mary Kingsley medal awarded to Dr. Carlos Finlay, 1907.
1900. Defaur made pyrometer with quartz bulb and tin as the liquid, Muschenbrock, 1730, used a metal bar; Wedgwood used clay 1788; Siemens electricity, 1871.
1906. Pure Food and Drugs' Act in United States, June 30.
1907. Beltwood's theory that lead is the final decay in the Uranium series, twenty-six elements from Uranium to lead.
1909. Willstaetter obtained crystallized chlorophyll.
1910. Tenth International Congress of Pharmacy at Brussels.
1912. Journal A. Ph. A. first published.
1912. Eighth International Congress of Applied Chemistry, Washington, D. C., and New York City, with a Section on Pharmaceutical Chemistry, well attended by pharmacists and chemists of all nations.
1913. Sixty-first Annual Convention A. Ph. A. at Nashville, Tenn.

JOHN KING, M. D.*

JOHN URI LLOYD, CINCINNATI.

Born in New York City, January 1, 1813; died in North Bend (a suburb of Cincinnati), Ohio, June 19, 1893.

Early Life. The father of Dr. John King was an officer in the New York Customs House. His mother was a daughter of the Marquis La Porte, who came from France with the Marquis de Lafayette, to aid the colonists in their struggle for independence. His parents were in comfortable circumstances, and gave their son a liberal education, intending that he should enter mercantile life.

The trend of his disposition, however, was towards the professions and sciences, he being apt in mathematics and proficient in languages. At the age of nineteen, five languages were at his command, and until near the date of his death, he delighted in German and French literature, the latter being with him a special favorite. At that date French was preeminently the language of science, and to King it was a pleasure to read the current scientific literature, translating therefrom for the medical press of this country, a habit he retained with the methodical habits of his early life, even to a ripe old age.

Immediately after leaving college, he learned the art of engraving bank notes, and ever afterward his hand writing was as smooth and uniform as a page of copper plate. Every page of his numerous publications, including his great American Dispensatory, was written in his own hand, and every word was faultless, every letter distinct, every punctuation mark carefully selected, every sen-

*This brief biography is compiled, largely, from an article by this writer, published in the *Western Druggist*, December, 1893, and reprinted in the *Eclectic Medical Journal*, Cincinnati, January and February, 1894. The writer regrets that space does not now permit of a more extended paper on the life of this remarkable man, a subject of absorbing interest. But those desiring greater details will find them in the admirable work of Professor Harvey Wickes Felter, M. D., in *Bulletin No. 10 (Pharmacy Series No. 5)*, of the Lloyd Library of Botany, Pharmacy and Materia Medica. In this is also presented an admirable frontispiece engraving of the man whose work is herein described.

tence polished and perfect. He was one of the closest of proof readers, and to this writer he more than once expressed his humiliation that through an oversight, one of the pages of his American Dispensatory (numbering 1500 pages), carried, uncorrected, the words "white lard," where he had written "*white lead*."

In early life, Dr. John King exhibited a love for humanity that became intensified as he approached old age. He was continually helping forlorn children, dividing with them his own possessions, and caring for those less favored, as best he could.

His brilliance of intellect, from an early age, is shown by the fact that at the age of twenty-two years, he delivered a course of lectures in the Mechanics' Institute, New York, on "Magnetism and Its Relations to the Earth, to Geology, to Astronomy, and to Physiology," which were enthusiastically received, and repeated before the New Bedford (Mass.), Lyceum. He was also fond of music and the legitimate in drama, and wrote several plays that had a run on the stage. He gave occasional lectures on temperance, but was not a fanatic, using wine temperately himself, though decrying its abuse, even as he did that of medicine.

Dr. King was twice married, his first wife being Charlotte D. Armington, who died in 1847, leaving six children, several of whom are now living, including a son, Dr. John A. King, of St. Louis, Mo. His second wife, widow of Stephen Henderson Platt, New York City, was the daughter of John and Mary Rudman, of Penn Yan, N. Y.

Entrance Into Professional Life. Determining, finally, to become a physician, John King affiliated, as was to be expected from his ideals and family record, with the reformers, or liberal section of American physicians. In this he made a great mistake, as the majority of people look at life, but not as John King viewed the problem. To him, the great work to be accomplished was in the line of reforming the evils that he believed afflicted mankind as a result of the medical methods of those days. He well realized that reformers must ever be in the minority, and that the humanitarian must make great personal sacrifices. Before the inflexible code that then dominated physicians, the outsider in medicine could have no professional existence, and was even ostracised socially, regardless of scholarly attainments or scientific qualifications. When, therefore, at the age of twenty-five, John King, already recognized as student, scientist and scholar, graduated from the Reform Medical School of New York, he became, in the minds of most followers of the medical profession of that day, "John King, charlatan and quack." It has been said of him that "he began his civilizing career in those dark days when medical heresy was dangerous; when depletion unto death was unquestionably 'science'; when the mildest penalty for independent manhood in medicine was personal traduction, and social, no less than professional ostracism."

Professional Experiences. Dr. John King, the now enthusiastic medical reformer, united his efforts with those of Wooster Beach and other reformers of the early day, sacrificing the opportunities he undoubtedly had, to become conspicuous and popular in the dominant school. He traveled extensively over the country, studying the remedies employed in domestic medication, and search-

ing the fields and forests for untried drugs, it being an ideal with both himself and his collaborators, that America was destined to contribute largely to the medicinal agents of the world. He abhorred heroic medication, and insisted that charity began with kindness to the sick. He loved Nature, had faith in vegetable remedies, and in contradistinction to the often cruel methods of that day, he favored pleasant medication, a course that finally led him to become one of the founders of the Eclectic school of medicine, in which he well earned the title, "*Father of Eclecticism*."

In 1846 Mr. King moved to Sharpsburg, Kentucky, where he studied the products of the fields and forests, experimenting in his office laboratory and corresponding with other reformers, "Liberals" and "Eclectics," as they were then beginning to be called, contributing continually to such publications as the *Western Medical Reformer*, and the *College Journal*, Cincinnati. At that time, he being then in the prime of life, the following pen picture was given of him by Dr. A. J. Howe, a description that well applied to the very ending of his life:

"In a general resumé of Prof. King's characteristics, his personnel should not pass unnoticed. He was large in head and trunk, but small in hand and foot. His average weight was 225 pounds. His eyes were blue, and his skin soft and white. There was a peculiar sweetness of expression in his face that few men possess. His manners were those of a well-bred gentleman, and never could he be coarse or morose. He walked with a stately tread, yet with graceful elasticity. His smile, which was easy to elicit, was winning and mirth provoking. It has been said that he never had an enemy, and never was in a quarrel of his own provoking. In a thirty-five years' acquaintance, I never saw him in an angry mood. An expression of his was, that if you would be happy, your conscience must be clear. Dr. King was naturally or instinctively religious, though not bigoted nor intolerant. He would not wrench a shingle from any church edifice, yet contributed to the support of the Gospel in general. He occasionally conducted religious services in the church of his village when the clergyman was absent. His annual sermon to the class of medical students was calculated to do much good to the set of young men who do not properly estimate the influence they are to exert in the world."

In 1849 Dr. King moved to Memphis, Tennessee, where he occupied the chair of Materia Medica in the Memphis Institute. This position he resigned in 1851, to become Professor of Obstetrics in the Eclectic Medical Institute, of Cincinnati, Ohio, a position he filled until removed by a stroke of paralysis, shortly before his death in 1893. During this long period of forty years, Dr. King taught his classes, with scarcely a lecture missed. Of those who received his instruction, all loved him dearly, those who are yet living revering his memory second only to that of Washington, and considering the name of Dr. John King on their diplomas as the highest honor to be desired by an Eclectic.

Professional Work. The scientific writings of Dr. King are too numerous to mention in the space herein at command. They were scattered over fifty years of active life, and among them we find: *The American Dispensatory*, which passed through eight editions; *American Obstetrics*, 1855, of which three editions were issued; *Women, Their Diseases and Their Treatment*, 1858; *The*

Microscopist's Companion, 1859; *The American Family Physician*, 1860; and *Chronic Diseases*, 1866.

During his career, Dr. King discovered* and introduced to his professional friends Podophyllin (resin of podophyllum), Macrotin (resin of cimicifuga), and Irisin (oleo-resin of iris versicolor), the first supplies for commerce being made by William S. Merrell, of Cincinnati. These, and other substances of similar or of alkaloidal nature (first introduced as Eclectic "resinoids"), such as the salts of Berberine (introduced as "Hydrastine"), and Sanguinarine, became regular remedies, and made Professor King conspicuous. The value of these substances led to flagrant abuses on the part of medicine makers, until at last the few worthy members of the the group were overshadowed by others of no credit to any one, a heterogenous collection, entitled to no legitimate home anywhere, being finally included in the commercial lists of "resins, resinoids, alkaloids and concentrations." Then it was that Dr. John King, who had discovered the first of the resins (Resin of Podophyllum), and who had been so enthusiastically hopeful in their behalf, roused by the frauds in that direction that were being perpetrated in the name of Eclecticism, found it necessary to deal the death blow to these products, which, so far as Eclecticism was concerned, was accomplished by his crushing letter to the *Worcester Journal of Medicine* (Eclectic), June, 1855, discrediting the "resinoids" as a class. Several worthy members of the list, however, still live to honor the name of their discoverer. In this connection it may be added that many vegetable remedies that grace the pages of the Pharmacopœia of the United States, trace their origin to Dr. John King.

In closing this phase of Dr. King's life, we must not neglect to state that from 1837 to 1855 he labored in connection with others, including Dr. Forbes, editor of the *British and Foreign Medical Review*, to correlate the discordant schools of medicine, but in this they failed.

Dr. King as a Philanthropist. From the beginning of his career, as already stated, Dr. King was a philanthropist. In politics he aimed to be on the side of the oppressed. He was thus, from his earliest manhood, an Abolitionist, remaining a Republican until the issues that created that party had been consummated, but afterward only occasionally affiliating with that organization. He espoused the cause of labor, and in 1886 he wrote "The Coming Freeman," in behalf of the laboring classes. On the title page of this work we find, "I never could believe that Providence had sent a few men into the world ready booted and spurred to ride, and millions ready saddled and bridled, to be ridden!"

The pen of Dr. King was ever ready to support what he considered the cause of the people, his greatest ambition being to give to others, both of the profession of medicine, and the laity. He always opposed medical laws or class legislation, contending that as then projected and enforced, such laws were designed to

*See Bulletin No. 12 (*Pharmacy Series No. 2*), of the Lloyd Library of Botany, Pharmacy and Materia Medica, entitled "The Eclectic Alkaloids, Resins, Resinoids, Oleo-Resins and Concentrated Principles," and including portraits and brief biographies of John King, William Stanley Merrell, Alexander Wilder, William Tully, Grover Coe, Robert Stafford Newton, Edward S. Wayne, Calvin Newton, and John Coakley Lettsom. 1910.

serve certain medical colleges, to suppress others, and to create favored classes, not to protect the people. Arguments designed to convince him that by law his own beloved college could be strengthened, served but the more to determine his opposition to such laws. He plainly stated that he did not desire to profit by such methods, and to the day of his death he refused to acquiesce in any move to legislate, as he expressed it, "against the people," protesting that the ultimate result of all medical laws, would be a medical hierarchy, in which a favored few, having reached a high political position, would subjugate the rank and file of the profession, to their own elevation and aggrandizement. Very interesting, indeed, was his address on this subject, delivered at the meeting in Cincinnati of the Eclectic Medical Association of America. As the years pass, this address will surely be read, with increasing interest, by professional men, not Eclectics.

To the end of his life Dr. King retained his intellect. During the last two years he often spoke cheerfully to this biographer of the approaching change, which he viewed as serenely as though it were merely a passing into sleep. "My work is done," he would say, "Now it is time for me to go."

Comments by the Biographer.—Professor John King was one of the first to take an interest in the life of this writer, encouraging him, when an apprentice, in 1863, to persevere in his studies, and by his advice in later years, leading him to make a specialty of American drugs, at a time when such work was odious, and when few pharmacists would affiliate with Eclectics. Dr. King insisted that no other field offered such advantages for research, but that a man who entered it, must bear the odium of heterodoxy. From that time until the day of his death, Dr. King took a fatherly interest in the work that followed. One of his maxims was, "It matters little to you what others say about you, but it matters much what you do and say in return," and he ever counseled work and perseverance, not controversy and vituperation. By this rule, right or wrong, he lived, as history will record, and under this rule he died. As the years pass, it becomes increasingly apparent that it was better for all the world, that his life should have been spent on the side of the minority, amid the bitterness of professional exclusion, rather than in the ease that comes to a conspicuous scholar, who casts his lot with the majority.

In every sense of the word, Dr. King was a gentleman. It was once my pleasure to introduce to him my friend, Dr. Charles Mohr. After an hour had passed and we had departed, Dr. Mohr repeated, over and over again, "What a delightful gentleman! And this is Prof. King, the author of the *American Dispensatory*! What a cultured man!" The opponents of Dr. King did not know him, else they could not have retained their personal antagonism, and would have left unsaid many unkind words. The sweetest reflection that comes to me as I think of his kind self is that, whatever others may have done, no vicious sentences stand in his name; he bore no animosity against those whose views were different from his own. That a man so conspicuous as a reformer should have made antagonists, was necessary; but his opponents had never reason to complain of discourtesy on his part. It is surprising that in the face of thoughtless indignities heaped upon him, that would be considered unpardonable if expressed by gentlemen outside the medical profession, he should have maintained

his sweetness of disposition, and his charity for those who differed with him. Yet he did so, and never, to my knowledge, said an abusive word in return. He firmly maintained his stand in favor of American medicine, the American materia medica, and medical liberty for Americans.

RECOGNIZING CUSTOMERS.

A successful cigar dealer, writing recently of his own methods in the Chicago Tribune, ascribed the remarkable growth of his business in great measure to one little detail of business policy.

"At thirty-eight," he said, "I am the owner of a string of fifteen cigar stores, every one of which is making money. I have my good home and a motor car and a mighty nice income—and I owe most of it to one little detail I determined on when I first started business and to which I have adhered ever since.

"Eight years ago I started in the cigar store business. Before that time I had been a clerk, saving a little out of my wages every week against the time when I could start in for myself, and learning everything I possibly could about the business. I had studied the ways of customers, their likes and their dislikes—and I had discovered one great fact; the usual customer, when he enters a cigar store, likes to be known. He likes to be called by his name. Flattery, it is true, but all men are susceptible to it.

"Therefore, when I went into business I made up my mind that no man was going to come into my store the second time without my knowing his name. I tried the rule and I found it aided me. When I saw that some man was coming to my store two or three times in succession I made it a point to find out his name. Sometimes it meant a little expense and a good deal of trouble, but I did it just the same. And the next time he came I called him by his name and greeted him. I could see that the trouble I had taken pleased. It flattered the man to know that I was interested in him enough to want to know his name, and soon, instead of being just a casual customer, he became a real one. More than that, he became a friend of mine and booster for my business. The result was that when he saw a chance to send trade my way he did it. And as soon as that trade came I found out the name of the new man and used it to advantage."

—Western Druggist.

Contributed and Selected

MATERIA MEDICA IN MEDICAL COLLEGES.

L. E. SAYRE, LAWRENCE, KANSAS.

There are at least two causes for the decadence of Prescription Writing by the physician of today. One is the influence of the enterprising manufacturing houses which commercialize prescriptions ready made. The other is the contagion of the drug skepticism of the psychic therapist which tended to force down the rating of the subject of *Materia Medica* and helped to build up various cults of drugless therapy.

One of the students of one of the medical skeptics said to the writer that his medical tutor once said he thought there should be only *two* drugs in the pharmacopœia, Hope and *Nux Vomica*; and really he had his doubts about *Nux Vomica*. He believed in hope even though it be "hope on; hope ever." This author had not much faith in drugs and little charity for those who did.

This underlying spirit of opposition to *Materia Medica*, however, we have interpreted as a righteous protest against the old time method of teaching the subject which consisted partly, in the case of vegetable drugs, of emphasizing as important the botanical origin, the habitat, minute physical descriptions, etc.

Many of the critics have not informed themselves as to the progress in the teaching of *Materia Medica* to medical students and of the progress which the subject itself has made. There are so many other important matters in connection with drugs today that the instructor does not occupy his mind in such details as the above however necessary they be for students in pharmacy.

The educational number of the American Medical Association, issued September 15th, 1909, referring to this subject, uses these words: Provision must be made somewhere in the course for systematic study of the important drugs in order to bring together and focus in the student's mind what is known concerning their action in health and disease; their toxicology; their administration; their origin, the available preparations, dose, etc. It further states that the limit of time at the disposal of the medical student can be much more profitably spent in the thorough study of a relative few important drugs which he will ordinarily use or which are of great scientific interest than if this time were devoted to acquiring a mass of superficial and useless, or worse than useless, information about the numberless drugs described in the books and concerning which very little of definite value is known. In this same bulletin is published two columns of drugs (Column A and B). Column A includes what is understood as the important drugs to be studied thoroughly. Many of the drugs in this column we feel are of little value therapeutically and no instructor would waste much time in considering such drugs as *saccharum*, *syrupus*, *elixir aromaticus* or *acacia*,

which are contained in this list. The committee on education seem to favor the study of the latin name and synonym, the average dose expressed in terms of the metric and the U. S. system, the part used, and the important constituent, physical characteristics, appearance, odor and taste, miscibility or solubility in water or alcohol. The modern teaching of *Materia Medica* does not stop even here but takes up, for example, a study of the relation of physiological action to chemical constitution, the relative toxicity of alkaloids and glucosides in their different stages of purity, drug standardization (chemical and pharmaceutical).

It has been the writer's good fortune, and he has considered it a great honor, to be asked to take charge of the course in *materia medica* for medical students for over twenty years; he has watched with deep interest the progress of medical education and has studiously pursued the trend of medical thought as expressed in various works by eminent authors in *materia medica* and pharmacology. One thing that has impressed him especially is the rapid multiplication of items which burden the pages of treatises on this subject. When we consider the volume of drug products which organic chemistry, synthetical agents and organic products (brought into existence by the study or glandular secretions), the antitoxins, bacterins, etc., it becomes appalling and no sane man would undertake to cover such a field without very carefully sifting the wheat from the chaff. This process of sifting is happily going on and this should be partly the duty of the instructor who should be competent along this line. The initial steps in this work were taken some years ago by the Council of Pharmacy and Chemistry of the American Medical Association. A recent issue, "A Handbook of Useful Drugs,—containing a selective list of important drugs digested for the use of teachers of *materia medica* and therapeutics and to serve as a basis for the examination in therapeutics by state medical examining and licensing boards," represents this work. In the preface of this little volume, which is an epitome, it is stated: "The council on medical education and licensing boards have been trying to restrict instructors and examining boards in *materia medica* to the more important drugs." In pursuance to this aim, examining boards, teachers of pharmacy and therapeutics, deans of medical schools and those directly interested in medical education contribute. The compilation of the replies and revision of same have led to this little volume of 167 pages including the index. The drugs mentioned in this little volume, if properly treated, will consume all the time which the American Medical Association has recommended to be devoted to the subject which is as follows:

The number of hours to be given to pharmacy, prescription writing and systematic pharmacology should be:

(1) For Pharmacy, Chemical Toxicology and Elemental Prescription Writing, 35 hours.

(2) For Systematic Pharmacology and Prescription Writing, 72 hours.

While the published statements of the A. M. A. are such, we have preferred to obtain recent information and opinion first hand from leading medical men. We are better satisfied to get the personal views of men who are authorities in medicine as to the justification of even that much of a course as that recommended by the A. M. A.

This is of vital importance to us as the curriculum of medical colleges, includ-

ing our own, is constantly in a state of unrest and revision. It is also of vital importance to the cause of medical science itself and to the average medical student who can hope to be, at best, only a general practitioner. Since the tendency to minimize the study of materia medica in these revisions is apparent, and as this tendency has a contagious influence upon the student, we have felt always placed on the defensive as regards this study.

To any who will reflect, it must be apparent at first sight that medicine, as it must be practiced, cannot follow along purely ideal and theoretical lines however important these of themselves may be.

The general practitioner must ameliorate conditions with drug agents at his command. However many or few these may be he should know all that is known of them and be placed in a mental position to add to that information by personal clinical experience.

As a matter of fact there are a very few who do not believe in drugs. The pharmacologist and clinician, working in their respective fields and, to a great extent, in coöperation, have contributed material to medical literature which justifies this faith in drugs. The instructor in materia medica (or systematic pharmacology) must be familiar with the result of these labors of the two branches of science and prepare his student so that when he is handed over for therapeutical and clinical work he shall be fully prepared to appropriate the results of these researches and a thorough knowledge of the tools used in the treatment of disease.

Herein lies the justification for the compulsory teaching of materia medica and the duty of the instructor and the entire medical faculty in seeing to it that its emphasis is not minimized.

As before stated, the opinions of the leading medical men concerning the advisability of giving thorough instruction in pharmacy and materia medica have been sought. The result of the correspondence can best be summarized in their own words,—by quotations from their own letters which we quote below:

1.—“I feel emphatically that materia medica should be taught in the medical curriculum as a regular study and not as an elective.”

2.—“I can do no better than outline the courses we give at the Medico-Chirurgical College. In this course we take up pharmacy the first year; in the second year, materia medica; in the third year, pharmacology, and in the fourth year, clinical therapeutics.”

3.—“I have your inquiry concerning the teaching of pharmacy and materia medica to medical students. To drop either of these branches from the medical curriculum would be dangerous; their minimization has been detrimental.”

4.—“I am far from agreeing with Dixon that a knowledge of materia medica is as useless to a medical student as would be the knowledge of typemaking as a preparation for reading a book.”

5.—“Until we are ready to admit that medicines have no value in modifying symptoms, even if such value depends on psychic influence, we cannot regard a physician as competent to deal with disease without an accurate acquaintance not only with pharmacology but with the various preparations of each valuable drug.”

6.—“It is essential that the physician be familiar with all the details of the art of pharmacy.”

7.—“Very few medical graduates in this day go into practice with the proper training in prescription writing and far less of the articles composing them.”

8.—“It is a burning shame that the prominent older physicians, understanding the efficacy of drugs, have withheld their energies in a crusade against this growing evil.”

9.—“It seems to me equally sensible to discuss the omission of physiology or chemistry from a medical course as to discuss the omission of materia medica.”

10.—“In reply to your question as to whether materia medica should be taught in the medical curriculum as a regular study let me say that my answer is emphatically yes.”

11.—“Replying to your letters of December 2 and 15, I will say first that I think materia medica by all means should be taught in the medical curriculum as a regular study. It should never be an elective one.”

12.—“I feel very strongly that materia medica should be taught in every medical school and should be a required branch of study.”

The above excerpts from correspondence referred to have been made very brief to avoid undue length to this article. One correspondent, however, should be more fully quoted who says:

“A number of years ago, in reorganization of our curriculum, materia medica was dropped from the course. This continued for two or three years but the results were so highly unsatisfactory as shown by records in the State Board of Health and in the faculty that we hastened to restore the subject.”

It has been to the writer somewhat of a surprise that the course in materia medica should need defense, but since he has realized this, he has endeavored to make an investigation in order to put himself in a position where he can discuss the subject with some degree of authority. The result seems to be that as long as the practice of medicine deals with materials of medicine (materia medica) the subject should not be permitted to take a secondary position in the medical curriculum.

TELEPHONE COURTESY.

Patience is required at both ends of the line, and when the customer is inclined to be short tempered and “snappy” it is all the more important that the pharmacist—and his clerk—should use tact and studied courtesy in answering the call. You must have faith that the person at the other end of the line has something to say that is worth saying. Don’t let temper get the better of judgment, however, even if it should prove otherwise. You would not do so if you were talking with a customer face to face over the counter, and you cannot afford to do so when talking over the ‘phone. Not alone what you say, but the tone of voice which you use over the telephone may make or lose friends for your store.

The smile, look and personality, that count for so much in the courteous waiting upon customers in the store are lacking, of necessity, when you talk over the ‘phone. The voice must serve the triple purpose. When you are called to the telephone, however inopportune the call—just try to make your voice convey an expression of welcome and good-will.—*The Western Druggist.*

Papers Presented to Local Branches

SAFEGUARDING THE USE OF POISONS.*

JOSEPH E. LAUBER, ESQ.

I shall have no occasion in the treatment of the subject of my address to, in any way, offend your vastly superior knowledge and scientific training in the compounding of poisons. I have no doubt that were the dispensing of toxic substances confined to the class of gentlemen I now have the honor of addressing, a far lesser fatality list would be on record than that which appears today. That poisons will find their way into the possession of the careless user is but recognizing the existence of fact, and we must treat the subject clearly comprehending and understanding this fact.

We must bear in mind that great human element—carelessness—which when found in your mentalities must needs be at its minimum, but which forever has existed and ever will exist in the lay mind without much, if any, systematic method or attempt at its control. It is of no extraordinary credit to our better trained minds that we recognize this, and at this time I want to cite an incident which came to my attention during the course of the little time which I have been able to devote to this subject. One druggist who was asked what he thought of a movement to require all those who dispense poisons to, in some uniform and thoroughly distinctive way, indicate their poisonous character, said, "Oh, people will be careless, and if they have not sense enough to keep their poisons separate from their non-poisonous matters they ought to suffer the punishment that goes with it." The narrowness of such attitude will, I believe, immediately appeal to you.

I think we ought never to forget that a spirit of carelessness is but one of the elements of the frailty of human nature, and that all of us are provided with an ample share of that element.

It is and ever will be that those who are blessed with superior knowledge, training and self-control will teach and guide their less favored brethren. Therefore, a great and well-defined responsibility rests upon us who are able to read and observe human nature as it really exists and who are intelligent enough not to expect the ideal in man.

I am quite sure that your opinion and mine are practically at one concerning the good that will result to humanity at large by the use of distinctive methods of indicating poisons. To my mind, the uniformity of such distinctive methods is of the greatest importance. Fundamentally, it is the user who is to be protected and safeguarded, and he must be trained to recognize the symbol of poison. The skull and cross-bones seldom, if ever, fail in their mission of denoting a deadly

*Read before the New York Branch, Nov. 10, 1912.

substance. This symbol has become known by all intelligent humanity—yet it appeals to the eye only, and one must naturally see it to receive its warning influence. Effective though it is, the effect of its warning mission usually extends no further than the compounding room of the druggist, and when it reaches the user who, I say again, is the one who really requires protection, it usually comes to him in an ordinary bottle, seldom with the recognized symbol.

What is needed, in my humble opinion, is not only a thoroughly distinctive method of indicating poisons, but a uniformity in that distinctive method, so that within a reasonable time humanity may become educated to the knowledge of these distinctive symbols and will instantly recognize the peril that is there and that death lurks nigh. So I take the liberty of impressing upon you that not only should the toxicants be distinctively indicated, both by shape and color, but that the shape and color should be uniform.

I am in favor of having all poisonous solids of one shape and of dispensing all poisonous liquids in one shaped bottle. I take the liberty of suggesting to your attention and for your consideration as to the solids a shape along the lines of the jackstone, which has a pronounced unevenness on all sides and would be difficult to swallow. There should, of course, be on each package containing poison, a statement giving the antidote, with explanation, in plain language, of the emergency treatment.

Of paramount importance in the constructing and assembling of ideas is the carrying of them into practical operation. I understand that your most creditable association and other associations have, from time to time, adopted resolutions favoring either in whole or in part certain phases of this work. It is of little service to humanity to adopt resolutions unless the advance step is taken, because they reach and therefore influence but a small proportion of those who ought to be interested. Now we must realize that probably the majority of pharmacists, unlike yourselves, who have made this most useful of professions a life study, have as their watchword "Commercialism" and not a scientific development of the profession.

We know that many do not keep abreast of the great developments that are constantly taking place, therefore the work that goes on within the confines of your Association is, as to them, absolutely unavailing. This work must be brought into active play, otherwise the people at large, the users, will remain ignorant of the many precautions that science from time to time provides for their protection.

May I presume upon your indulgence to the extent of suggesting a method which I believe to be the orderly way and the most effective of bringing these ideas into practical operation. It would be well that your worthy body submit the entire question to a committee for its attention and report; that the committee be empowered to draft recommendations for a bill for a proposed law; that when the bill is finally shaped to meet your approval it be sent in for the support of your state body and for such other support as you may command; then it be taken directly to our legislators for their action.

That this great and meritorious object will eventually prevail and be brought into practical operation, there is but little doubt; that some obstacles will be encountered in the path to success is to be expected, nor should we be in the

slightest degree daunted by prior failures. The purpose is worthy; it is good; it is an advance step for the benefit of humanity. It is well for us to meet our responsibilities and to meet them in a way that reflects credit upon us.

I sincerely hope to see the day when your organization, the New York Branch of the American Pharmaceutical Association, will claim the honor that will be the just reward for carrying this progressive movement to the homes and for the benefit of the people.

THE NEED OF AUTHORITY FOR NON-OFFICIAL MEDICAMENTS.*

JOHN ROEMER, WHITE PLAINS, N. Y.

There is no doubt that at times we have all found ourselves on the border line of indecision in relation to what is intended when some medicament for which no official standard is extant was requested, and there are many such which find their way through the channels of pharmacy, for which it is impossible to ascertain the facts necessary to intelligent dispensing.

That no such authority exists is surprising, for the need is apparent, and although information is promiscuously scattered throughout the literature relating to pharmacy, this information is far from specific.

Assuming that we do find an abstract or digest on any given subject, we are often in doubt whether the statements are reliable, or whether they are paid advertisements.

The Pharmacopœia and National Formulary occupy their time-honored place under legal authority for all that happened many years ago, but pharmacy progresses and investigators are constantly thrusting new material upon us, either with a view of finding a convenient outlet for their products or with the idea that they may prove of value, and the pharmacist and physician both are confronted with the necessity of distinguishing that which is good from that which is valueless, and hence there is need for some authorized standard that will supply us with the proper information.

Take, for example, a prescription calling for two grains of digitalin to be divided into fifty capsules.

Shall we dispense Digitalin German, Merck's Pure Digitalin, Merck's Crystallized Digitalin, Boehringer's True Digitalin, Digitalin Abbott, French Digitalin, or any one of several other so-called digitalins, the doses of which are given variously as from one-fourth to one two hundred and fiftieth of a grain?

The American Medical Association in 1905 created the Council of Pharmacy and Chemistry, for the purpose of disseminating information regarding such medicaments, such information being transmitted to the medical profession from time to time in the Journal and annually printed in book form.

This work of the A. M. A. is worthy of the highest commendation, but it is a field of work in which pharmacy should be the pioneer and at all times maintain its position in the vanguard of the procession.

The American Pharmaceutical Association claims this as the right of pharmacy,

*Abstract of a paper read before the New York Branch, Nov. 10, 1913.

and in a measure justifies itself; for in the Reports on Progress of Pharmacy we have an able presentation of the sum total of what is now and of the old that has been renovated, but it is mainly in the form of abstracts or digests without any authority or legal standing.

The Department of Agriculture from time to time determines standards which also under given rules and regulations are accepted as such, yet these in the main apply to food products and have little bearing on drugs, except such as may also be classed as foods.

What is needed for pharmacy is an authorized, legalized bureau, to which all material relating to drugs or medicaments may be submitted for investigation, and which will be recognized as standard.

As a further illustration, take a preparation such as *Syrupus Iodo-Tannicus*. It has been my pleasure through this Branch to sift its possibilities so far as pharmacy applies. Having made numerous experiments which finally resolved themselves into a preparation which to all intents and purposes answered the requirements, it was submitted with the conviction that it answered the question of admissibility. It contained by assay 68 percent of iodine combined with the tannin, the balance of the iodine being determined as hydriodic acid. It was at least definite, but other investigators also were taking a hand in this and Casanova and Careane advanced the conclusion that no iodotannate exists in this preparation, but that it is all hydriodic acid.

Marcel Becquet, of Havre, also made this claim. E. Rochereau neutralized the hydriodic acid, and finds iodotannate. H. Percher takes a different view, and besides supplying us with hydriodic acid and iodotannate, obtains also gallic and elagic acids and some free tannic acid, and concludes that the question is as yet unsettled.

By the time I got through these various digests on this preparation I was not at all certain as to what it was. I am not even certain that it is a syrup, and would not be greatly surprised to see some one making the claim that it is only a tan-iodosaccharate in aqueous solution.

And so we find perplexities increasing. The time has surely arrived when we must provide some means to obtain order, and I ask in all sincerity, will pharmacy ever awaken to the needs of the hour?

Why cannot we as pharmacists show some tangible proof that we are entitled to the right to call our profession scientific? No one who appreciates the conditions will deny the need, and our aim should be directed to supply the need and live up to our claim that we do know something about drugs.

Of General Interest

PROCEEDINGS OF THE NATIONAL DRUG TRADES CONFERENCE,
WASHINGTON, D. C., JANUARY 13th, 1914.

(MORNING SESSION.)

Conference called to order at 10:30 a. m. in the Gridiron room of the New Willard Hotel, Washington, D. C., by President John C. Wallace.

On motion of Prof. James H. Beal the minutes of the last meeting as printed and distributed among the members were approved without reading.

The secretary then read the report of the Executive Committee, acting as a Committee on Credentials, and delegates present responded to their names as follows:

From the American Pharmaceutical Association:

John C. Wallace, President.

Prof. James H. Beal.

Samuel L. Hilton.

From the National Association of Retail Druggists:

James F. Finneran.

Charles F. Nixon.

Frank H. Freericks.

From the National Wholesale Druggists' Association:

Charles A. West.

Albert Plaut (absent, represented by Frank E. Holliday).

C. Mahlon Kline.

From the American Association of Pharmaceutical Chemists:

Willard P. Stearns (absent, represented by Dr. A. S. Burdick).

Dr. W. C. Abbott.

R. C. Stofer.

From the National Association of Manufacturers of Medicinal Products:

Adolph G. Rosengarten.

Dr. A. R. L. Dohme.

Charles M. Woodruff, Secretary.

The secretary then read the report of the Executive Committee which was received and ordered to be embodied in the proceedings of this Conference and the several recommendations to be taken up seriatim later.

The report is as follows:

PROCEEDINGS OF THE EXECUTIVE COMMITTEE OF THE NATIONAL DRUG TRADE CONFERENCE HELD AT THE NEW WILLARD HOTEL, WASHINGTON, D. C., JANUARY 12, 1914.

Committee called to order at 10 o'clock. Present: the full committee. On motion duly seconded and unanimously carried the minutes of the last meeting, having been printed and distributed among the members, were approved without reading, as printed.

The Executive Committee then approved the following credentials: (for list of delegates see above.)

The Secretary-Treasurer then submitted the following report:

NATIONAL DRUG TRADE CONFERENCE.

FINANCIAL STATEMENT—January 9, 1914.

Receipts.

Aug. 12, 1913. Balance on hand.....	\$13 55
Jan. 9, 1914. Received second contribution to date from—	
A. A. Ph. C.....	25 00
N. A. M. M. P.....	25 00
N. W. D. A.....	25 00
N. A. R. D.....	25 00
A. Ph. A.....	25 00
	<hr/>
	\$138 55

Expenditures.

Sept. 10, 1913. Postage, 50 2's.....	\$1 00
Oct. 7, 1913. Postage, 100 2's.....	2 00
	<hr/>
	3 00

Balance on hand January 9, 1914..... \$135 55

CHARLES M. WOODRUFF,
Secretary-Treasurer.

Unanimously approved.

The following communication from the New York Pharmaceutical Conference was then read and unanimously referred to the Conference:

"66 WEST BROADWAY, NEW YORK, November 24, 1913.

"Mr. C. M. Woodruff,

"Secretary, National Drug Trades Conference,

"Detroit, Mich.

"Dear Mr. Woodruff:

"At a meeting of the New York Pharmaceutical Conference, held at the College of Pharmacy on Tuesday evening, November 18, the Secretary was instructed to lay before the Drug Trade Conference the necessity of directing national legislation regarding bichloride tablets in such a way that it would be effective and at the same time would not be unduly restrictive of trade. It was pointed out that several bills had already been introduced into Congress, and it seemed highly probable that some sort of measure would be enacted, and in the opinion of the members of the Conference it was thought to be better that the National Drug Trade Conference should take up the matter rather than let it go by default and have a bill passed which would probably be ill-considered and impose unnecessary hardship on the drug trade without safeguarding the public health. Will you kindly bring this matter before the members of the National Drug Trade Conference.

"Respectfully,

"CASWELL A. MAYO, Secretary."

The following telegram from Charles J. Lynn was read and referred to the Conference:

"C. M. Woodruff, Sec. Drug Trade Conference,

"Hotel Willard, Washington, D. C.

"If Executive Committee propose to recommend any federal bichloride legislation at all hope it follows line of simply prohibiting sale of bichloride in ordinary medicinal tablet form, requiring bottle and tablet both to be of unusual and distinctive design, and leave it then to the ingenuity of the manufacturer. Eli Lilly & Co.'s diamond antiseptics fully protect against accidental poisoning, and as pioneers in this field of seven years' standing, we ought to have some consideration. See you tomorrow.

CHAS. J. LYNN."

Topics were unanimously referred to the consideration of the Conference as follows:

Bichloride Legislation.

Postal Regulation respecting medicinal poisons.

H. R. Bills 78, 279, 1683, 187, 1877, 2125, 2954, 2970, 4653, 5149, 9113, 9418, 9832, 3482, 11024.

A Registered Price Act.

Professor James H. Beal then offered the following resolution:

"WHEREAS, The United States Pharmacopoeia and National Formulary, both standards of Federal and state food and drugs acts, are now in process of revision, and whereas, the Committees of Revision of the said volumes are considering for inclusion therein suitable regulations for forms, shapes, methods of packaging and labeling of tablets of bichloride of mercury and other dangerously toxic substances in order to plainly distinguish them from tablets which do not contain dangerously toxic substances, and

"WHEREAS, It is greatly desirable that all laws regulating the sale of poisonous tablets should be uniform and consistent with each other, therefore, be it

"*Resolved*, That it is the opinion of the National Drug Trade Conference that Federal legislation upon the subject of tablets of mercury bichloride and other poisonous substances should be deferred until after the Revision Committees of the United States Pharmacopoeia and National Formulary shall have made their reports in order to lessen the liability of conflict between Federal legislation and the provisions of the said United States Pharmacopoeia and National Formulary."

Charles M. Woodruff moved that the resolution be referred to the Conference with the recommendation that it be adopted.

James F. Finneran seconded the motion.

Unanimously carried.

Professor James H. Beal then offered the following resolution:

"*Resolved*, That it is the opinion of the National Drug Trade Conference that the adoption of suitable regulations for the shapes, colors, methods of packaging and labeling of tablets of bichloride of mercury for inclusion in the next revision of the United States Pharmacopoeia or National Formulary is a matter of vital importance to the practice of pharmacy, the practice of medicine and the public health, and that we heartily recommend to the Committees of Revision of the United States Pharmacopoeia and National Formulary that they take steps to include such regulations in such next revision of the said volumes; and be it further

"*Resolved*, That this Conference tender to the said Committees of Revision any assistance it may be capable of rendering in the construction of such regulations; and be it further

"*Resolved*, That any Federal legislation regulating the sale of mercury bichloride tablets should be confined to regulations respecting the form and style of package in which such tablets are shipped in interstate commerce, and should not include the shipment of the chemical substance mercury bichloride as such."

Charles M. Woodruff moved that the resolution be referred to the Conference with the recommendation that it be adopted.

James F. Finneran seconded the motion.

Unanimously carried.

Prof. James H. Beal then offered the following proposed regulation for the mailing of poisons:

"Non-toxic medicines and anesthetic agents, and medicinal preparations and anesthetic agents containing toxic agents, may be admitted to the domestic mails for transmission to manufacturing chemists and pharmacists, wholesale and retail druggists, public hospitals,

university and college laboratories, and to physicians, dentists, and veterinary surgeons when they comply with the following requirements:

"(a) When not outwardly or of their own force dangerous or injurious to life, health or property, and when not in themselves unmailable under the provisions of Sections 480 and 497.

"(b) When the inner vessel or container bears a label giving the name of the article, the name and address of the sender, and appropriate words of caution when the article is one which may be dangerous if improperly used.

"(c) When they are enclosed in packages in conformity with the conditions prescribed by Section 406, bearing upon their outer surface the correct name and address of the sender, as well as the correct name and address of the person, partnership, corporation or association to which the package is sent.

"The foregoing medicines, medicinal preparations and anesthetic agents may be admitted to the domestic mails for transmission to persons other than manufacturing chemists and pharmacists, wholesale and retail druggists, public hospitals, university and college laboratories, physicians, dentists, and veterinary surgeons when they comply with all the requirements stated in (a), (b) and (c), and also with the following:

"(d) When they do not contain more than one maximum medicinal dose of a contained toxic agent to the fluidrachm or, if in solid form, nor more than one maximum medicinal dose in each pill, tablet or other unit.

"(e) When offered for transmission by manufacturing pharmacists and chemists, wholesale and retail druggists, or by the physician, dentist or veterinarian whose name and address is placed upon the label of the container and also upon the outer surface of the package."

Charles M. Woodruff moved that the same be referred to the Conference with the recommendation that the Conference petition the Postmaster General to issue this regulation in lieu of the one now in force.

James F. Finneran seconded the motion.

Unanimously carried.

After some discussion the Executive Committee then unanimously resolved to recommend to the Conference that it renew its approval of Harrison Bill No. 6282 as now pending before the Finance Committee of the Senate; but with the following amendments:

Page 4, lines 14 and 15: Strike out the words "registered under this Act."

Page 4, line 12 and also line 18: Make the word "pharmacist" read "dealer."

Page 7, line 3, after the word "to," insert the words "to the shipment or delivery of drugs and medicines compounded or dispensed in pursuance of."

It was then unanimously resolved that the Conference be urged to frame and adopt a suitable resolution requesting the newspapers of the country, through the Associated Press and otherwise, not to publish the instruments, weapons, poisons or other means in reporting the details of suicides and murders.

The Executive Committee then adjourned.

CHARLES M. WOODRUFF, Secretary.

Prof. James H. Beal moved that the President appoint a nominating committee consisting of one member from each constituent organization to report at the afternoon session.

C. Mahlon Kline seconded the motion.

Carried.

The President appointed Prof. James H. Beal, Adolph G. Rosengarten, Dr. A. S. Burdick, C. Mahlon Kline and James F. Finneran.

Mr. Samuel L. Hilton moved that the privileges of the floor be extended to Dr. M. I. Wilbert of the U. S. Department of Public Health, Dr. W. C. Woodward, Health Officer of the District of Columbia, Mr. E. C. Brockmeyer, Mr.

Fred A. Hubbard, of the Massachusetts State Pharmaceutical Association, and Mr. Charles J. Lynn of Eli Lilly & Co.

The motion was duly seconded and carried.

Mr. C. Mahlon Kline moved that speakers be restricted to two speeches upon each motion or topic, the first not to exceed 10 minutes; the second not to exceed 5 minutes; provided that after all who desired to have spoken, any delegate might speak again and at further length with the unanimous consent of the Conference.

The motion was duly seconded and carried.

Mr. Charles M. Woodruff then moved the adoption of the following:

"In recognition of the power of suggestion upon morbid and unbalanced minds, the National Drug Trade Conference does hereby urge upon the newspapers of the country that in reporting suicides and murders, details with respect to the poisons, instruments, weapons, or other methods used, be, so far as possible, entirely omitted."

The motion was duly seconded and carried.

Mr. Charles M. Woodruff then moved the adoption of the following resolution:

"WHEREAS, The United States Pharmacopoeia and National Formulary, both standards of Federal and state food and drugs acts, are now in process of revision, and whereas, the Committees of Revision of the said volumes are considering for inclusion therein suitable regulations for forms, shapes, methods of packaging and labeling of tablets of bichloride of mercury and other dangerously toxic substances in order to plainly distinguish them from tablets which do not contain dangerously toxic substances; and

"WHEREAS, It is greatly desirable that all laws regulating the sale of poisonous tablets should be uniform and consistent with each other; therefore, be it

"Resolved, That it is the opinion of the National Drug Trade Conference that Federal legislation upon the subject of tablets of mercury bichloride and other poisonous substances should be deferred until after the Revision Committees of the United States Pharmacopoeia and National Formulary shall have made their reports in order to lessen the liability of conflict between Federal legislation and the provisions of the said United States Pharmacopoeia and National Formulary."

Mr. C. Mahlon Kline seconded the motion.

After remarks by Prof. James H. Beal, Adolph G. Rosengarten, Charles M. Woodruff and Dr. M. I. Wilbert the motion was put and unanimously carried.

Mr. C. Mahlon Kline moved the adoption of the following resolution:

"Resolved, That it is the opinion of the National Drug Trade Conference that the adoption of suitable regulations for the shapes, colors, methods of packaging and labeling of tablets of bichloride of mercury for inclusion in the next revision of the United States Pharmacopoeia or National Formulary is a matter of vital importance to the practice of pharmacy, the practice of medicine and the public health, and that we heartily recommend to the Committees of Revision of the United States Pharmacopoeia and National Formulary that they take steps to include such regulations in such next revision of the said volumes; and be it further

"Resolved, That this Conference tender to the said Committees of Revision any assistance it may be capable of rendering in the construction of such regulations; and be it further

"Resolved, That any Federal legislation regulating the sale of mercury bichloride tablets should be confined to regulations respecting the form and style of packages in which such tablets are shipped in interstate commerce, and should not include the shipment of the chemical substance mercury bichloride as such."

Mr. James F. Finneran seconded the motion.

Mr. Charles M. Woodruff moved for a division of the resolutions and that the Conference proceed to vote upon the first and second resolutions.

Seconded and carried.

The first and second resolutions were then put to vote and unanimously carried.

The third resolution was, after some debate, upon motion duly seconded, put and carried, laid upon the table.

Mr. C. M. Woodruff then moved that the Conference petition the Postmaster General to issue the regulation respecting the mailing of poisons recommended by the Executive Committee.

Mr. C. Mahlon Kline seconded the motion.

After some debate, on motion duly seconded, put and carried, the matter was referred to a special committee to report at the afternoon or evening session.

The President appointed as such committee Mr. Charles A. West, Dr. A. R. L. Dohme, and Mr. James F. Finneran.

The Conference then took up the amendments to the Committee Print of the Harrison Bill 6282 and

Prof. James H. Beal moved that the recommendation to strike out the words "registered under this Act" where they occur in Section 2, Subsection (b), be adopted.

Mr. C. Mahlon Kline seconded the motion.

Carried.

Mr. C. Mahlon Kline moved that the recommendation to strike out the word "pharmacist" wherever it occurs in said Subsection (b) and insert in lieu thereof the word "dealer" be adopted.

Mr. Charles M. Woodruff seconded the motion.

Carried.

Mr. James F. Finneran moved that the recommendation of the Executive Committee to insert the phrase "the shipment or delivery of drugs or medicines compounded or dispensed in pursuance of" after the word "to" line 8, page 7, of the Senate Finance Committee Print of the bill be adopted.

Mr. C. Mahlon Kline seconded the motion.

Carried.

Mr. Adolph G. Rosengarten called attention to the fact that the word "four" in line 17, page 7, of the Committee Print was an error and moved that it be changed to "three."

Seconded and carried.

Mr. Frank H. Freericks then moved that before the bill be finally approved it be changed so as to require the dispensing physician who as such assumes the functions of a retail dealer or pharmacist to write a prescription and keep the same on file the same as a retail dealer or pharmacist does.

Mr. James F. Finneran seconded the motion.

After some discussion, on motion of Mr. Charles M. Woodruff, a recess was taken until 2:30 p. m.

(AFTERNOON SESSION.)

At 2:30 p. m. the Conference was called to order by President John C. Wallace and

Mr. Adolph G. Rosengarten moved that the word "said" in line 17, page 10, of the Committee Print be changed to "such."

Seconded and carried.

Prof. James H. Beal offered an amendment in writing changing the word "three" in Rule 5 of the Code of Rules and Regulations to the word "five" so as to provide an Executive Committee of seven and insure representation of each constituent association on the Executive Committee.

On motion of Mr. C. Mahlon Kline, seconded by James F. Finneran, the session adjourned to meet in one minute.

(SECOND AFTERNOON SESSION.)

The minute having expired President John C. Wallace called the Conference to order.

Prof. James H. Beal then moved the adoption of his proposed amendment offered at the last session.

Dr. W. C. Abbott seconded the motion.

Carried unanimously, by a full Conference.

The Committee on Nominations then submitted the following nominations:

For President, John C. Wallace, New Castle, Pa.

For First Vice-President, Charles A. West, Boston, Mass.

For Second Vice-President, Wallace C. Abbott, Chicago, Ill.

For Third Vice-President, Charles F. Nixon, Leominster, Mass.

For Secretary, Charles M. Woodruff, Detroit, Mich.

J. H. BEAL,
A. G. ROSENGARTEN,
ALFRED S. BURDICK,
C. MAHLON KLINE,
J. F. FINNERAN,
Committee.

Dr. W. C. Abbott moved that Mr. Francis E. Holliday be instructed to cast the ballot of the Conference for the gentlemen named by the Nominating Committee.

Mr. Charles F. Nixon seconded the motion.

Carried.

Mr. Francis E. Holliday announced that he had cast the ballot as instructed.

President John C. Wallace announced the unanimous election of the officers named by the Nominating Committee for the ensuing year.

The subject of finances and reimbursement of the President and Secretary for their expenses was raised by Dr. W. C. Abbott, discussed and referred to the Executive Committee.

The Conference then took up Mr. Freerick's motion and

Prof. James H. Beal moved that the motion be referred to Mr. Freericks as a committee of one to draft such an amendment to the Harrison Bill as he thought would meet the objection raised by Mr. Freericks.

It was suggested by C. F. Nixon and C. M. Woodruff that the situation would be compromised if subsection (a) were made to read:

(a) To the administration of any of the aforesaid drugs to a patient by or under the supervision of a physician, dentist or veterinary surgeon registered under this act in the course of his professional practice only. Provided, however, that such physician, dentist or veterinary surgeon shall personally attend upon such patient.

Mr. Frank H. Freericks remarked that the substitute seemed to be an improvement but he felt that the matter required thought, whereupon, after considerable discussion and further suggestions the subject was made the special order of the evening session, and copies of the proposed substitute were obtained from the hotel stenographer and distributed among the members.

The election of five members of the Executive Committee was then taken up and the following nominations were made from the floor:

James H. Beal
James F. Finneran,
R. C. Stofer,
C. M. Kline,
Adolph G. Rosengarten,
A. R. L. Dohme,
S. L. Hilton.

Mr. Hilton and Mr. Rosengarten declined to run and stated they could not serve if elected, whereupon the Secretary was instructed to cast the ballot of the Conference for James H. Beal, James F. Finneran, R. C. Stofer, C. Mahlon Kline, and A. R. L. Dohme.

The ballot was so cast and the five members last named declared duly elected to serve with the President and Secretary as the Executive Committee for the ensuing year.

Mr. Adolph G. Rosengarten moved that words "said exception" in the last line of Section 8 of the Harrison Bill be made to read "such exception."

Seconded and carried.

The Conference then took under consideration a number of bills pending before Congress and took formal action indicated as follows:

H. R. 78; disapproved.
H. R. 187; disapproved.
S. 279; referred to Executive Committee without recommendation.
H. R. 1683; referred to Executive Committee without recommendation.
H. R. 1877; disapproved.
H. R. 2125; approved.
H. R. 2954; referred to Executive Committee without recommendation.
H. R. 2970; **disapproved.**
H. R. 4653; disapproved.
H. R. 5149; disapproved.
H. R. 9113; disapproved.
H. R. 9418; disapproved.
H. R. 9832; disapproved.
H. R. 11024; disapproved.
S. 3482; disapproved.
S. 3392; disapproved.
H. R. 9237; disapproved.

The several bills approved and disapproved were referred to the Executive Committee with instructions to frame and file suitable protests, etc.

The following resolutions were then introduced by Mr. C. Mahlon Kline, duly seconded and carried:

"Resolved, That the Conference go on record as in favor of any constitutional and sound legislation that will enable the manufacturer or dealer of any article, or brand of an article in which such manufacturer or dealer has an industrial right by patent, trademark, trade-secret, copyright, design or otherwise, to fix, maintain and protect the selling price thereof to the consumer, and thereby maintain the quality and reputation thereof which is of inherent value to the public as well as the manufacturer or dealer of an article called for and purchased under a trade name, or because of the features protected by any such industrial right; provided, such legislation does not open the way to the monopolization of the sale of any other article of the same kind or class which might otherwise be open to proper competition."

On motion the consideration of Treasury Decision 33456 was referred to the Executive Committee without recommendation.

On motion duly seconded and carried the Conference then adjourned to meet at 8 o'clock p. m.

(EVENING SESSION.)

January 13, 8 o'clock p. m. the meeting was called to order in the gridiron room of the New Willard Hotel by President John C. Wallace. Present: a full Conference.

Mr. Charles A. West on behalf of the Special Committee to whom was referred the postal regulation suggested by the Executive Committee, reported the following substitute therefor.

"Poisonous substances intended for internal or medicinal administration when packed in a metal container bearing the address of the sender, together with a label bearing the word 'poison,' may be admitted to the mails under first-class postage rates."

Prof. James H. Beal moved that the report be received for consideration.

Mr. R. C. Stofer seconded the motion.

Carried.

After considerable discussion the substitute was, on motion duly seconded, put and unanimously carried, approved and Mr. Charles A. West duly appointed to inform the Postmaster General of this action of the Conference.

On behalf of the same Committee Mr. Charles A. West moved the adoption of the following resolution:

"Resolved, That the Committee on Revision of the United States Pharmacopoeia be requested to consider the desirability of inserting in the forthcoming revision of the United States Pharmacopoeia a section defining the word 'poison.'"

Mr. C. Mahlon Kline seconded the motion.

Carried.

The Conference then took up the proposed substitute for subsection (a) of Section 2 and

Mr. James H. Beal moved that the proposed substitute for subsection (a) of Section 2 of the Harrison Bill as typewritten and distributed among the members be adopted.

Mr. C. Mahlon Kline seconded the motion.

Mr. Frank H. Freericks moved, as a substitute to Professor Beal's motion, to amend by inserting the words "and in the presence" after the word "supervision" in the second line, and by striking out the remainder of said subsection and inserting the words "and such administration shall be considered a consumption thereof for the purposes of this act."

Mr. Charles F. Nixon seconded the motion.

After some discussion Mr. Freericks' motion was put to vote and lost by a vote of 12 to 3.

Prof. Beal then asked the Conference to consider the advisability of following out Dr. Wilbert's suggestion and striking out the words "registered under this act"; whereupon by unanimous consent these words were stricken out and the substitute as adopted by the Conference made to read:

(a) To the administration of any of the aforesaid drugs to a patient by or under the supervision of a physician, dentist or veterinary surgeon in the course of his professional practice only. *Provided, however,* that such physician, dentist or veterinary surgeon shall personally attend upon such patient.

Mr. Charles M. Woodruff moved that the Conference reaffirm its approval of the Harrison Bill 6282 as now presented in the Senate Committee Reprint with such changes as the Conference had this day adopted; and urge upon Congress the immediate passage of the same.

Dr. W. C. Abbott seconded the motion.

The motion was then put and carried with three dissenting votes as follows:

Mr. Frank H. Freericks stated that he desired to be recorded as voting against the motion because the bill still discriminated in favor of the dispensing doctor against the pharmacist.

Mr. James F. Finneran stated that he desired to be recorded as voting against the motion because of instructions given him by the Executive Committee of the Association he represented.

Mr. Charles F. Nixon stated that he desired to be recorded as voting against the motion for the same reason Mr. Finneran had given.

Upon inquiry of Dr. A. R. L. Dohme, Prof. James H. Beal, Secretary of the American Pharmaceutical Association notified the Conference that that Association had referred to the Conference the subject matter of some possible amendment to the food and drug laws that would eliminate the evils of the so-called variation clause without removing or prejudicing the protection it afforded to legitimate interests, and against other and greater evils that would follow if the "variation clause" were not a part of the law.

Dr. A. R. L. Dohme moved the adoption of the following resolution:

"Resolved, That it is the sense of this Conference that it is opposed to all legislation tending to eliminate the 'variation clause' from the food and drugs act."

Motion seconded.

Mr. Charles M. Woodruff stated that his association, the National Association of Manufacturers of Medicinal Products were most vitally interested in this question and most earnestly opposed to any elimination of the "variation clause"; but that in all fairness such summary action as Dr. Dohme's resolution, if adopted, would effect, should not be taken. He believed there were many who were honestly in favor of the absolute elimination of the "variation clause" to

remedy some evils that had, perhaps, sprung up under it; but he believed that these advocates could be made to see the greater evils that would follow the elimination of the "variation clause"; and he further believed in constructive work, and that if the Conference could get together with the representative of such advocates some way of meeting the situation might be discovered, and a plan agreed upon that would save much legislative contention, and long and expensive litigation to preserve industrial rights that would follow any law eliminating the "variation clause." He therefore moved the whole matter be referred to the Executive Committee for the purpose of effecting such a conference.

Mr. James F. Finneran supported the argument of Mr. Woodruff in some interesting remarks, and seconded the motion, which was put to vote and unanimously carried.

Dr. M. I. Wilbert suggested that the Executive Committee of the Conference get in touch with the National Association of Food and Drug Commissioners.

Mr. Adolph C. Rosengarten moved that the Secretary of Agriculture be requested to give the Associations connected with this Conference, as well as others interested in the production and sale of insecticides and fungicides a hearing respecting certain interpretations of the Insecticide Law of 1910; and that the Executive Committee arrange for such hearing.

Seconded and adopted.

Dr. W. C. Abbott moved that a stenographer be employed for the Secretary. Seconded and referred to Executive Committee.

There being no further business the Conference adjourned to meet at the call of the President.

C. M. WOODRUFF, Secretary.

THE REAL TEST OF A MAN.

There are plenty of men who, through fortunate circumstances, go pretty high, yet who could not stand an hour's test of real grueling by fate. They would wilt down into whimpering cowards and abject failures. The final test of character is the things one will not do under any circumstances. There are men we instinctively know would be ground into dust and scattered to the four winds before they would yield in a matter of honor. There are men we know who would face all the disasters and pain that might come without losing their vital grip on life. Their personality is indestructible.

It is this bed-rock quality, this power of ultimate resistance, that marks a man as a real man, whether he shovels coal or sails a million-dollar yacht.—*Popular Magazine*.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

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RETROSPECT OF FIFTY YEARS AGO.

(Reprinted from "The Chemist and Druggist," November 14, 1863.)

American Pharmaceutical Association.

At the annual meeting, reported in the issue, the following preamble and resolution were, on the motion of E. Parrish, of Philadelphia, *unanimously* adopted:

"WHEREAS, The mutual cultivation of science tends to break down sectional and national distinctions, and to unite all of kindred objects and pursuits in a common bond of friendship and good-will; and

"WHEREAS, We have learned of a Conference of the Pharmacutists and Chemists of Great Britain having been summoned, near the same time as our present meeting, at Newcastle-upon-Tyne, as we believe for purposes similar, if not identical with our own;

"Therefore, be it resolved, That we view this movement on the part of our brethren of the mother-country with feelings of satisfaction and encouragement, and invite their friendly co-operation and correspondence in advancing a knowledge of the science and art of pharmacy, and in promoting the elevation of the profession to a position commensurate with the importance and dignity of its objects."

It was further resolved, "That a copy of this resolution, signed by the proper officers of the Association, be transmitted to the President of said Conference of the Pharmacutists and Chemists of Great Britain by our Corresponding Secretary, who is also directed to solicit an exchange of their public proceedings for those issued by our Association."—(*Chemist and Druggist*, Nov. 8, 1913.)



ANTISEPTIC LEAVES.

The frequently reported cases of poisoning by mercury bichloride tablets during the past year has been fruitful in bringing forth suggestions for the distinguishing of poisonous tablets by giving them distinctive and peculiar shapes and colors, enclosing them in characteristically shaped bottles, etc. Federal law makers have also taken a hand by introducing into Congress measures designed to regulate the sale of poisons in tablet form, and when the State Legislatures get into action we may

expect still other regulative measures dealing with the same subject.

A novel method of attaining the same end is seen in the so-called "Antiseptic Leaf" lately brought out by the Wm. S. Merrell Chemical Company.

This Antiseptic Leaf consists of a thick, bibulous paper, in which has been absorbed the same quantity of bichloride mixture as is contained in the ordinary Antiseptic Tablet. One of these leaves added to a pint of water makes a solution 1-1000.

The form of this product is so distinct from any tablet that there should be no danger of its being mistaken for a medicinal preparation and the body being an insoluble, non-edible material, cannot be eaten, even if the attempt were made.

Antiseptic Leaves are put up in packages of twenty-five—wrapped in self-sealing water-proof paper and packed in a carton with complete label and directions for making solutions of various strengths.



THE IDEAL PHARMACY IN 1849.

The difference in the representative pharmacy of the last generation and the popular corner drug store of the present day is well illustrated in the accompanying extract taken from the chapter on Plan and Location of the Pharmacy, in Mohr, Redwood and Procter's treatise, published in 1849.

The three distinguished authors of that volume were perhaps the most eminent pharmacists of their respective countries, Germany, Great Britain and the United States, and no doubt represented the professional ideals of their time. Evidently the pharmacist of that day was a very modest and retiring individual, and his shop a delightful place for quiet meditation on a sultry afternoon. The italics are the Editor's:

"The form that appears to be best suited for the shop of a pharmaceutical chemist is an oblong, one of the short sides of which forms the front, as it is desirable to have long, straight walls, giving depth rather than width to the apartment. It should be dry and well lighted, yet not too much exposed to the direct rays of the sun. *Large windows, therefore, are objectionable; they are not required for the display of pharmaceutical wares, while they occasion a great deal of*

trouble in keeping them clean, and admit more direct sunlight than is beneficial.

"The opinion very generally prevails among pharmacists, that the shop should have a north aspect, or at least that direct sunshine should be entirely excluded; but I have no hesitation in expressing my dissent from this opinion.

"*The entrance to the shop ought not to be directly from the street, but from the passage to the house.* There are several objections to having the entrance directly from the street: it occasions the admission of wind, dust, and wet, when the door is opened, and renders it difficult to regulate the temperature of the room, and insure the comfort and freedom from unnecessary disturbance of those engaged in conducting the business.

"In free-trade England, however, it is generally considered desirable to make the access to the shop as easy and obvious as possible. I have heard calculations made, by some approved economists, to show the loss a tradesman sustains in consequence of his shop-floor being elevated too much above the level of the street, thus rendering it necessary for customers to ascend two or three steps on entering. One step, if it be a low and easy one, is considered beneficial, the advantage resulting from the exclusion of wet and dirt being more than equivalent to the obstruction it imposes on the facility of admission."

Has pharmacy gone forward or backward?



FAREWELL DINNER TO HUGH CRAIG.

Some forty New York pharmacists gave a testimonial dinner to Hugh Craig, at Mouquin's restaurant on the evening of December 26, on the eve of his departure for Chicago to take up the duties of editor of The Journal of the National Association of Retail Druggists. The affair was entirely informal. The guests were seated at a "U" shaped table in a private dining room and were entertained during the dinner with music, through the courtesy of Brune R. Dauscha, F. J. Budelman and J. L. Lascoff, the latter of whom contributed a novelty in the way of entertainment by the loan of a Victrola with a number of very fine records. Mr. Budle-

man led the chorus of a number of popular songs for which parodies had been provided.

During the dinner the chairman of the committee, Caswell A. Mayo, read notes of regret from a number of pharmacists who were unable to be present, each of whom took occasion to pay a tribute to the value of the services which had been rendered by Dr. Craig to the cause of pharmacy both as a journalist and an association worker. Communications were read from George M. Beringer, of Camden, N. J., president of the American Pharmaceutical Association; Thomas E. Potts, of Chicago, secretary of the National Association of Retail Druggists; William Muench, of Syracuse; Dr. A. B. Huested, of Albany; Frank Richardson, of Cambridge; Arthur Wardle, of Hudson; T. S. Armstrong, of Plainfield, N. J.; Edward Sher, E. H. Gane, Dr. H. H. Rusby, Dr. George C. Diekman, Dr. H. C. Lovis, C. H. Tompkins, Dr. William Frankhauser, and Dr. George A. Ferguson.

At the conclusion of the dinner, Mr. Mayo presented the guest with a miniature loving cup and Dr. William C. Anderson presented him with a handsome watch and fob on behalf of the hosts. In acknowledging the compliments conveyed by the dinner and the watch and fob, Mr. Craig took occasion to set forth his views as to the lines along which the Journal of the N. A. R. D. should be conducted and to state his own position on the matter of ethics and the practice of pharmacy.

Below are given excerpts from a few of the communications received:

Harry J. Schnell, manager of The Druggists' Circular: This testimonial dinner given to Mr. Craig by the pharmacists of Greater New York in recognition of his labors in behalf of pharmacy is a well deserved tribute. I feel as though I am perhaps better qualified to speak of Mr. Craig's work in behalf of pharmacy and with a more intimate knowledge of it than anyone in attendance at this dinner, for his work for pharmacy began when he joined the staff of The Druggists' Circular in January, 1906. From that day to this I have been in intimate touch with Mr. Craig's work, discussing it with him on almost every business day from January, 1906, to the present time. Perhaps it will interest you to know something about the way Mr. Craig entered the journalistic field. Along about Christmas of

1905, the Druggists' Circular received a communication from a drug clerk out in the wilds of New Jersey in which he supplied some formulas in response to requests published in the Circular. Incidentally, he said that as he was working twenty hours a day he had little time for writing, but was taking advantage of his "day off" to drop us a line. He explained that his "day off" consisted of the hours from 6 o'clock that evening to 8 the next morning. It occurred to most of us in the office that a clerk who possessed so much information as this one's letter showed that he possessed, and was so fond of laying this information before his fellow workers in written form that he was willing to take time from his "day off" to write it out and mail it, was too good to be grinding out his young life behind the counter for twenty out of the twenty-four hours, so we proposed that he come into the city some day when business was slack and have a talk with us. This he did one Sunday afternoon, with the result that we asked him if he would exchange his twenty hours a day and \$75 a month for eight hours a day and \$16 a week on a three months' trial, adding that if at the end of that time the arrangement did not turn out satisfactorily all around he would not be out anything, as he could return to his \$75 and twenty hours. "I would be out \$6 a month or \$18 in all," replied this lightning calculator, but he said he would think it over and in a few weeks he reported for duty. His employment commenced in the early part of January, 1906, and he has been with The Druggists' Circular ever since—eight years lacking a few days. We were not disappointed in our man. He has proved as diligent and as well informed a worker as his letter and formulas sent on that "day off" of his, back in 1905, presaged, and now he is going away from home to continue his labors in behalf of pharmacy in a new field, and no one wishes him success more heartily than I, and I might include every member of the staff of The Druggists' Circular, of which I feel proud to be the general manager.

George M. Beringer, Camden, N. J., President of the A. Ph. A.: Please convey my personal testimony and appreciation of the services of your guest, Mr. Hugh Craig, in behalf of pharmacy.

Thomas H. Potts, Chicago, Secretary of The National Association of Retail Drug-

gists: I wish to assure you in all sincerity that I appreciate your timely notice and would regard it as one of the most pleasurable events of my life to attend, if opportunity only afforded. Kindly convey to those assembled my very kindest regards and say to them that I will do my very best to keep our friend Craig out of bad company in Chicago and give him all the helpful assistance in my power, and I well know he is going to make a great success.

Many other communications equally complimentary were received from Mr. Craig's friends and admirers.

The menu card bore, besides the menu, a portrait of the guests and a list of the hosts, as follows:

W. O. Allison, W. C. Anderson, H. V. Arny, L. Berger, G. M. Beringer, C. O. Bigelow, F. J. Budelman, William Bessenchutt, L. Cantor, V. C. Daggett, B. R. Dauscha, L. W. DeZeller, J. Diner, S. W. Fairchild, G. A. Ferguson, J. C. Gallagher, A. Gardner, C. Heimerzheim, F. E. Holliday, C. Holzhauser, J. Hostmann, A. B. Husted, C. R. Johnson, H. Kantrowitz, T. Lamb, T. Latham, J. L. Lascoff, C. N. Lehman, H. C. Lovis, W. A. Mansfield, J. L. Mayer, C. A. Mayo, W. Muench, B. L. Murray, F. L. McCartney, H. M. O'Neil, Romaine Pierson, Albert Plaut, T. F. Raymow, Jacob Rehfuß, G. T. Riefflin, J. Roemer, H. H. Rusby, H. J. Schnell, S. Schoenfeld, S. V. B. Swann, J. R. Wall, J. Weinstein.

The Journal of the N. A. R. D. is to be congratulated on securing the services of Mr. Craig, whose long experience in journalistic work and his practical ability as a pharmacist will especially fit him for his new position.—*Midland Druggist*.



EDUCATE THE PUBLIC REGARDING POISONS.

Some months ago a prominent man in a southern city took some medicine in the dark and developed the first of a long line of bichloride poisoning cases. This case was one of purely accidental poisoning. The man did not want to die, and made a brave and pathetic fight for life. He had risen from humble beginnings, it seems; reached a high place in the community, became rich, married a beautiful girl, and had everything to live for. The case teemed with "heart interest,"

and the newspapers took it up and made reams of copy from it. The victim lingered for several weeks, and seemed astonished during his last days, according to the newspapers, at the absence of all pain. The newspapers began to herald this long after the first stages of the case had passed. Possibly without intention on their part, they conveyed the idea to the general public that bichloride of mercury is a painless poison.

The results have been deplorable. Since then more than 100 cases of bichloride poisoning have occurred, and in about 90 percent of these cases the would-be suicides have repented in a few hours and cried for help. In a few cases their lives have been saved, but only in a few. The newspapers, of course, could not foresee this, and are innocent of any intention to encourage a lot of suicides. Conditions have arisen that no man could foresee, but they are serious now, and it will take a lot of work to remedy these conditions. A man who really intends to commit suicide can hardly be restrained. The most careful watching will prove fruitless, as a rule. Eventually, he will find a way. The harm lies in impressing these foolish people who have a family quarrel, get to drinking, get out of work, are despondent from any cause.

Often a wife takes poison to spite her husband, and vice versa. People under the influence of liquor are just as apt to take poison as not. Frequently they do it merely to scare the family and avoid a lecture for drinking. Most of these would-be suicides are quick to yell for help, and some of them do so the moment the poison has been swallowed. Bichloride of mercury is of great value as a germ destroyer and disinfectant, and for years it has been in households without causing any wave of suicide. It is, as all druggists know, a powerful corrosive, and when taken the results are intensely painful. Great agony ensues, and after the poison has been absorbed, recovery is almost impossible. Anyone who takes poison with a view to scaring the family could scarcely select a worse medium.

Druggists may well start a crusade toward educating the public to the fact that bichloride of mercury is not a painless poison, one that may be taken and pumped out a few hours later with no particular harm to anybody. That seems to be the general impression now. It is strange how much harm an

idle report of this kind can do, but the facts confront us. Druggists should let no opportunity go by to impress upon their customers the horribly painful effects of taking bichloride of mercury; and above all, sales of this powerful poison should be watched carefully, especially at this time.—*National Druggist*.



A NATIONAL FORMULARY SUGGESTION.

Thos. D. McElhenie, Brooklyn, N. Y.

One morning my daughter brought down to breakfast an empty vial bearing the N. A. R. D. stock label, "Liq. Antisept. Alk.," etc., and asked me to send over some more, adding, "I can't pronounce all that long name, but if I had a flute I'd play it." I replied, "The long name for that good preparation is the reason why doctors so seldom prescribe it."

A few minutes later, when leaving the house, the word *ALKANTUS* came in my mind as a short name for the preparation. I am sure the word is original. It would be an euphonious title for the preparation and entirely suitable for physicians' use in prescribing.

I therefore propose that it be added as a synonym in the N. F. under the title "Liq. Antisept. Alk.," and that the A. Ph. A. as owners and publishers of the book secure a trade-mark on the name to prevent any one using it commercially, and that the whole matter be set out fully in the journals.

That pharmacists also be asked to refrain from using the name on the preparation exposed for sale, and have it fully understood that a prescription for "*Alkantus*" means "Liq. Antisept. Alk.," official, and made by the pharmacist and not some particular brand.

Further, that the manufacturing pharmacists, who are mostly gentlemen, be asked to refrain from any use of the word in their lists.

I have no desire to exploit the name myself, but as it is my own invention I would like to see it used for the common good in medicine and pharmacy.

Concerning the above Mr. E. A. Sennewald, of St. Louis, says: The suggestion appeals to me as being worthy of consideration. I am very much in favor of "terse terms." I am inclined to believe that such names as are

proposed by Mr. McElhenie would make U. S. P. and N. F. preparations very much more popular with many physicians. It seems to me that many physicians can not or will not write preparations with long names.

It may be unprofitable to be ultra scientific in our nomenclature. At one of our former conventions it was moved and carried that names should be terse. This seems to have been forgotten or overlooked.

'Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.



PROF. EDWARD SCHAEER.

It is with great sorrow that we learn of the death of one of the most celebrated pharmacists, chemists and teachers, namely, Professor Edward Schaer, who died at the age of seventy-one years, on October 3, 1913, in Erlengut, Erlenbach, near Zurich, Switzerland.

Professor Schaer, who received many distinctions in pharmacy and chemistry throughout the world, was elected an honorary member of the American Pharmaceutical Association in 1877.

For more than fifty years Professor Schaer has been active, very active in pharmacy, and has been the teacher of a great many pharmacists and chemists all over the world. Many of his pupils in the United States will learn with great regret of the death of their beloved teacher.

On December 7, 1912, Professor Doctor Edward Schaer, director of the Pharmaceutical Institution of the University of Strassburg, Alsace, Germany, celebrated his seventieth birthday, and in memory of this event, Otto Raubenheimer, editor of the *The Practical Druggist*, prepared his biography which was published in the March (1913) number of *The Practical Druggist*. The following is abstracted from the same:

Schaer was born on December 7, 1842, in Berne, and began his pharmaceutical career

in 1861 in Hagenbach's apotheke in Basel and completed his apprenticeship with Pagenstocher in Berne. In Basel, Schaer had an opportunity to hear the lectures of Prof. C. F. Schonbim, the discoverer of ozone and gun cotton, which teachings undoubtedly inspired him with a love for chemistry. During 1866 and 1867 he studied pharmacy under Profesor Fried. Aug. Flückiger at the University of Berne, who at that time wrote his celebrated work "Lehrbuch der Pharmakognosie des Pflanzereiches." (Text-book of Pharmacognosy of the Vegetable Kingdom.) After his state examination, Schaer continued his studies during 1869 and 1870 in Berlin, London and Paris, where he made a special study of pharmacognosy and the many specimens at the museums and universities.

In 1872 he bought the pharmacy of Wilhelm Vogel, one of the founders of the Swiss Apotheker Verein, and married his daughter in 1873. In the same year Schaer also began his academic career by giving lectures on pharmacy at the Polytechnic Institute at Zürich, where he received the title Prof. Hon. in 1876, and became professor of pharmaceutical chemistry, toxicology and pharmacognosy in 1881 and dean of the department of pharmacy in 1891.

One of the greatest honors bestowed upon Schaer was when in 1892 he became a worthy successor to Prof. F. A. Flückiger at the University of Strassburg. Schaer followed the footsteps of his predecessor and former teacher and surrounded himself with a circle of zealous students who in time spread the reputation of the University of Strassburg throughout the entire world.

It was due to the efforts of Prof. Schaer that the well-equipped pharmaceutical institute was built, a pride of the University of Strassburg, as well as the entire pharmaceutical profession.

During the forty years of his academic career Prof. Schaer has published numerous and excellent pharmaceutical, chemical and pharmacognostic papers, including a book by Schaer—Zenetti.: Anleitung zu analytisch-chemischen Übungsarbeiten auf pharmazeutischem und toxikologischem Gebeite. (Laboratory Notes on pharmaceutical and toxicologic subjects.)

Prof. Schaer has also contributed numerous papers to the scientific section of the A. Ph. A. which have been awarded prizes repeatedly.—*Otto Raubenheimer.*

JOSEPH E. MORRISON.

By the death of Joseph Edward Morrison, the pharmacists of Canada have lost one of their leaders, one of their best friends. "As a pharmacist, he was probably the most distinguished figure in Pharmacy in Canada; as a citizen, he was fearless, broadminded and always on the alert for things progressive." He was born in the city of Waterford, Ireland, on January 15, 1862, and died in Montreal, September 2, 1913.

Joseph E. Morrison was President of the American Pharmaceutical Association in 1896, and Dean of the Montreal College of Pharmacy, from which latter institution he was graduated in 1882.

As a youth he took up the study of pharmacy as an apprentice, serving his apprenticeship with Mussen of Quebec; he then clerked for William Laroche, of the same city, and graduated in pharmacy. Later he entered the retail drug business for himself, and after a few years went to Montreal and took charge of the pharmaceutical laboratory of Lymans, Sons & Co., of Montreal, and sometime thereafter became a member of the Faculty of the Montreal College of Pharmacy as a lecturer on materia medica and botany. This work was followed by appointment to the chair of chemistry and pharmacy, his knowledge of both English and French enabling him to impart instruction with equal facility in either language. In 1896, he entered the field of journalism and established the *Pharmaceutical Gazette*.

He joined the American Pharmaceutical Association at the Detroit Meeting in 1888. At the Asheville meeting in 1894 he was elected Third Vice President, and it was largely through his efforts that Montreal was selected as the place of meeting two years later. He was the second Canadian to be honored with the presidency of the Association, and the youngest occupant who ever held that office.

In politics, he was strongly Conservative and an Imperialist. He was intensely in love with his work as a teacher. His whole life seemed to be devoted in an endeavor to impart pharmaceutical knowledge to his students, and as to his ability as a teacher, too much praise cannot be given him.

He leaves a widow and seven children.

Prof. Morrison had a wide acquaintanceship among the pharmacists of Canada and

will be remembered by the older members of the American Pharmaceutical Association as a genial man of quick perception and one whose strong grip upon the details of pharmacy made him many friends. J. W. E.



LOUIS WOLTERSDFORF.

Louis Woltersdorf was born May 6, 1841, in Warnow, Province of Brandenburg, Prussia, Germany. His early education was had in the public school at Lenzen, Germany, and under private tutors.

He came to the United States in 1860. Equipped with three years of commercial experience obtained in Germany, his first position in the drug business in America was with Joseph Dell, who then had a store on Canal Street near Polk Street, Chicago. After two years with Mr. Dell, followed one year with George McPherson on Clark Street. Leaving McPherson, he clerked for W. P. White on West Madison Street. While here, the fires of patriotism for his new and adopted country burned brightly. Through correspondence with his predecessor at White's store, who had enlisted on one of the Mississippi gunboats, he was fired with ambition of joining that branch of the service, and accordingly made application, but owing to his brothers' appeals, who was at the front, and a second brother in military service in the West, not to forget his obligation to his aged parents, he withdrew his application.

Leaving Mr. White in 1864, he opened a store of his own at 114 Blue Island Avenue, corner Ewing Street, his capital consisting of eighty dollars. After eighteen months at this location, two young men, Gerdes and Summerfield, coming from Pittsburgh to buy a drug store, called on him and made what he considered a very liberal offer for his store, an offer of about five thousand dollars, which he accepted.

Again free and untrammelled by business cares, he journeyed west to Kansas, at that time the Western terminal to railway travel. Returning to Chicago, he received from Henry D'Evers, whom he had known for some time, a proposal of partnership. He had two stores, one on West Madison Street near Union Street, and another at the northwest corner of Lake and Halsted Streets. The Madison Street store remained in

D'Evers charge, while Mr. Woltersdorf took charge of the Lake Street store.

After a short partnership, Mr. Woltersdorf bought and became sole owner of the Lake Street store. At this time (winter of 1865 and 1866) the Volunteer Army of the Rebellion was disbanded and a Dr. Woods, late Army Surgeon, made a tempting offer for the store, which was accepted.

Early in the spring of 1866, Mr. Woltersdorf took a trip to Europe, visiting England and the Continent, and while in Germany was married.

Returning to the United States, he opened a store at the corner of Canal and Dekoven Streets, in Chicago. After a few months, he moved this store to the corner of Blue Island Avenue and Morgan Street, where a prosperous business enabled him to buy the property at Blue Island Avenue and Taylor Street. This property he improved with a new building, moving into the new quarters shortly before the great fire of 1871. Here he continued in business until 1894, when he sold the business to the present owner, J. R. Shean.

The Briggs House drug store at one time was jointly owned by Fred Haeger and himself, who sold it to M. L. Waldron, the present owner.

One of the landmarks of the city as a drug store corner, where G. McPherson, Dr. W. Reynolds and Bruno Goll sold drugs, Mr. Woltersdorf owned for a time—i. e., the northwest corner of Canal and Twelfth streets. The store at the northwest corner of Eighteenth street and Blue Island Avenue was opened by him a good many years ago.

In 1865, he was elected a member of the American Pharmaceutical Association, and frequently attended its meetings. He was a member and Ex-President of the Chicago Veteran Druggists' Association.

Mr. Woltersdorf's activity in business really ended with his disposing of all drug store interests in 1894. After this date and extending to about 1898, he was interested in and active as manager for the manufacture of tile.

Up to the last, he took great interest in the men who had worked for him, and followed their careers with pride, and these men were his friends. They respected and loved him.

Since his death, physicians who had known him and had been associated in a way with

him from the early sixties, have told of the confidence medical men had in his accuracy of work and in his honor in filling their prescriptions.

In the sixties and seventies people traveled for miles to get their prescriptions dispensed in his establishment.

He enjoyed traveling and accumulated, through reading and lectures, a large fund of geographical knowledge, and attained local repute as an ornithologist. He enjoyed the company of children, as well as that of matured minds. Men and women in every walk of life learned to know him and to love him. He was a member of Hesperia Lodge of Free and Accepted Masons.

Following a slight indisposition from bronchitis, lasting three days, he died of heart failure on December 12, 1913, at the age of seventy-two years. J. W. E.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



NEW YORK BRANCH.

(December Meeting.)

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of December 8th, President C. O. Bigelow presiding.

Chairman Louis Berger, of the membership committee, presented an application from one prospective member for the parent association and reported that he had the assurance of another.

There had been no new developments in national legislative circles, reported Prof. W. C. Anderson for the committee on legislation. He read the new municipal ordinance

regulating the sale of mercuric chloride and referred briefly to the matters discussed at the legislative conference of the New York State Pharmaceutical Association. The matter of safeguarding the sale and use of mercuric chloride was discussed by Messrs. Roemer, Diner, Mayo, Raubenheimer, and Bigelow.

Dr. G. C. Diekman, chairman of the committee on the progress of pharmacy, included in his report a quotation from a German commercial report, about the difficulties of circumventing the adulterators of essential oils; an abstract of an article in the *Chemiker Zeitung* about the drawbacks of porous extraction tubes; an abstract of an article by Koller on the preparation of ampuls (*Pharm. Zentrhl.*); and an abstract of an article on the detection of hexamethylenamine in wine and milk by Von Rosenthal (*Pharm. Zentrhl.*).

George M. Beringer, president of the parent association, who was present as a guest, responded to an introduction by President Bigelow, and asked the members of the Branch to lend individual assistance toward the advancement of the Association.

In some communications read by Secretary Hugh Craig, Prof. J. P. Remington, Dr. H. H. Rusby, and Dr. C. S. Alsberg stated that the synonyms appearing only in the index of the Pharmacopœia had an equal weight with other pharmacopœial names, under the Federal food and drugs act.

The matter of participation in the drug exposition to be held in this city in January was discussed by Messrs. Rehfuß, Craig, and Roemer. A committee, consisting of Jacob Diner, F. L. McCartney, and Louis Berger, was appointed for the purpose of investigating the project.

At the invitation of President Bigelow, W. J. Schieffelin interestingly reviewed the recent meeting of the National Wholesale Druggists' Association.

The speaker of the evening was Prof. Henry Kraemer, botanist and pharmacognosist, of Philadelphia. His subject was "The Growing of Medicinal Plants."

Pharmacognosy as it is applied to the dead plant substance is a "dry" subject, said Professor Kraemer, but it has a larger scope and enlists a new and an absorbing interest when extended in the rational direction of the growing plant. His interest in the study of the growing plant had been first aroused

by a desire to ascertain whether spigelia contained calcium carbonate. The result of his interest in that question was the conclusion that the natural starting place in the study of the constituents of a plant was at the plant as such.

The speaker had a firm faith in the possibility of uniformity in plant constitution through proper cultivation. Although the subject at the present time is in the theoretical stage of consideration, he believed that in this, as in the many seemingly impracticable problems put before the pharmacognosist, the practicable solution was not far off; that the task of standardizing nature was not an impossible one. Despite the existence of well developed distinguishing tests, the matter of the variability of crude drugs was a puzzle to many, a fact which Professor Kraemer attributed to the reluctance of investigators to adopt natural methods of study instead of the teachings of past years. On the whole, he continued, the real knowledge of vegetable drugs is small and their preparation for medicinal purposes is far from scientific. But he foresaw the specialist in preparations who would devote time and energy to the real study of a single drug, or at most a few, and who would arrive at means of assuring uniformity.

There is a growing interest in the cultivation of drug plants, said the speaker, who frequently was asked for information concerning this branch of agriculture. He pointed out the necessity of a knowledge of drug conditions and of the economy of marketing in addition to a knowledge of cultural methods.

Supplementary to his general remarks, Professor Kraemer exhibited and explained some seventy-odd lantern slides depicting limited and extensive experiments in the growing of drug plants. He was, in all, enthusiastic in his belief in the resultfulness of even the least ventures in this field.

The subject introduced by Professor Kraemer was discussed by Messrs. Mansfield, Arny, Mayo, and Raubenheimer. A vote of appreciation was tendered to the speaker.

HUGH CRAIG, Secretary.

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CINCINNATI BRANCH.

(December Meeting.)

The monthly meeting of the Cincinnati Branch, A. Ph. A., was held December 16,

1913, at the Lloyd Library. Prof. Lloyd presided.

After disposing of routine business, Prof. Lloyd introduced the subject of the evening, an open discussion of *Erythroxylon Coca* and its Derivatives, he himself taking the initiative, his part being the historical description of the plant and its uses. He mentioned his son's extensive investigations regarding this particular plant, in connection with his duties as Entomologist of Harvard University, having paid special attention to the study of Coca while traveling extensively over the Andes Mountains of South America. The native Indians' use of Coca was unquestionably exhibited, especially by the Indian "Runners," who are subjected to the most exhausting physical efforts in crossing the Andes, carrying with them a modicum of food. A few coca leaves sufficed as a hunger pacifier, and upon this as a basis the runners underwent the most exhausting and exacting journeys. It was accepted by observing travelers of early days that the leaves, being chewed, would yield an abundance of "vital strength." The endurance of people thus employing the drug was noted by the Jesuit Father Blas Valera, under the name *Cuca*. From other explorers it may be gathered how powerful the *Cuca* is in its effect upon the laborer from the fact that the Indians who use it become stronger and much more satisfied, and work all day without eating.

The miner will perform for twelve long hours the heavy work of the mine, and sometimes even double this period without taking any further sustenance than a handful of parched maize, but every three hours he makes a pause for the purpose of chewing a small amount of coca leaves. He would work illy and reluctantly if the proprietor let him want his favorite herb. The same holds good with the Indian porter, messenger, or vendor of his own productions who traverses the Andes Mountains on foot. Merely chewing coca from time to time, he travels with his load of a hundredweight on his back over indescribably rough roads and accomplishes frequently ten leagues in ten hours.

Entering South America from the Pacific Ocean, a very peculiar fact was noticed, namely, that the lowlands, being inhabited by practically all negroes who raise the coca, but do not use the same. On ascending the Andes to a height of 15,000 feet, there is found a gradual diminution of the negro race,

an admixture of the white race, and, finally, the pure Indian race is reached, who are inveterate users of coca leaves, mixing them with a small percentage of lime. They do not chew the leaves, but put the mixture of coca and lime in the cheek and subsist upon small quantities of corn, rice, etc., using no meat; are a happy people, who refuse to sell their coca but will sell anything else.

Professor Lloyd stated many more interesting facts which were greatly appreciated.

The speaker who responded to the scientific features of the subject was Prof. C. T. P. Fennel, who discussed the formation of alkaloids and in particular of cocaine. Professor Fennel was tendered a vote of thanks, and was followed by Mr. Charles G. Merrell, who discussed the commercial side of the subject. Aside from the commercial importance of the crude drug, he paid attention to the possible different action of the crude drug and its alkaloids, maintaining coca to be a very valuable drug, but being much abused by the use of its alkaloids, and called attention to the possibility that the coca leaves may have beneficial effects other than those due to their alkaloids.

Mr. H. W. Jones described the structure of coca leaves, calling attention to the different species. He cited the investigations of Dr. Rusby, showing the various amounts of alkaloids. He mentioned the extensive production of synthetic cocaine, which may possibly be the source of the extreme ill effects of the abuse of cocaine, thus finding a reason for the absence of ill effects in the extensive use of coca leaves by the natives.

Mr. Frank H. Freericks followed with a discussion of the legal aspects of the subject, giving reasons for the legitimate use of cocaine. He mentioned the comparatively recent ill effects due to the abuse of the drug. The first legislation against the sale of that alkaloid took place in the State of New York in 1893, and principally brought about by the misuse of this valuable drug by physicians. Other states soon followed with special restrictive legislation, not alone regarding cocaine, but for other habit-forming drugs; until today the statute books of almost every state show an annual record of laws enacted tending to curb the consumption of habit-forming drugs. However, he maintained that the existing laws are still insufficient and referred to a new New York law as the best yet devised. This law has a special requirement

for the keeping of a record of all sales, requiring a patient's certificate from a pharmacist and obliging the pharmacist to keep a record of the amount of cocaine and similar habit-forming drugs on hand.

Mr. Freericks blames the dispensing physician to a great extent for the misuse of this drug, and claims that the doctor should be placed on the same plane as the dispensing druggist. The failure of spasmodic efforts at the enforcement of these restrictive laws was mainly attributed by the speaker to either the inefficiency of the officials or the insufficient means of enforcing these laws. He pointed out the great need of a Federal law regulating the sale of all habit-forming drugs, by which means the use of such harmful ingredients in patent medicines could be entirely obviated.

Mr. Freericks' legal review of the subject was followed by an open discussion by the members, among whom were Messrs. Edward Voss, Theo. Wetterstroem, C. T. P. Fennel, and others.

It was unanimously agreed that this Branch had had a very interesting discussion of a very important subject, which should be taken up at some future time for further discussion.

Adjournment.

CHARLES A. APMEYER, Secretary.



NASHVILLE BRANCH.

(January Meeting.)

On January 8 the regular meeting of the Nashville Branch of the A. Ph. A. was held at Furman hall, Vanderbilt University, with Vice-President E. A. Ruddiman presiding in the absence of President J. O. Burge.

The committee appointed to make arrangements for the entertainment to be given to the local druggists and their wives made their report through W. R. White, recommending the Y. M. C. A. as the best place to have it. January 22 was selected as the time, and the committeemen instructed to prepare a suitable program for the occasion. Mr. M. E. Hutton then read a splendid article on "Stopping Leaks in Business," which was interestingly discussed by Messrs. J. B. Sand, S. C. Davis, Ira B. Clark, E. C. Finch, A. Nickel, L. J. Pully and C. C. Young, who brought out many points where careful observation and system had saved

them money. A general discussion of provisions of the new state anti-narcotic law followed, in which the plan of the Narcotic Commission to allow habitues to obtain narcotics on a permanent prescription, to be issued by their physician and endorsed by the Commission, was considered from many points of view. All favored the idea of restricting the sale of narcotics.

After receiving an application for membership, the Branch adjourned.

W. R. WHITE, Sec'y.



PITTSBURGH BRANCH.

(January Meeting.)

The meeting of the Pittsburgh Branch of the A. Ph. A. for the current month was delayed for one week owing to the absence from the city of the secretary. It was held Friday evening, January 16, and in point of attendance was most successful. The number of students present was gratifying, as was also the presence of many ladies.

The only business taken up was the election of officers. The personnel of the nominees was given in the last issue of this JOURNAL, and as there were no new nominees submitted, the ticket recommended by the Committee on Nominations was unanimously elected.

The feature of the evening, the promise of which it was that brought out the unusually large audience, was the presentation by the aid of hand-colored lantern slide pictures, and descriptive lecture, by George B. Parker, Esq., of the wild flowers of nearby counties, and no one present was in the least disappointed in their most sanguine expectations of a rare treat. The delicate coloring in natural shades of the various flowers proved a continual source of wonder and appreciation, and it was clearly evident that in the production of them Mr. Parker must have had a severe strain on his patience, who explained that it was only possible by the use of the microscope while it was under way. Every plant and flower thrown upon the screen had been photographed by Mr. Parker during numerous rambles over the surrounding territory contiguous to Pittsburgh. His collection is extremely rich in number as well as in detail. Mr. Parker claims that he is not a botanist, but merely a lover of the plants and flowers as they grow in their

natural environments; he submitted no illustrations of cultivated specimens. It is Mr. Parker's intention to present his valuable and interesting collection to the Pittsburgh Camera Club, a body of amateur photographers, and each member with a hobby. This disposition of the collection will place it where it can be secured for use in interesting the pupils of the schools of the city in the study of flowers and plants. The gentleman was the recipient of a very enthusiastic vote of appreciation of the instruction and entertainment he had so kindly given.

Dr. Louis Saalbach was on the program for a report on the proposed changes in the United States Pharmacopoeia, but owing to the serious illness of his mother, whose life is despaired of, he was not able to be present, nor in a mental condition to prepare the paper on the assigned topic.

B. E. PRITCHARD, Secretary.

The Pharmacist and the Law

ABSTRACT OF LEGAL DECISIONS.

VOID ORDINANCE LICENSING SELLERS OF SOFT DRINKS—RECOVERY OF LICENSE FEES PAID. A firm of druggists in a city of the fourth class in Kentucky were engaged in selling soft drinks as a part of their business. In April, 1910, at the solicitation of a number of persons who were engaged in that business, or that desired to engage in it, in the city, the board of councilmen adopted an ordinance providing for licensing the sale of soft drinks in the city, fixing the license fee at \$200 per annum, payable quarterly. The firm in question obtained the required license, and continued to do business thereunder for 18 months, during which period they paid license fees aggregating \$300. In September, 1912, the firm brought action against the city to recover that sum, upon the ground that it had been paid through mistake, and collected without authority of law. The want of authority upon the part of the city to collect the license fee appeared, for the first time, shortly before the action was brought, when the firm discovered that the ordinance of April, 1910, was void, because the yeas and nays of the vote upon its adoption had not

been recorded in the journal of the proceedings of the board of council.

The rule in most jurisdictions is that money paid under a mistake of fact can be recovered, but money paid under a mistake of law cannot be recovered. But it has long been settled in the Kentucky courts that in that state money paid under a mistake of law may be recovered. The court of appeals of the state upholds the wisdom of the Kentucky rule on the ground that one is much more inclined to make a mistake of law than a mistake of fact. One of the modifications of the Kentucky rule, however, is that illegal taxes paid voluntarily may not be recovered; but, if they are paid under compulsion, which exists whenever they are collectible by summary process of fine and imprisonment, they come within the general rule and may be recovered. When taxes can be collected by suit only, and are voluntarily paid, an action to recover them cannot be brought. All the requisites of a compulsory payment appearing in this case, judgment for the defendants was reversed and the cause remanded for further proceedings consistent with the opinion of the appellate court.—*Spalding v. City of Lebanon, Kentucky Court of Appeals*, 160 S. W., 751.

SALE OF UNDIVIDED INTEREST IN STOCK—BULK SALES LAW. The sale of a half interest in a stock of goods by a merchant for the purpose of taking the vendee into partnership is held to be within the purpose and reason of the Tennessee Bulk Sales Law (Acts 1901, c. 133), requiring that notice shall be given to creditors, etc., since it very materially changes the relation of the vendor's creditors to the stock, if such sale is valid. Before the sale a creditor could levy upon the whole stock. After the sale, if valid, the creditor could not levy upon any of the stock, but only upon the vendor's interest in the whole, and in order to obtain this he would have to file a bill in equity and have an accounting with the new partner. So the former owner of the stock might admit three new persons into the business, and so reduce his own holding to a one-fourth interest, and so on as to small fractions—at the same time putting the proceeds into his own pocket and holding them beyond the reach of his creditors.—*Daly v. Sumpter Drug Co., Tennessee Supreme Court*, 155 S. W., 167.

AGENCY CONTRACT OR ABSOLUTE SALE. Action was brought for goods sold and deliv-

ered, to recover for certain proprietary medicines alleged to have been sold by a proprietary medicine company to the defendant Bates. The defendant Eastgate guaranteed the contract. The plaintiff was the owner by purchase from the receiver of the medicine company. The vital question in the case was whether the contract, which was in writing and complete in itself, was a contract of absolute sale, making Bates liable, upon its termination, for the stipulated price of the goods which he ordered.

The contract recited a desire on the part of Bates to purchase of the medicine company, on credit and at wholesale prices, for the purpose of selling again to consumers, certain medicines and other goods manufactured or distributed by the medicine company, paying his account in installments as provided in the contract. Bates was to sell no other goods than those sold by the company, was to sell at retail prices fixed by the company, and was to pay on the basis of the wholesale prices fixed by the company. He was to remit to the company in cash each week an amount equal to one-half of the receipts of his business, of which he was to submit weekly reports. Upon the termination of the contract he was to settle in cash within a reasonable time the balance due the company on account. The company agreed to fill and deliver his reasonable orders, provided his account was in a satisfactory condition, and to charge current wholesale prices and to notify him promptly of any change in wholesale or retail prices. It agreed to pay any license fee required by the state or county. It agreed to furnish advertising matter, reports and other blanks. It agreed to give, free of charge, instructions and advice by letter, bulletins, and otherwise, as to the best method of selling products to consumers. Bates and his guarantor were to be released from the contract at any time by paying in cash the balance due the company on account. The contract was to continue so long only as his account and amount of purchases were satisfactory to the company. Concurrently with this contract it was agreed, by another contract in writing, that so long as Bates worked continuously selling the company's medicines it would not sell to anyone else to peddle in Cottonwood county, Minn., but if the contract was terminated the company might sell as if the agreement had not been made. The

so-called guaranty was a guaranty of "the honest and faithful performance of the said contract."

The court construed the contract not to be an absolute sale contract, making Bates liable for the wholesale price of merchandise unsold when the company terminated the contract, but to be in the nature of agency contract, notwithstanding that it did not expressly provide for a return of the merchandise unsold. Judgment for the defendants was therefore affirmed. The court stated that it had found no case construing a contract precisely like this one.—*Barkerville v. Bates, Minnesota Supreme Court, 143 N. W., 909.*

FOOD ORDINANCE—VALIDITY. A conviction was had under an ordinance providing that no unwholesome meat "shall be brought into this city or offered for sale." The statute under which the ordinance was passed (Board of Health, 2 Comp. St., 1910, p. 2063, 12), gives to local boards of health power to pass ordinances "to prevent the sale or exposure for sale" of meat unfit for food. The ordinance was therefore held, on appeal, not to be within the power conferred upon local boards of health excepting in so far as it prohibited the "offering for sale" of unsound food. The defendant was not charged or convicted of offering the meat for sale, but only for bringing it into the city, a prohibition that was held to be beyond the power conferred by the Legislature.

Whether an ordinance would be valid that prohibited the bringing into the city of unsound meat for the purpose of offering it for sale for human food was not considered by the court, as neither the ordinance nor the complaint under which the defendant was convicted made any such qualification. The conviction was set aside.—*Silverman v. Board of Health of City of Bridgeton, New Jersey Supreme Court, 88 Atl., 622.*

OVERREADING CREAM TEST—INTENT. An information charged the defendant with wilfully and unlawfully violating the Nebraska pure food law by overreading a test of cream purchased by him for commercial purposes. The statute (Comp. St., 1911, c. 33, 20), makes it unlawful for any person to "over-read or underread, or in any other manner make, announce or record any false or untrue test of either butter or cream." It was contended by the defendant that the information

was defective in failing to charge that the act was committed with the intent to defraud, that the result of overreading the test was to pay too much for the cream, and that the defendant did not cheat or intend to defraud anyone. It was held that the information was sufficient, intent not having been made by statute an element of the offense.—*State v. Thorp, Nebraska Supreme Court, 143 N. W., 202.*

REIMPORTATION OF REJECTED TEA. In a libel for the forfeiture of certain chests of tea rejected by the customs examiner and released and exported under the provisions of Act March 2, 1897, c. 358, 9, 29 Stat., 606 (U. S. Comp. st., 1901, p. 3197), being "an act to prevent the importation of impure and unwholesome tea," it appeared that the tea had, after rejection, been shipped to Canada and sold there and afterwards reimported into the United States. Section 9 of the statute provides that "no imported teas which have been rejected and exported under the provisions of this act shall be reimported into the United States under the penalty of forfeiture for a violation of this prohibition." It was held that any person offering tea for import is bound to know whether or not it has previously been offered and rejected, and if it has he cannot be relieved from the penalty of forfeiture because he did not in fact know but offered it in good faith.—*U. S. v. Twenty Chests of Tea, 298 Fed., 89.*

CLEANSING MILK BOTTLES. The New York Court of Appeals has affirmed the decision of the Appellate division in *People v. Frudenberg, 155 App. Div., 199, 140 N. Y. Supp. 17*, sustaining a conviction of having received milk bottles which had not been washed after holding milk. The proceedings were brought under New York City Sanitary Code, section 183, the last clause of which declares that no person shall receive or have in his possession any receptacle for the transportation of milk or cream which has not been washed after holding milk or cream. The ordinance was challenged by the defendant as being in violation of the Constitution, for the reason that that clause prevents the owner of a receptacle which has contained milk from reclaiming his property if the receptacle is unclean. It was held that the clause did not have this result, the word "or" being here equivalent to "and," but it cast upon the dealer retaking uncleaned milk bottles the burden of immedi-

ately cleansing the receptacle. The statute being designed to protect the public health, it was held that it should receive at the hands of the court a liberal interpretation. The expression "immediately" in the clause requiring bottles to be cleansed "immediately upon emptying" was construed to mean "forthwith," and as implying prompt and vigorous action and the statute was held to be a valid police regulation.—*People v. Frudenberg*, 103 N. W., 166.

FOOD—"ADULTERATED" OYSTERS—KNOWLEDGE AND INTENT. In a prosecution for violation of the federal food and drugs act by shipping from the state of New York to Pennsylvania 10 barrels of oysters, it was charged that the oysters were "adulterated" in that they "consisted in part of filthy, decomposed and putrid animal and vegetable substance." It was held that oysters, although shipped unopened as taken from the water, may come within the prohibition of the statute where by reason of the condition of the waters in which they are grown they contain harmful bacteria, which renders them "filthy, decomposed, or putrid," and therefore adulterated within section 7, subd. 6, of the act.

Section 2 of the act provides that the shipment or delivery for shipment in interstate commerce of any article of food or drugs which is adulterated or misbranded shall constitute a misdemeanor. It was held that it is no defense to claim that the person causing the violation neither knew at the time that the goods were offensive, nor intended to violate the law. Hence an allegation that the defendants knew that the article was adulterated, at the time that they intentionally and wilfully shipped it or caused it to be shipped, would apply only to cases where the adulteration had been placed in the goods by or with the knowledge of the shipper, or where an examination of the article had disclosed its presence. But Congress has gone much further, and in the exercise of its police power has imposed a penalty upon the sending of the deleterious or harmful substance, where the shipper is responsible for the act of sending, even though he may have nothing to do with the condition of the article sent, except as possession or ownership makes him responsible.

The ordinary use of the word "adulteration" implies an actual addition to the original substance, through human agency; but

as used in the food and drugs act, section 7, subd. 6, the meaning is not so restricted. If the adulteration of filthy, decomposed, or putrid substance has been added by nature, and is contained in the article to be shipped, it is adulterated in the eyes of the law.—*U. S. v. Sprague*, 208 Fed., 419.

MISBRANDING—"WINE." In proceedings for misbranding wine in violation of the federal pure food and drugs act, the defendant's shipments purported to be Rhine wines of the character known as Hockheimer and Diedesheimer, whereas the article in each instance was an Ohio manufactured product, and a mixture of wine and a fermented solution of commercial dextrose, or starch sugar. It was held that section 6 of the act, defining the term "food" to include all articles used for food, drink, confectionery, or condiment, by man or other animal, whether simple, mixed, or compound, applies to and includes wine. It was contended that section 8 of the act relating to misbranding is void for not establishing a standard for the various wines enumerated in the indictment. It was held that this contention would make it practically impossible for Congress to pass an act to correct the evils at which the statute is aimed, for the reason that it would be necessary, not only to amplify the act with very particular and minute definitions of standards, but to be constantly amending it and supplementing it as new devices and compounds were placed upon the market. The name "wine" is usually understood to mean the fermented juice of the undried grape. All that Congress can do is to pass a statute in general terms, using words of ordinary acceptance.—*U. S. v. Sweet Valley Wine Co.*, 208 Fed., 85.

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ABSTRACT OF TREASURY DECISIONS.

DRAWBACKS ON MEDICINAL PREPARATIONS, ETC. The following drawbacks on medicinal preparations, etc., have been allowed by the Treasury Department:

Prepared talcum powder designated as "Eutaska," manufactured by the Andrew Jergens Co. of Cincinnati, Ohio, with the use of imported talcum powder in conjunction with domestic ingredients. (T. D. 33582.)

Medicinal and toilet preparations and perfumes manufactured by the J. K. Watkins

Medical Co., of Winona, Minn., with the use of domestic tax-paid alcohol. (T. D. 33626.)

Alvatunder, manufactured by the Hisey Manufacturing Co., of St. Louis, Mo., with the use of imported cocaine. (T. D. 33629.)

Dr. S. P. Townsend's sarsaparilla, manufactured by the Nostrand Trading Co., of Brooklyn, N. Y., either with the use of imported alcohol or with the use of domestic tax-paid alcohol. (T. D. 33648.)

Atwood's Bitters, manufactured by O. H. Jadwin & Sons (Inc.), of New York, N. Y., either with the use of domestic tax-paid alcohol or imported alcohol. (T. D. 33672.)

Medicinal preparations, manufactured by Parke, Davis & Co., of Detroit, Mich., with the use of imported morphine, or its derivatives, codeine or cocaine, or the salts of the same. T. D. 33675.)

Various perfumes, manufactured by Richard Hudnut, of New York, N. Y., with the use of domestic tax-paid alcohol. (T. D. 33676.)

Medicinal preparations, manufactured by C. S. Littell & Co., of New York, N. Y., with the use of domestic tax-paid alcohol. (T. D. 33685.)

Medicinal preparations, manufactured by B. S. McKean, of New York, N. Y., with the use of domestic tax-paid alcohol. (T. D. 33713.)

Medicinal preparations, manufactured by McKesson & Robbins, of New York, N. Y., with the use of domestic tax-paid alcohol. (T. D. 33820.)

Prepared talcum powder, manufactured with the use of imported talc and toilet preparations manufactured with the use of domestic tax-paid alcohol by C. H. Selick, of New York, N. Y. (T. D. 33942.)

Medicinal preparations designated as Kickapoo Sagwa and Kickapoo Oil, manufactured by William R. Warner & Co., of Philadelphia, Pa., with the use of domestic tax-paid alcohol. (T. D. 33974.)

Medicinal preparations, manufactured by Peek & Velsor, of New York, N. Y., with the use of domestic tax-paid alcohol. (T. D. 33993.)

KAM WO TEA. Collectors are instructed that Kam Wo Cha, or Kam Wo Tea, is classed by the Secretary of Agriculture as a drug under the food and drugs act, and should be assessed with duty and should not be examined under the tea act of March 2, 1897. (T. D. 33910.)

MALT EXTRACT IN DRUMS. Paragraph 309, tariff act of 1909, imposes a duty of 45 per cent. ad valorem on malt extract when solid or condensed without regard to coverings and in whatever form it may be packed for shipment. (T. D. 33920.)

CRUDE OPIUM—DRIED OPIUM. Opium obtained by collecting in containers the sap of the poppy-seed pod and allowing it to stand until a percentage of the water in it evaporates, after which it is spread upon boards, exposed to the heat of the sun, and while being dried is manipulated and later cut into the form of cakes, is not "crude" opium, but is "opium, dried, * * * or otherwise advanced beyond the condition of crude," as provided for in paragraph 41, tariff act of 1909. G. A. 7001 (T. D. 30487, and U. S. v. Dauker (2 Ct. Cust. Appls. 522; T. D. 32251 distinguished (T. D. 33788—G. A. 7501).

CODEIN. Codein pays a duty as an alkaloid of opium under the language of paragraph 43, act of 1897, and paragraph 41, tariff act of 1909, whether manufactured from opium or synthetically from morphia. Abstract 5493 (T. D. 26218) followed, and the doctrine of that case extended to include codein synthetically prepared from morphia. (T. D. 3398—G. A. 7517.)



NOTICES OF JUDGMENT.

ADULTERATION AND MISBRANDING OF VANILLA EXTRACT BY SUBSTITUTING IMITATION. No. 2494. Herman Fuchs, New York, N. Y. Plea of guilty. Sentence suspended. New York. S.

No. 2592. Greenwich Supply Co., N. Y., N. Y. Condemnation by default. N. J.

No. 2617. Dr. Lowenthal, New Rochelle, N. Y. Condemnation by default. N. J.

No. 2625. Same. Same. N. J.

ADULTERATION AND MISBRANDING OF STRAWBERRY FLAVOR. No. 2495. Substitution of water, alcohol, sugar and artificial esters. Herman Fuchs, New York, Plea of guilty. Sentence suspended.

MISBRANDING OF HEADACHE TABLETS. No. 2578. Quantity of acetanilid overstated. Allaire, Woodward & Co., Peoria, Ill. Plea of guilty. Fine, \$10 and costs. Ill. S.

MISBRANDING OF LITHIA WATER. No. 2585. Artificially prepared. Berry Spring Lithia Water Co., Providence, R. I. Nolo contendere. Fine, \$20 and costs. R. I.

MISBRANDING OF CANDY. No. 2591. Syra-

Lukum, purported to be a foreign product. A. C. Castriotis and S. Vocos. Plea of guilty. Sentence suspended. New York. S.

ADULTERATION AND MISBRANDING OF VANILLA AND LEMON FLAVOR. No. 2609. Dilution. Dr. J. B. Lynas & Son, Logansport, Ind. Plea of guilty. Fine, \$200 and costs. Indiana.

ADULTERATION AND MISBRANDING OF EXTRACT OF FRUITED LEMON. No. 2618. Diluted with solution of lemon extract. Royal Mfg. Co., Kansas City, Mo. Plea of guilty. Fine, \$25 and costs. Missouri. W.

ADULTERATION AND MISBRANDING OF ORANGE EXTRACT. No. 2619. Diluted with terpeneless solution of orange extract. Royal Mfg. Co., Kansas City, Mo., Plea of guilty. Fine, \$50 and costs. Missouri. W.

Council Business

COUNCIL LETTER No. 8.

PHILADELPHIA, PA., Dec. 26, 1913.

To the Members of the Council:

Local Secretary Leonard A. Seltzer submits, on behalf of the Local Committee, the following tentative program for the Sixty-second Annual Meeting (August 24 to 29, 1914, inclusive):

Monday—

- 9.00 A. M. Meeting of the Council.
- 3.00 P. M. House of Delegates.
- 7.30 P. M. First General Session.
- 9.30 P. M. Joint Reception of the Presidents of the A. Ph. A. and M. S. P. A.

Tuesday—

- 9.30 A. M. Second General Session.
- 9.30 A. M. First General Session, M. S. P. A.
- 10.00 A. M. Ladies Shopping and Visiting, etc.
- 2.30 P. M. Women's Section.
- Scientific Section.
- Joint Sessions of Commercial Section and M. S. P. A.
- 7.30 P. M. House of Delegates.
- 7.30 P. M. Meeting of the Council.

Wednesday—

- 9.30 A. M. Section Education and Legislation.

- 9.30 A. M. Pharmacopœias and Formularies.

- 12.30 P. M. Luncheon College Alumni.

- 2.30 P. M. Section Practical Pharmacy and Dispensing.

- 2.30 P. M. Scientific Section.

- 4.00 to 6.00 P. M. Ladies' Reception.

- 7.30 P. M. Meeting of the Council.

Thursday—

- 9.30 A. M. Section Education and Legislation.

Joint Session Practical Pharmacy and M. S. P. A.

- 1.30 P. M. Excursion.

Friday—

- 9.30 A. M. Historical Pharmacy.
- Pharmacopœias and Formularies.

Women's Section.

Commercial Section.

- 2.30 P. M. Auto Ride.

- 8.00 P. M. Meeting of the Council.

Saturday:

- 9.30 A. M. Meeting of the Council.

- 10.30 A. M. General Session.

Do you approve of tentative program above submitted? This will be regarded as Motion No. 18. (*Approval of Tentative Program for 62d Annual Meeting.*)

In support of the program, as above outlined, Local Secretary Leonard A. Seltzer submits the following remarks:

"Enclosed herewith you will find tentative program which the local committee desires to submit to the Council for its approval. Later on we expect to make a few minor additions, such as entertainment for ladies, etc., but this will have no bearing on the program as presented.

The Michigan State Association has decided to hold its meeting in Detroit at the same time the meeting of the A. Ph. A. takes place. The local committee has encouraged this idea, believing that it will bring many men from the state to attend the meeting, who will thus become acquainted with our organization and its work, and we hope join with us. To help in accomplishing this purpose, the committee has therefore provided for two joint sessions with the Sections of our Association, and also a joint reception of the presidents of the two organizations. We sincerely hope that we have not taken unwarranted liberty in

this matter, and that our action will meet with your approval.

The program as presented has several features which are radical departures from former programs, and we desire to call your attention to them and give the reasons for recommending them.

First. We recommend that the Council, after the first day, hold its sessions in the evening.

Second. We have provided for two sessions for each Section except the Historical, and when simultaneous sessions are held, they have been selected with reference to their subjects so as to be least in conflict with each other.

Third. As a result of this arrangement, the evenings are all left open for Council meetings, adjourned sessions or pleasure.

The custom most strongly entrenched, and to change which requires good reasons for so doing, is the morning Council meetings. It is very evident that each year we have become more and more crowded for time, and this is *not all* due to the amount of business done, but almost entirely to the uneconomical use of time. One of the greatest obstacles to the economical use of our time is the meeting of the Council in the morning. The fact is, that even if its sessions were called on time, (which will never be) the Council could not possibly finish its business until well along in the forenoon. The fact, moreover, that the Council includes in its membership all the chairmen of the Sections, as well as the more active members of the Association, renders it impracticable to expect any session to be called until after it has adjourned. If the Council do not meet in the morning, the sections can be called earlier, and by means of an increased length of the morning sessions they will be able to complete their business in the two sessions allotted them.

We sincerely hope that the Council will see fit to give this proposal a trial for one year at least, and see whether it will not obviate difficulties under which we labor at present and which must find some solution in the near future."

General Secretary Beal, and Chairman Snow of the House of Delegates both approve of the change of the hour for Council meetings from the morning to the evening, except on the first day of the Convention, and of holding the first session of the House

of Delegates at the time hitherto devoted to the first General Session, the latter being dropped to the hour of 7.30 p. m.

This change would be made with the expectation that the greetings from other associations which send delegates will be delivered to the House of Delegates instead of, as heretofore, to the General Session, thus leaving much more time for the really necessary business that must come before the latter.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d St.

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COUNCIL LETTER No. 9.

PHILADELPHIA, PA., Dec. 31, 1913.

To the Members of the Council:

Motions No. 14 (Appropriation of \$25 for National Drug Trade Conference), No. 15 (Election of Members; applications Nos. 18 to 24, inclusive), No. 16 (Approval of Budget of Appropriations for 1914), and No. 17 (Appropriation of \$250 for Badges and Pin Buttons), have each received a majority of affirmative votes.

With reference to *Motion No. 18 (Approval of Tentative Program for the 62d Annual Meeting)*, Caswell A. Mayo votes affirmatively on the motion and writes, "I move that the 'Tentative Program for the 62d Annual Meeting' be published and criticism and comments be invited before final adoption." The motion is seconded by J. W. England. It will be regarded as *Motion No. 19 (Publication of Tentative Program for the 62d Annual Meeting)*.

Comments and criticisms on the Program should be sent to the Secretary of the Council, J. W. England, 415 N. 33d St., Philadelphia, Pa., and will be referred by him to the committee having the matter in charge—the General Secretary, Secretary of the Council and the Local Secretary.

Regarding the subject of Badges, L. E. Sayre writes as follows: "I would like to suggest that in the future all local badges should be abandoned except for the purpose of identifying the name of the individual who attends the meeting. Some arrangement should be made by which the individual name can be inserted in the local badge to promote acquaintanceship and the social features of our meetings. We come together partly to get acquainted with new men and to renew acquaintance of the old members. The

new Association badge should be considered as of the greatest importance and should be worn on occasions of our annual meeting."

The following communication has been received from Henry B. Floyd, Secretary of the Washington Branch of the American Pharmaceutical Association:

"To the President, and Members, the Council, American Pharmaceutical Association:

The following is a copy of a resolution made, and carried, at the meeting of the City of Washington Branch, American Pharmaceutical Association, held December 17, at Washington, D. C. I am directed to bring such resolutions to your attention by the vote of said Branch.

WHEREAS, It has been proposed to provide a permanent home and headquarters for the American Pharmaceutical Association, and

WHEREAS, Efforts have been made, and are now being made to secure the location of this permanent home or headquarters in several widely separated cities, and

WHEREAS, The American Pharmaceutical Association is an incorporated body under the laws of the District of Columbia, and is now operating under the general provisions of this incorporation; now,

Therefore, We, the members of the City of Washington Branch of the American Pharmaceutical Association would respectfully remind the officers and Council of the parent organization that there are many and weighty reasons for locating said permanent home or headquarters of the American Pharmaceutical Association in the City of Washington, in the District of Columbia.

It is proper to state that during the discussion of the resolution that the following reasons were strongly brought out: Washington is the political national center, but free from local politics: It is the true home of the parent organization: The Association officers would be in closer touch with national affairs: It is the most visited city in the Western Hemisphere: Its libraries are unequalled in the United States: Its museums are not to be found in other cities: It is the home of the Bureau of Chemistry of the Department of Agriculture, and all other government departments which exert controlling interests over pharmacy, and the pharmacist: Its publishing facilities are good, and Baltimore, one of the cheapest printing centers in the United States, is exceedingly convenient: It is the National Capital, and therefore, the local home for any national organization.

As an example of a national organization which has its publishing done in the City of Washington where its permanent home is located the National Geographic Society was

cited. There are other such organizations, but not of such national prominence.

Respectfully submitted,

HENRY B. FLOYD,

Secretary and Member of Council."

Washington, D. C., December 24, 1913.

Motion No. 20 (Election of Members).

You are requested to vote on the following applications for membership:

No. 25. Jacob Weinkauff, 600 5th Ave., Peoria, Ill., rec. by C. W. Patterson and M. A. Miner.

No. 26. Sidney Frederick Fieselmann, 1106 Perry Ave., Peoria, Ill., rec. by C. W. Patterson and M. A. Miner.

No. 27. Adolph M. Kishon, Sgt. Hosp. Corps, U. S. A., Post Hospital, Fort D. A. Russell, Wyo., rec. by Harry M. Jennings and Wm. B. Day.

No. 28. Albert August Muench, 608 N. Salina St., Syracuse, N. Y., rec. by George C. Diekmann and Clarence O. Bigelow.

No. 29. Edward Hoffmann, 4024 5th Ave., Brooklyn, N. Y., rec. by Hugh Craig and J. H. Rehfuess.

No. 30. B. E. Glockler, 4831 Liberty Ave., Pittsburgh, Pa., rec. by Herman G. Blank, Jr., and J. H. Beal.

No. 31. Milton J. Seeley, Room 217, Science Hall, Corvallis, Oregon, rec. by W. S. Hubbard and A. B. Stevens.

No. 32. William Scott Howson, Sergeant, First Class, Hospital Corps, U. S. Army, Camp E. S. Otis, Las Cascadas, Canal Zone, Panama, rec. by W. B. Day and A. H. Clark.

No. 33. Robt. A. Doyle, East Prairie, Mo., rec. by Jerome A. Wilkerson and H. M. Whelpley.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.



COUNCIL LETTER No. 10.

PHILADELPHIA, PA., January 21, 1914.

To the Members of the Council:

The Committee on Publication submit the following report:

At the Nashville (1913) meeting the following resolution was adopted by the Council and approved by the Association: "On motion of J. W. England, seconded by W. B. Day, the Committee on Publication was authorized to employ an advertising solicitor and assistant to the Editor of the JOURNAL, at a salary to be fixed by the Committee on Publication, subject to the approval of the Committee on Finance and the Council."

Since the annual meeting the Committee on Publication has given careful and

thorough consideration to the selection of the official authorized by the above resolution. Seven applications have been received. Several personal conferences of members of the committee have been held and the choice has finally crystallized.

The committee feels that while the assistant employed should assist the Editor in getting out the JOURNAL, and do such clerical work as might be referred to him by the General Secretary, his principal duty should be to secure advertising for the JOURNAL, and his title should be "Advertising Manager," instead of the cumbersome title "Advertising Solicitor and Assistant to the Editor of the JOURNAL," and the committee so recommends. The work of the Advertising Manager should be, of course, under the direction of the Editor and General Secretary, as it would be inexpedient to have more than one head for the management of the JOURNAL or the duties of the Secretary.

The consensus of opinion of the committee is that the Advertising Manager, working under the direction of the Editor and General Secretary, should be developed into a useful assistant and relieve that official of much of the executive details with which he is overburdened, so that he would have more time to devote to the larger work of the Association.

Acting under the authority of the Nashvill resolution, the Committee on Publication has elected Ernest C. Marshall as Advertising Manager to take effect as soon as arrangements can be made for him to move to Columbus, Ohio, and assume the duties of the office, at a compensation for services as given below; and asks your approval of its action.

The following plan of compensation has been agreed upon by the Committee on Publication:

"That the Advertising Manager be given an annual salary of fifteen hundred (\$1500) dollars, plus 20 percent for commissions on advertisements up to a maximum of one thousand dollars, and 10 percent on all advertisements he secures through outside solicitors working under his direction, to pay the latter. (The current advertisements in the JOURNAL or their renewals, do not, of course, enter into the calculations for commissions). In this way, the Advertising Manager could not receive more than \$2500 a year. On the other hand, the Association could receive,

if secured, about \$5000 more in advertisements, which, added to our present advertising receipts for the year (\$3600) would make about \$8600 a year, less \$1000 paid for commission, or a net total of \$7600, instead of \$3600, as at present.

The Committee on Finance approves the above plan of compensation for the Advertising Manager.

Ernest C. Marshall is a graduate of the Massachusetts College of Pharmacy and has been a trustee and vice-president of this corporation. He has been a student of pharmacy and pharmaceutical affairs for many years. He is a member of the American Pharmaceutical Association. He has had considerable business experience outside of pharmacy, having been institutions commissioner and penal institutions commissioner of Boston for several years; also a councilman of that city. As to his literary ability, he has written occasionally for newspapers, and has been the Boston correspondent of the N. A. R. D., and has written the New England letter for the JOURNAL of the A. Ph. A. He has written a number of news articles for different pharmaceutical journals. Regarding his advertising experience, he has been a solicitor of advertising for more than ten years, and is at present the advertising representative of the Journal of the N. A. R. D. for New England. He is a member of the Publicity Club of Boston, an organization composed of New England advertising men.

Mr. Marshall would accept the terms and conditions of employment agreed upon by the Committee on Publication.

The election of Mr. Marshall as Advertising Manager would be acceptable to Editor and General Secretary Beal.

It will be recalled that when the Committee on Publication reported favorably upon the publication of the monthly JOURNAL of the A. Ph. A., it recommended the engagement of a business manager to look after the advertising, as well as an editor to perform the strictly editorial duties. The desire of the committee to economize while the JOURNAL was going through the period of establishment was so strong that such an aid to the Editor was not provided. Dr. Beal has been permitted to bear all the burdens and detail of the publication, and the success of the JOURNAL is mainly due to his untiring energy and devotion to the interests of the Associa-

tion. The success of the JOURNAL is now assured, and it will be unfair to delay any longer the selection of a suitable assistant to look after the advertising and business interests. Dr. Beal's health should be conserved, and he should be relieved, as promptly as possible, of much of the worrying over details and carrying on the dual duties of Editor and business-getter.

The Committee on Publication expresses the hope, also, that, with increased success of the JOURNAL and the expected prosperity, the financial condition will, in the future, permit the employment of such additional assistance to the Editor as may become necessary. The immediate problem, however, is the employment of an Advertising Manager.

Respectfully submitted,

J. W. ENGLAND,
Chairman.

Do you approve of the report of the Committee on Publication, with its recommendations, and authorize the committee to employ Ernest C. Marshall under the conditions stated? This will be regarded as Motion No. 21 (*Approval of Report of Committee on Publication.*)

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St.

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UNITED STATES PUBLIC HEALTH SERVICE.

(List of changes of stations and duties of commissioned and other officers of the United States Public Health Service):

Austin, H. W., Senior Surgeon. Detailed to represent the Service at the National Conference on Race Betterment to be held at Battle Creek, Michigan, Jan. 8-12, 1914. Dec. 27, 1913.

Banks, C. E., Senior Surgeon. Granted 8 days' leave of absence from Dec. 14, 1913. Dec. 13, 1913.

White, J. H., Surgeon. Directed to proceed to St. Joseph, Mo., to make a sanitary survey of that city and to advise with the health authorities regarding the reorganization of their health service. Dec. 23, 1913.

McIntosh, W. P., Surgeon. Relieved from duty at Louisville, Ky., and directed to proceed to Portland, Me., and assume charge

of the Marine Hospital at that port. Dec. 15, 1913.

Wertenbaker, C. P., Surgeon. Directed to proceed to Charleston Quarantine Station on special temporary duty. Dec. 19, 1913.

Gardner, C. H., Surgeon. Granted 2 days' leave of absence from Dec. 25, 1913, under paragraph 193, Service Regulations. Dec. 24, 1913.

Lavinder, C. H., Surgeon. Granted 21 days' leave of absence from Dec. 21, 1913. Dec. 23, 1913.

Anderson, J. F., Surgeon. Reassigned to duty as Director of the Hygienic Laboratory, effective Oct. 1, 1913. Oct. 1, 1913.

Detailed to attend the annual meeting of the American Society for Experimental Pathology to be held in Philadelphia, Pa., Dec. 29-31, 1913. Dec. 22, 1913.

Fox, Carroll, Surgeon. Granted 2 days' leave of absence Dec. 26-27, 1913. Dec. 23, 1913.

Schereschewsky, J. W., Surgeon. Detailed to attend the seventh annual meeting of the American Association for Labor Legislation at Washington, D. C., Dec. 30-31, 1913. Dec. 29, 1913.

Directed to proceed to Youngstown, O., and make an investigation into the origin and prevalence of trachoma in that city. Also to Dayton, O., to inspect sanitary conditions in manufacturing establishments. Dec. 29, 1913.

McLaughlin, A. J., Surgeon. Granted 3 months' leave of absence without pay, from Jan. 1, 1914. Dec. 18, 1913.

Francis, Edward, Surgeon. Reassigned to duty as Assistant Director of the Hygienic Laboratory, effective Oct. 7, 1913. Dec. 16, 1913.

Granted 17 days' additional leave of absence from Dec. 12, 1913. Dec. 17, 1913.

Warren, B. S., Surgeon. Detailed to attend the seventh annual meeting of the American Association for Labor Legislation at Washington, D. C., Dec. 30-31, 1913. Dec. 19, 1913.

Foster, A. D., Passed Assistant Surgeon. Granted 7 days' leave of absence from Dec. 20, 1913. Dec. 20, 1913.

Frost, W. H., Passed Assistant Surgeon. Granted 2 days' leave of absence, Dec. 24-25, 1913. Dec. 23, 1913.

BOARDS CONVENED.

Board of medical officers convened to meet at the Bureau, Monday, January 12, 1914, at 10 o'clock a. m., for the examination of candidates to determine their fitness for appointment as Assistant Surgeon in this Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Assistant Surgeon R. A. Kearny, recorder. Dec. 27, 1913.

Boards of medical officers convened for the physical examination of applicants for appointment as Assistant Surgeons and for the presentation of questions for the written examination, to meet at 10 o'clock a. m., Monday, January 12, 1914, as follows:

Marine Hospital, New Orleans, La., Surgeon J. H. White, chairman; Assistant Surgeon T. J. Liddell, recorder.

Immigration Station, Ellis Island, N. Y., Surgeon L. L. Williams, chairman; Surgeon M. H. Foster, recorder.

Marine Hospital, San Francisco, Calif., Surgeon R. M. Woodward, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

Marine Hospital, Chicago, Illinois, Surgeon J. O. Cobb, chairman; Assistant Surgeon D. S. Baughman, recorder.

Marine Hospital, Chelsea, Mass., Surgeon H. W. Wickes, chairman; Assistant Surgeon Liston Paine, recorder.

Marine Hospital, St. Louis, Mo., Surgeon M. J. White, chairman; Acting Assistant Surgeon H. C. Wakefield, recorder. Dec. 19, 1913.

Wertenbaker, C. P., Surgeon. Granted 7 days' leave of absence from Jan. 1, 1914. Dec. 31, 1913.

Nydegger, J. A., Surgeon. Granted 1 month's leave of absence from Jan. 8, 1914, on account of sickness. Jan. 3, 1914.

Foster, M. H., Surgeon. Directed to proceed to Philadelphia, Pa., for the purpose of observing the Grattage operation for the cure of trachoma. Jan. 3, 1914.

Moore, Dunlop, Surgeon. Directed to proceed to Louisville, Ky., and report to Surgeon J. H. Oakley for duty in the examination of school children of Jefferson County. Jan. 5, 1914.

Korn, W. A., Surgeon. Granted 1 month's leave of absence, to be taken when the work of the station will permit. Jan. 6, 1914.

Boggess, J. S., Surgeon. Directed to su-

pervise the fumigation of the steamer Newlands at the wharves in Mobile. Jan. 5, 1914.

Guthrie, M. C., Passed Assistant Surgeon. Directed to proceed to Wheeling, W. Va., for the purpose of making a further examination of two aliens to observe the results of the Grattage operation for the cure of trachoma. Jan. 5, 1914.

Kolb, L., Passed Assistant Surgeon. Directed to proceed to Louisville, Ky., and report to Surgeon J. H. Oakley for duty in the examination of school children of Jefferson County. Jan. 5, 1914.

Safford, M. V., Assistant Surgeon. Directed to proceed to Worcester, Mass. for the purpose of making a further examination of an alien to observe the results of the Grattage operation for the cure of trachoma. Jan. 3, 1914.

Voegtlin, Carl, Professor of Pharmacology. Detailed to attend the meetings of the American Pharmacological Society and the American Physiological Society in Philadelphia, Pa., Dec. 29-31, 1913. Dec. 23, 1913.

Roth, G. B., Assistant Pharmacologist. Detailed to attend the meetings of the American Pharmacological Society and the American Physiological Society in Philadelphia, Pa., Dec. 29-31, 1913. Dec. 23, 1913.

BOARDS CONVENED.

Board of medical officers convened to meet at the Bureau for the preparation of questions for the written examination of Assistant Surgeon D. C. Turnipseed at Manila, P. I., to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Assistant Surgeon R. A. Kearny, recorder. Jan. 6, 1914.

Board of medical officers convened to meet at Baltimore, Md., for the re-examination of alien child Meyer Ewaschnitzki. Detail for the board: Senior Surgeon H. R. Carter, chairman; Surgeon J. A. Nydegger, member; Passed Assistant Surgeon J. T. Burkhalter, recorder.

(List of changes of stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ended January 14, 1914):

Glennan, A. H., Assistant Surgeon General. Granted 1 month's leave of absence from Jan. 19, 1914. Jan. 7, 1914.

Wertenbaker, C. P., Surgeon. Directed to

return to the Delaware Breakwater quarantine station and resume duties relative to detention of vessel at quarantine. Jan. 7, 1914.

Anderson, J. F., Surgeon. Directed to proceed to Providence, R. I., for the inspection of a case of typhus fever landed from an Italian steamship. Jan. 10, 1914.

Salmon, Thomas V., Passed Assistant Surgeon. Granted one year's leave of absence, without pay, Jan. 1, 1914. Jan. 5, 1914.

Bryan, W. M., Passed Assistant Surgeon. Granted 9 days' leave of absence from Dec. 25, 1913. Jan. 7, 1914.

Glanville, W. E., Assistant Surgeon. Granted 8 days' leave of absence, on account of sickness, from Jan. 3, 1914. Jan. 12, 1914.

Mitzmain, M. G., Technical Assistant. Directed to proceed from San Francisco, Cal., to Mobile, Ala., stopping at Washington, D. C., for conference, and report to the medical officer in charge of the Marine Hospital for duty in field investigations of the public health. Jan. 6, 1914.

BOARD CONVENED.

Board of Medical Officers convened to meet at Manila, P. I., for the examination of Assistant Surgeon D. C. Turnipseed to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Surgeon Victor C. Heiser, chairman. Jan. 9, 1914.

Official:

RUPERT BLUE,
Surgeon General.



MORAL ISSUES AND SELF INTEREST.

A strong tendency to moral arraignment blurs all intellectual issues in the minds of the very stupid. There are certain twisted minds * * * who always make a moral issue of their own interest. It sometimes seems as if they were really following their conscience through thick and thin, and as if their very goodness led them astray. If we look a little closer at their guide we shall see that it is not conscience at all. They have made long the phylacteries of self-interest and are indulging in a moral masquerade. How often do we hear the word "robber" flung about where questions of pure economic expediency are concerned, or a man called a traitor because his political ideal is not that of his opponents! A great deal of this injustice is the direct outcome of a tendency to push the moral issue to the front.—*London Spectator*.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or *type-written*.



BREHLER, OSCAR A.,
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To P. O. Box 375, Sanger, Cal.

BROWN, L. W.
From Ky. Exper. Station, Lexington, Ky.
To 425 Transylvania Park, Lexington, Ky.

BURDICK, ALFRED S.,
From 2148 Giddings Ave., Chicago, Ill.
To 4753 Ravenswood Ave., Chicago, Ill.

BURDICK, M. M.,
From 4846 W. Hermitage Ave., Chicago, Ill.
To 4846 N. Hermitage Ave., Chicago, Ill.

COLEMAN, JOHN,
From 2500 Chaplin, Wheeling, W. Va.
To 2500 Chapline, Wheeling, W. Va.

FOREMAN, LEROY,
From Philadelphia, Pa.
To 323 Market St., Trenton, N. J.

FRY, N. GEO.,
From 401 North Ave., Chicago, Ill.
To 421 R. North Ave., Chicago, Ill.

HASCHENBURGER, EDMUND, O.,
From 1200 O St., Lincoln Nebr., business address.
To 139 S. 25th St., Lincoln Nebr., residence address.

HENKEL, ALICE,
From Chevy Chase, Md.
To U. S. Dept. Agriculture, Washington, D. C.

HEINRITZ, L. G.,
From 128 South St., Holyoke, Mass.
To 16 Washington Ave., Holyoke, Mass.

HURLBERT, WM. A.,
From Providenttown Mass.
To Park Pharmacy, Wollaston, Mass.

JACKMAN, W. F.,
From Orono, Maine.
To Detroit Coll. of Medicine, Detroit, Mich.

- JOHNSON, MANUEL,
From 50 Obispo St., Havana, Cuba.
To 30 Obispo St., Havana, Cuba.
- KNOEPFEL, WM. H.,
From 951 Prescott Ave., Scranton, Pa.
To 967 Prescott Ave., Scranton, Pa.
- LEE, O. W.,
From Chicago, Ill.
To Residence Unknown.
- MCCAUSLAND, H.,
From 4879 E. Ravenswood, Chicago, Ill.
To 2703 N. Clark, Chicago, Ill.
- MCCONNELL, C. H.,
From 84 State St., Chicago, Ill.
To 122 N. State St., Chicago, Ill.
- MCMAHN, JOSEPH,
From 2737 E. 26th St., Sheepshead Bay, N. Y.
To 2755 E. 26th St., Sheepshead Bay, N. Y.
- MCMILLAN, D. N.,
From 494 Washington, Portland, Ore.
To Elks Club, Portland, Ore.
- MANN, CHAS. F.,
From 900 Woodward Ave., Detroit, Mich.
To 901 Woodward Ave., Detroit, Mich.
- MALTBIE, B. L.,
From 2501 High St., Newark, N. J.
To 250 High St., Newark, N. J.
- MILLER, F. WM.,
From Box 231, Homestead, Iowa.
To Drawer D, Homestead, Iowa.
- MURPHEY, E. G.,
From Las Vegas, N. Mex.
To East Las Vegas, N. Mex.
- OATES, HENRY E.,
From 695 Fifth Ave., New York, N. Y.
To 658 Ninth Ave., New York, N. Y.
- ORTON, I. F.,
From 402 Security Bldg., Galveston, Tex.
To 401 Security Bldg., Galveston, Texas.
- RODGERS, EDW. J.,
From 927 Military, Port Huron, Mich.
To 1217 Pine Grove, Port Huron, Mich.
- RAYMOW, THOS. F.,
From 559 Coney Island Ave., Brooklyn, N. Y.
To 265 Nostrand Ave., Brooklyn, N. Y.
- ROSENTHAL, DAVID A.,
From Gay and Clinch St., Knoxville, Tenn.
To 521 Gay St., Knoxville, Tenn.
- RILEY, JOHN A.,
From Brooklyn, N. Y.
To 355 W. 123d St., New York, N. Y.
- STRAWN, MAY,
From Waynesville, Ohio.
To 565 St. Aubin Ave., Detroit, Mich.
- SEYFERT, PAUL,
From Thiensville, Wis.
To Bredentown, Fla.
- STEVENS, GRANT W.,
From 170 Michigan Ave., Detroit, Mich.
To 339 Woodward Ave., Detroit, Mich.
- SWEET, CALDWELL,
From 22 Main St., Bangor, Maine.
To 26 Main St., Bangor, Maine.
- SCHIFF, LUDWIG,
From 200 S. Los Angeles St., Los Angeles, Cal.
To Care Western Wholesale Drug Co., Los Angeles, Cal.
- SACCAR, MICHAEL,
From Lays Drug Store, Hallettsville, Texas.
To City Drug Store, Hallettsville, Texas.
- TOCO, ORAZIO,
From Brooklyn, N. Y.
To 95 Chrystie St., New York, N. Y.
- WAGNER, ARTHUR C.,
From 231 Belmont St., Everett, Mass.
To 11 Pierce Ave., Everett, Mass.
- WATSON, JOSEPH R.,
From 300 18th Ave. N., Seattle, Wash.
To 330 18th Ave. N., Seattle, Wash.
- WOOD, JOHN W.,
From Newport, R. I.
To 69 Shipwright St., Annapolis, Md.

HOUND'S TONGUE FOR THE BANISHMENT OF RATS.

According to the *Veterinary Record*, which quotes a German paper, the common hound's tongue, *Cynoglossum officinale*, is a certain agent to secure the banishment of rats. The plant is found on rubbish heaps, in fields, etc. The purple flowers have an unpleasant odor. The freshly dried plants drive away rats by their odor, and, when strewn in a place infested by the rodents, are said to cause the immediate departure of the animals. Stuffing the rat holes with the plants will cause the rats to migrate further and more completely, it is said.—*Pharmaceutical Journal (London)*.

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OVERDOING COÖPERATION.

UNDER the stress of cut prices on proprietary articles, the increase of physicians dispensing and the multiplication of medicaments that can be profitably produced only in large establishments, many retail druggists have been lead to experiment with various cooperative plans for manufacturing or purchasing a portion of their supplies, for procuring fire insurance, and for other services by which they hoped to either reduce their overhead expenses or increase their profits on sales, or both.

The object was to substitute the old individualism, with its motto of "every fellow for himself, and the devil take the hindmost" (which he usually did), by the new plan of joining effort, capital and initiative, and mutually sharing the resulting benefits.

Some few of these cooperative enterprises have been conspicuously successful, and through wise and economical management have developed into institutions of considerable size and have accumulated resources that insure their continuance and responsibility. They have given their cooperating shareholders real and substantial service, have enabled them to reduce the fixed charges of doing business, have added to the margin of profit on goods sold, and in short have justified the faith of their founders by accomplishing exactly what they set out to do.

So well established as part and parcel of the retail drug business have some of these institutions become that no one is likely to challenge their right to existence as long as they deal justly with retailers who are non-stockholders, and with the other established branches of the legitimate drug trade, and provided also that they are true to label, and are not merely cooperative around the edges for the profit of a few thrifty individuals near the center of control.

Numerous others of these enterprises have been equally conspicuous as fail-

ures, either because their management was entrusted to the loudest talkers or most enthusiastic of their members, who endeavored to make noise and enthusiasm take the place of adequate capital and sound business judgment, or because of various other reasons that need not be mentioned.

As in gold mining and other hazardous enterprises, however, the many failures have been forgotten and only the few successes are remembered. The possibility of success in a properly conducted cooperative undertaking having been demonstrated, the movement in that direction has been greatly accelerated, and the rush of druggists to connect themselves with cooperative schemes of all kinds once more illustrates the common tendency of men to go in droves, and to do what other men are doing.

The doubting Thomases who refused to have anything to do with the original undertakings while they were in the experimental stage have swung from over-caution to over-confidence and are fairly falling over one another in their anxiety to connect themselves with anything that looks like a cooperative enterprise or that is labeled as such by its promoters.

Many of these are foredoomed to failure, and many of those which do not fail absolutely, to a precarious existence. They must glean in a field that has already been passed over by the earlier concerns, and in order to gain a foothold will need to put forth far greater efforts than were required of their predecessors.

Not only will their own success be problematical, but they will jeopardize the success of the existing concerns, for whether intended by their founders to be competitive or not, they must from force of circumstances become direct competitors of those already in the field, and to that extent diminish the opportunities for the successful continuance of the latter.

This is overdoing cooperation. It is traveling back over the road to the competition of individualism, to escape the evils of which the cooperative movement was inaugurated, for there is nothing to distinguish excessive competition between cooperative societies from excessive competition between partnerships, corporations or other kinds of commercial units.

Nor does it appear that this excessive multiplication of cooperative enterprises is at all necessary in order to serve the retailer in the way that cooperation is intended to serve him. The essential quality of true cooperation is not to earn excessive dividends on stock, but to secure reliable and economical service for the stockholder.

If it is necessary to become a stockholder in order to secure the service desired, the retailer can still procure stock in the established concerns, and even if required to pay a much higher price for it than when it was in the experimental stage the price, in most cases, will be no more than its original cost plus accumulated earnings, and hence the purchaser is getting all he pays for, without the risk which the original investor was required to assume.

Certainly it would be better, far better, to have a comparatively limited number of sound and conservatively managed concerns with widely distributed stock and ample surplus, and able to render certain and adequate service, than a multitude of small concerns of limited capital, giving slender and uncertain services and

of questionable responsibility, and liable by their failure to bring the entire co-operative movement into disrepute.

It is a problem well worth pondering over.

It is possibly an old fashioned and out-of-date theory, but until I learn of stronger reasons against it than any I have yet heard, I shall hold to the faith that the best cooperation, and that which will best serve the drug trade as a whole is that wherein the manufacturer, the jobber and the retailer, while co-operating within their respective classes for their own profit shall also cooperate honestly and heartily with each other for the welfare of all.

J. H. BEAL.



A CRITICISM OF AMERICAN MEDICAL EDUCATION.

SEVERAL years ago Abraham Flexner, working under the auspices of the Carnegie Institution, made a report upon the conditions prevailing in the medical schools of this country that proved to be a disagreeable surprise to those of us who had flattered ourselves that American medical educational methods were on a par with the best of European models.

In a recent number of the *Atlantic Monthly*, (Nov., 1913) he returns to the charge, and under the caption, "The German Side of Medical Education," makes a comparison of German and American medical schools that is far from flattering to the institutions of the Western Continent.

Of the German institutions he has little to say that is not complimentary, while of the American schools his remarks are almost wholly condemnatory, though here and there he admits that a few American institutions are not as bad as most of the others, and that in recent years there are some slight signs of improvement.

Speaking of the possibility of sampling the American system as a whole, he says:

"It is even a question whether such a hodgepodge as American medical education is really capable of being sampled or represented at all."

Referring to the fact that our students go to Germany and that German students do not come to us, and the reason for this one-sided movement we read that:

"Until, however, eager foreigners begin to flock to American schools for the purpose of continuing their studies, it is extremely likely that the one-sided movement of American students to Germany will be construed by laymen to mean that they find something there which is not found with equal ease and in equal abundance in the medical schools of their own land.

"To what is this superiority, if such it be, due? It is to be attributed in the first place to the fact that a wise and powerful government has drawn a sharp line below which no medical school can live."

Admitting that there are differences in quality among German institutions he comes perilously near to saying that even the worst of them are equal to our best, as for example:

"But for us the important point is that the differences never cut below a cer-

tain well-marked and lofty level. In respect to the educational qualifications of its students, in respect to the intelligence and capacity of its teachers, in respect to general laboratory and clinical facilities, every medical school in Germany surpasses and far surpasses, what any state in America lays down as the minimum requirement. There is, I repeat, no uniformity; but not in all Germany is there a feebly equipped or a feebly manned medical school, or a heterogeneous body of medical students. How high the minimum standard is in all these respects I will try to make clear by stating that on the minimum standard on which a medical school can live in Germany, over three-fourths of the medical schools of the United States and Canada would be at once stamped out of existence."

In speaking of American state supervision of medical education we are told that:

"The only American state which possesses a department of education somewhat resembling that of a German state is New York. The home of the Department of Education in Albany is rather more imposing than that of the Prussian Department of Education in Berlin; and the New York department also has large powers. The difference is that the Prussian department uses its powers and the New York Department, despite improvements in recent years, does not; in the city and state of New York, medical schools still exist which are utterly incapable of fulfilling respectably the purpose for which they purport to have been established; and schools in other states are recognized, despite equal or greater defects. That is to say, in the one American state in which an agency has been created for the maintenance of a decent minimum, the decent minimum is not yet maintained; still less so in other states."

Discussing the German student's liberty of choice of studies, or what we term the elective system, it is said that:

"A nation of educational 'spoon-feeders,' such as, alas, we in this country are, may well stand aghast at this free-and-easy treatment. I am myself inclined to think that the German arrangement is needlessly chaotic and wasteful; but I have no quarrel with the full responsibility which it throws upon the already well-disciplined medical student. The German instructor is not a probation officer dealing with children in their early twenties. He provides a rich and abundant fare. He could not provide this rich and abundant fare if his strength had to be exhausted in police duty, in quizzing, drilling, and marking. The two things of course hang together. Where there are well-trained students, there may in the years of maturity come full responsibility. If the student body were incompetent, the university professor would have to degenerate into a 'school marm,' as is frequently the case in our country."

How the American schools check the student's liberty of action at the wrong time, and also overload him with a burden of required subjects that he is unable to bear is set forth as follows:

"I am not concerned now to criticise these arrangements. I wish simply to draw attention to them by way of contrasting them with the martinet spirit which prevails the moment his liberal education is completed and the student begins to attack a subject in which he is really interested. That is the moment that we Americans select for tying him hand and foot: once he enters the medical school,

he is, for the most part, committed to a four years uniform grind, precisely as if it were known just what he ought to learn and as if the curriculum-makers knew it. The necessary subjects and parts of subjects are specified, as is the number of hours that he must devote to each. Routine is so exacting that the average medical student is not quite equal to it, and the better student is quite used up by it. Instead of furnishing opportunity and stimulus for development, the American medical school closes down upon the enterprising student, long inured to academic freedom, with an exhausting and depressing uniformity.

"This phenomenon is closely connected with another previously pointed out. Our laws—or their lax enforcement—permit the continued existence of weak medical schools. The public interest demands that their graduates be as well trained as possible. The states have endeavored, by precise specifications as to what the student must be taught, how and how long, to force inherently poor schools to be better than it is in their nature to be. Some poor schools have been thereby made so uncomfortable that they have desisted; a few have improved slightly; but the good schools have been harmed, and medicine and medical science have been deprived of initiative and originality. The Germans, surveying our situation, taunt us good-humoredly; they recall our pride in being a 'practical people.' 'Would not a truly practical people reach the end by forbidding the incompetent rather than by crippling the competent?' I have been frequently asked."

In discussing the hampering arrangements between hospitals and our medical colleges, and the alleged improvement in this respect in recent years we are told that:

"To no small extent, the improvement is as yet mainly on paper. More serious still, our clinical heads—mainly unproductive men—are far from hospitable to young workers. Where the chief is not himself a productive scientist, obvious considerations make it inexpedient for him to open the doors wide to ambitious and original advanced students.

"The truth is that the clinical teacher in the German sense hardly exists as yet in America at all. As contrasted with Germany, American teaching of medicine, surgery, and obstetrics, and so on, cannot properly be called professional teaching. Our professors of the clinical subjects, with exceptions so few as to be numerically negligible, are practitioners who make no effort to create the scientific or academic atmosphere and environment characteristic of the German clinic. The university spirit is missing in the clinical half of the American medical school. Let us not deceive ourselves on this score. We are paying the price of long-continued and still-continuing exploitation of clinical teaching."

In connection with the same subject, and illustrating the eagerness of medical practitioners for professorial dignities it is related that:

"An amusing example of total incapacity to appreciate the ridiculous has recently been furnished by a New York institution. In order to avoid being lowered in classification by the Council of Education of the American Medical Association, certain influential members of this medical faculty undertook to introduce certain improvements,—itself a situation which could not arise in Germany. The university authorities refused to carry out the bargain, whereupon the members in question resigned. Did this affect the school? Not a bit. The vacant

places were at once filled with practicing doctors. I venture to say that the incident could be repeated indefinitely, and the faculty kept full none the less.

Mr. Flexner accounts for the superiority of German methods of medical education as follows:

"The essential features which have contributed to the greatness of German medicine may then be concisely formulated as follows: First, the high minimum level of organization and equipment, below which the government will permit no medical school to live; second, the prolonged and serious secondary-school training which is absolutely, without exception, exacted of every student in the medical faculty; third, the freedom of the German university, which gives the professor the strength and leisure to work and encourages the capable student to do more than the minimum requirements of the curriculum for graduation; finally, the high respect in which the practising profession holds the teaching profession, and the custom of calling teachers freely from university to university."

If American medical education is ever to reach the level of the German standards we are told that:

"Those schools which cannot now meet them, or soon hope to meet them, ought not to be allowed to go on contributing their quota of immature and ill-trained practitioners to a medical profession whose general average is already probably below the lowest to be found in any other great modern nation."

It will be remembered that several years ago some rash individual proposed to the American Conference of Pharmaceutical Faculties that it should invite the Carnegie Institution to make an examination of the American schools and colleges of pharmacy. The invitation was not extended; but should such an examination ever be made—and should Mr. Flexner draw up the report—we may look for what the late Mr. Horace Greely would have termed "some mighty interesting reading."

J. H. BEAL.



PREPARING FOR THE SIXTY-SECOND MEETING.

PLANS have been pretty well decided upon now for the Detroit meeting of the American Pharmaceutical Association. The meeting will be held on the week beginning Monday, August 24. The Hotel Pontchartrain will be the headquarters. This hotel is admirably suited to the purpose.

It has a convention floor up at the top of the building, with eight or ten rooms of various sizes, thus being well adapted to an organization like the A. Ph. A., which is split up into so many sections and auxiliaries of one kind and another. Furthermore, the convention floor of the Pontchartrain is so high up that it is away from the dirt and noise of the street on the one hand, and on the other is subjected to the cooling breezes from the river.

The Detroit meeting, indeed, is going to be delightfully cool and pleasant. Detroit is not at all like the usual American city—hot and stuffy in the summer. It is located on the Great Lakes, gets the benefit of the water breezes, and is furthermore a city of great beauty and charm. Thousands of people go to Detroit annually to spend their summer vacations instead of frequenting the

customary resorts. It is a city that everybody wants to visit who hasn't already seen it, while the man who has seen it is not satisfied until he can return to it again.

Many delightful features are planned for the convention. There will, of course, be the customary reception and ball on Monday evening. On Wednesday, from 4 to 6, there will be a reception for the ladies. The afternoon and evening of Thursday will be devoted to a boat-ride tendered by Parke, Davis & Co., and many of the attractive spots will be viewed that have helped to make the environs of Detroit so noted. On Friday there will in all probability be an auto-



HOTEL PONTCHARTRAIN, DETROIT.
Official Headquarters of the 62d Convention.

mobile ride to the parks and to the famous shore drive around Lake St. Clair. Other contemplated entertainments are a smoker for the men, and either a theater party or a ride to Bois Blanc Island for the ladies. Of course smaller entertainments for the ladies will be sandwiched in all through the entire week.

Detroit has come to be a great manufacturing center—famous in three particulars. In the manufacture of drugs, stoves and automobiles Detroit unquestionably leads the world. It may be that some of those in attendance upon the convention will want to visit industrial plants in various lines. Thus, for instance, ten or fifteen people may want to go through the Ford or the Cadillac or the Packard automobile factory. Others may want to visit the Solvay Process



SCENE IN BELLE ISLE PARK, DETROIT.



DETROIT BOAT CLUB, BELLE ISLE PARK, DETROIT.

Works or any one of a hundred other interesting places in the city. It is expected that arrangements will be made for a number of small trips of this kind if sufficient interest is shown by the members. It is up to them. If you are interested please write now to the local secretary so that he may get an idea of what is wanted. Address your letter to Leonard A. Seltzer, 32 Adams West, Detroit, Mich.

It may be interesting to state, too, that certain reforms are going to be inaugurated at the Detroit meeting in the conduct of the convention business. All the sessions will be held in the day time, and the evenings will be left free for rest, recreation and enjoyment. The Council, only, will meet at that time, and this will give a chance for the Sections to begin their work in the morning promptly at 9:30. Mr. Seltzer, the local secretary, is working out a plan of bulletin-boards so that a member who is sitting in one Section may know what is going on in others at the same time, thus making for a maximum of interest. Promptness will be exercised all along the line, and there is every expectation that the Detroit meeting will be a hummer!



THE A. PH. A. BUTTON.

AT the Nashville meeting, the production of a distinctive American Pharmaceutical Association button was authorized. The design selected is a gilt edged button having a shield in blue enamel edged with gold on a white field with gilt letters A. Ph. A. in English text across the shield.

This button should be worn by all members of the Association and will serve as an introduction to fellow-members. It should become the insigne of the professional standing of pharmacists.

The buttons made in double gold plate with rolled gold shoe and hard enamel will be supplied to members at 25c apiece. A limited number of 8 carat gold buttons have been ordered and these will cost the members \$1.00 apiece.

Every member should promptly order one of these buttons and wear it on every convenient occasion. Specify whether you want the backing to be the regular screw or a jewellers catch pin. Send all orders to

Dr. Henry M. Whelpley,
Treasurer American Pharmaceutical Association,
2342 Albion Place, St. Louis, Mo.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

COMPARATIVE ACTIVITY OF VARIOUS SPECIES AND VARIETIES OF DIGITALIS.

F. A. MILLER, M. S. AND W. F. BAKER, B. S., M. D.

But few of the many species and varieties of the genus *Digitalis* have been examined for comparative toxicity, Paschkis (1) claims that *Digitalis ambigua* contains the same constituents as *Digitalis purpurea* and that the medicinal properties of the two are the same. Goldenberg (2) concludes that all species exert the same action on the heart of a frog as the infusion of *Digitalis purpurea*, but differ considerably in the energy of their action. He says that *Digitalis eriostachys* and *Digitalis glandulosa* are only slightly active and that *Digitalis fontanesii* is extremely feeble. *Digitalis nervosa* he finds to be 1.5 times and *Digitalis ferruginea* even 10 times more active than *purpurea*. This is indeed a small number of species upon which to formulate conclusions for a genus consisting of twenty-three or more species and numerous varieties. Boudgest (3) has examined *Digitalis grandiflora* which is synonymous with *Digitalis ambigua* and says that it possesses activity as a cardiac remedy which is fully equal to that of *Digitalis purpurea*.

This leaves a large number of species and horticultural varieties which have not been investigated for comparative medicinal value. For this reason as well as to gain more information upon the effects of cultivation, soils, geographical distribution and time of collection it was thought desirable to examine samples of as many species and varieties as could be obtained. Only samples from plants grown under uniform conditions and from seed of known source were used in the experiment. Catalogues from the most prominent seedsmen and nurserymen of the United States, England, Germany, and Japan were examined and all the species and varieties listed by them were obtained for planting. The first of these plantings were made as early as December, 1911, and the others extended through January, February, March, and April of 1912.

All seed were germinated in the greenhouse in seed pans filled with sterile soil. Other precautions were taken to guard against accidental mixture of seed. The small seedlings were transplanted to flats as soon as the second leaves had made their appearance. They were retained in the greenhouse in these plant flats until weather conditions would permit of their being transferred to cold-frames. Transplanting from the cold-frames to the open field commenced May 10th and continued without interruption until all plants were transferred. All varieties were grown in the same field upon a uniform soil consisting of clay loam. Cultivation was thorough, frequent, and continued throughout the growing season.

With few exceptions the various forms were grown in uniform plots of one fortieth acre, requiring two hundred and sixty-four plants each. Leaves for the purpose of testing were collected seven months from the date of seed germination. The last collections were made September 19th. With two exceptions all samples were collected from non-flowering plants. The samples consisted of all the leaves from ten representative plants of each plot. These were dried either at room temperature or in a hot air oven at one hundred degrees centigrade. They were immediately reduced to a number sixty powder and sealed in amber bottles until tested. The following table gives the species or variety, source of seed, date of germination, manner of curing, and effective dose as obtained by the frog-heart method of Cushny.

ARRANGED ACCORDING TO NATURAL OR BOTANICAL RELATIONSHIP.

	<i>Species or Variety.</i>	<i>Source of Seed.</i>	<i>Germination.</i>	<i>Manner of Drying.</i>	<i>Effective Dose.</i>
Digitalis	purpurea.....	Watkins & Simpson, England..	12-1-11	100° C.	0.0009
"	purpurea.....	From wild plants, Oregon....	12-14-11	Room temp.	0.0009
"	purpurea alba.....	A. T. Boddington, New York.	2-15-12	100° C.	0.0005
"	purpurea rubra.....	A. T. Boddington, New York.	2-15-12	Room temp.	0.00045
"	purpurea rosea.....	A. T. Boddington, New York.	2-15-12	Room temp.	0.0004
"	gloxiniæflora purpurea.....	A. T. Boddington, New York.	2-10-12	Room temp.	0.00045
"	gloxiniæflora lilicina.....	A. T. Boddington, New York.	2-14-12	100° C.	0.0005
"	gloxiniæflora rosea.....	A. T. Boddington, New York.	2-15-12	Room temp.	0.0006
"	gloxiniæflora rosea.....	Henry A. Dreer, Philadelphia.	1-19-12	100° C.	0.0006
"	gloxiniæflora alba.....	A. T. Boddington, New York.	2-15-12	Room temp.	0.0019
"	alba.....	Watkins & Simpson, England..	12-1-11	100° C.	0.0007
"	monstrosa.....	Watkins & Simpson, England..	2-15-12	100° C.	0.0008
"	monstrosa.....	Henry A. Dreer, Philadelphia.	2-15-12	Room temp.	0.00055
"	gloxinioides.....	Horsford's Nurseries, Vermont	2-16-12	Room temp.	0.00045
"	maculata iveryana.....	A. T. Boddington, New York.	1-25-12	100° C.	0.0005
"	ivery's spotted.....	D. M. Ferry & Co., Michigan.	3-11-12	100° C.	0.00085
"	purpurea maculata superba..	Ernest Benary, Germany.....	4-1-12	Room temp.	0.0005
"	mixed.....	J. A. Salzer, Wisconsin.....	3-18-12	100° C.	0.00075
"	sp.....	Yokohama Nursery Co., Japan.	3-18-12	100° C.	0.0009
"	sibirica.....	Horsford's Nurseries, Vermont	12-28-11	100° C.	0.00055
"	buxbaumii.....	Ernest Benary, Germany.....	4-1-12	Room temp.	0.0005
"	gloxiniæflora lutea.....	A. T. Boddington, New York.	2-13-12	100° C.	0.0005
"	lutea.....	Ernest Benary, Germany.....	4-1-12	100° C.	0.00065
"	macranthus.....	Ernest Benary, Germany.....	4-1-12	100° C.	0.0008
"	macranthus (flowering).....	Ernest Benary, Germany.....	4-1-12	100° C.	0.0005
"	ambigua.....	Horsford's Nurseries, Vermont	12-29-11	100° C.	0.00055
"	ambigua (flowering).....	Horsford's Nurseries, Vermont	12-29-11	100° C.	0.0006
"	grandiflora.....	Henry A. Dreer, Philadelphia.	2-19-12	100° C.	0.0009
"	lanata.....	Horsford's Nurseries, Vermont	12-28-11	100° C.	0.0004
"	lanata.....	A. T. Boddington, New York.	2-19-12	100° C.	0.0003
"	canariensis.....	Watkins & Simpson, England..	1-15-12	100° C.	0.0005

The foregoing table shows a variation of 84 percent in the effective dose as determined for the thirty-one samples. With few exceptions closely related forms show little uniformity in toxicity. The varieties which have originated from the species purpurea (Numbers 1 to 19) show a variation of over 75 percent. Contrary to all expectations the highest value was obtained from lanata, a species, quite distinct from purpurea. Gloxinia flora alba a purpurea strain gave the lowest value. Eighty-three percent of the total number of samples tested indicate a greater toxicity than the official purpurea. Compared with average digitalis leaf, 55 percent of this number exceed the commercial article as indicated by the effective dose.

With two exceptions all samples were collected from non-flowering plants. These exceptions were the synonymous forms, ambigua and macranthus, from which it was possible to collect samples from both the flowering and non-flowering plants. Macranthus shows a greater toxicity in the flowering stage while ambigua shows practically the same value for both the flowering and non-flowering plants. It is of interest to note that the species purpurea from England, Ore-

gon, and Japan have the same indicated value. The Japanese form which was supplied as *Digitalis* sp. proved upon flowering, to be one of the purest forms of *Digitalis purpurea* under investigation.

In this respect there is much uncertainty as to the nomenclature of the *purpurea* group and many of the varieties now recorded will doubtless be reduced to synonymy. Many of these varieties consist of a conglomeration of types which must be isolated and cultivated as pure strains before they will possess further value for experimental purposes.

The narrow leafed forms, represented by such species as *canariensis ambigua*, *lutea*, and *lanata* have been found true to name and reproduce themselves in pure stand. Synonymy also exists in this group but the classification will be easier than in the broad leafed forms. A thorough systematic investigation of the whole genus will be necessary before further work can be done upon the comparative medicinal value of the various species and varieties.

In conclusion it may be pointed out that accurate botanical investigations should precede or accompany any comparative investigations of this group of plants; that the results indicate that good digitalis leaf may be obtained from the first year flowerless plants; that cultivation in itself does not lessen toxicity and, that valuable forms other than *purpurea* may be found among the many species and horticultural varieties not hitherto investigated.

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DEPARTMENTS OF BOTANY AND EXPERIMENTAL MEDICINE, ELI LILLY & COMPANY, Indianapolis, August, 4th, 1913.

INFLUENCE OF HEAT AND METHOD OF STORING UPON THE POTENCY OF DIGITALIS LEAVES.

CHAS. C. HASKELL AND F. A. MILLER.

Two points of much interest to the pharmacist and to the physician are the most desirable methods of curing and preserving digitalis leaves.

It is important to know whether the use of a moderately high degree of temperature is permissible, because, if such be the case, rapid drying can be accomplished and the theoretical, injurious enzyme destroyed and dependence upon favorable atmospheric conditions can thus be obviated.

Hart³ finds that subjecting the leaves to an "excessive temperature" caused a loss in activity of 25 percent. Unfortunately, he does not state what this temperature was. Hale², using dried leaves (moisture content of about 10 percent), concluded that the strength of the leaves, as determined by Cushny's method, is unaffected by a temperature up to 120° C., but that a temperature of 140° C. for two hours has an injurious action.

Our experiments were carried out upon leaves from conservatory grown plants of *Digitalis gloxiniaeflora*. These plants were eight months old when tested, and in some instances a sufficient supply of leaves was secured from each plant to

enable us to carry out all comparative tests on a single plant, thus eliminating the possibility of variation due to individual plant differences.

The leaves, after drying were reduced to No. 60 powder and tinctures were made, using 75 percent alcohol as a menstruum. These tinctures were tested by Cushny's frog method and in a few cases the lethal dose for guinea pigs also was determined. In testing upon guinea pigs, the alcohol was not removed.

EXPERIMENT I.

Digitalis Gloxiniaeflora, Single Plant.

No.	Dried at	Frog Assay.	Guinea Pig Assay.
B-1115	120° C. 4 hours	0.0055	0.002 0.0025
B-1116	50° C. 24 hours	0.0055	0.0030
B-1117	35° C. 5 days		
	40° C. 3 hours	0.0050	0.025

EXPERIMENT II.

Digitalis Gloxiniaeflora, Single Plant.

No.	Dried at	Frog Assay.
B-1124	120° C. 12 hours	0.0065
B-1128	80° C. 5 hours	0.0065

The frog heart assays of these samples give values near those secured with similar samples of *Digitalis purpurea*. The extremely high toxicity for guinea pigs is explainable by the menstruum used. It has been our experience that an alcoholic menstruum of 75 percent enables the percolation of a tincture much more toxic for guinea pigs but not much stronger on frogs than one made with 50 percent alcohol.

From these experiments, it seems safe to conclude that a temperature of 120° C. applied to green leaves causes no greater loss in toxicity or ability to influence the frog's heart than does a temperature of 40° C.

There is apparently little agreement as to the keeping qualities of dried digitalis leaves exposed to the air. Focke¹ claims that one month is sufficient time for a considerable loss in strength to occur when the leaves are exposed to the air and contain more than 1.5 percent moisture. Pratt⁵ reaches somewhat similar conclusions. Hale² on the contrary, finds that leaves containing from 5.8 to 9.4 percent moisture are very active at the expiration of one, two, three and eight years, respectively. Hatcher and Eggleston⁴, also, have been unable to see that digitalis leaves from three to five years old are any less potent than fresh samples.

Our own experiments bearing on this point have extended over only one year, but it seems that the additional evidence they present justifies their being reported.

The remainder of sample B-1124, which had been dried at 120° C. for twelve hours and gave a frog value of 0.0065 was divided into two portions, B-1129 and B-1130. These two portions were placed in wide-mouthed amber bottles, one being carefully stoppered and sealed with paraffin, while the other was closed with a loosely-fitting plug of absorbent cotton.

EXPERIMENT III.

Digitalis Gloxiniaeflora, Single Plant.

No.	Method of Storage.	Original Assay.	Assay 12 Months		Moisture.
			Later.		
B-1129	Open Bottle	0.0065	0.006		5.43
B-1130	Sealed Bottle	0.0065	0.006		2.31

The remainder of sample B-1128, dried at 80° C. for five hours, which originally tested 0.0065, was divided into two portions, B-1131 and B-1132, and stored in a manner similar to that described above.

EXPERIMENT IV.

Digitalis Gloxiniaeflora, Single Plant.

No.	Manner of Storage.	Original Assay.	Assay 12 Months		Moisture Content.
			Later.		
B-1131	Open Bottle	0.0065	0.0055		6.04
B-1132	Sealed Bottle	0.0065	0.0060		2.83

A third sample was secured by collecting leaves from several different plants of *Digitalis gloxiniaeflora*. These leaves were dried at 30° to 55° C. for twenty hours; reduced to a No. 60 powder and gave a value of 0.006. Two lots were stored as in the preceding experiments.

EXPERIMENT V.

Digitalis Gloxiniaeflora, Several Plants.

No.	Manner of Storage.	Original Assay.	Assay 12 Months		Moisture Content.
			Later.		
B-1134	Open Bottle	0.006	0.006		5.92
B-1133	Sealed Bottle	0.006	0.006		4.76

From these experiments, it is safe to conclude that in one year no deterioration occurred in our samples of leaf, irrespective of the manner of storage, even when the moisture content was as great as 6.04 percent.

In some instances, a higher value is secured on the second assay than was obtained on the fresh leaf. This is to be explained by the limits of experimental error inherent in the assay method, as in all except one case, this difference does not amount to 10 percent.

DIGITALIS LEAF.

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DEPARTMENTS OF EXPERIMENTAL MEDICINE AND BOTANY, ELI LILLY & Co., Indianapolis, Ind.

INFLUENCE OF SOIL COMPOSITION ON MEDICINAL PLANTS.

F. A. MILLER, M. S.

Observations upon the influence of soil composition on medicinal plants have been made by several investigators. These observations have indicated that certain variations may occur in the percentage of active principles when the growing plants are subject to different soil conditions. Agriculturists have long recognized the influence of soil composition upon crop production. Their methods of measuring this influence, however, have differed from those employed with medicinal plants. Results have usually been determined by amount of total crop produced and not by chemical and biological assay. Recently some work has been done upon the chemical determination of certain constituents such as oil,

sugar, and protein, as a means of following this influence. A combination of these methods would be essential to the best results with medicinal plants.

Hooper (1) demonstrated this fact by his work upon Jalap. He found that by using superphosphate at the rate of 1600 pounds per acre, he could bring about an increase in the dry weight of tubers produced as well as an increase in the percentage of resin. While the increase in resin by this treatment was only 24 percent the increase in dry weight was 86 percent. Other investigators have given more attention to percentage of active principles than to crop production.

Carr (2) contends that although the addition of manure to a soil already suited to the growth of belladonna is no disadvantage and may be slightly beneficial, yet where large quantities of nitrogenous fertilizers are employed somewhat lower percentages of alkaloid are observed. This condition he attributes to the larger growth which results from such manuring. The author does not summarize his results with farmyard manure, nitrate, calcium cyanamide, basic slag, superphosphate, and potash. He concludes, however, by saying that in whatever latitude belladonna is grown, it will doubtless be found that the composition of the soil, the use of fertilizers, and seasonal conditions make for small variations. During the four years that he continued his experiment the results were not taken uniformly according to the fertilizers used.

Ransom and Henderson (3) have studied the effect of kainit, superphosphate, sodium nitrate, potato mixture, basic slag, and combinations of these upon yield of green weight and percentage of total alkaloids in belladonna. In their conclusions they state that although they have not obtained sufficient evidence that the percentage of alkaloid in the dried leaf is materially altered by artificial manures, it would appear that in several cases the yield of green plant per acre has been largely increased. They further state that it would also appear that in the case of belladonna it is useless to hope that the drug shall possess anything approaching uniformity in medicinal potency, even when carefully collected and dried. It would seem that we are entirely too young in this work to make predictions of what the future may or may not disclose. The possibilities of obtaining uniformity in cultivated belladonna have hardly been touched upon and will not be known until the numerous problems of propagation and breeding have been thoroughly investigated. No efforts worthy of mention have as yet been made to produce a strain or variety of belladonna which will exhibit a uniform yield of alkaloids.

Chevalier (4) records data indicating an increase of nearly 60 percent of total alkaloids in belladonna when treated with nitrogenous fertilizer in combination with manure. Acid phosphate and potash produced no increase.

Tschirch (5) makes the broad, general statement that an increase in the amount of valuable constituents has been affected in the case of almost all cultivated plants.

To gain more information upon the influence of soil composition upon medicinal plants, experiments have been performed, using digitalis, stramonium, and belladonna. These experiments have been performed both in the open field and in the greenhouse with various commercial fertilizers and soils of different mechanical mixture. Precautions have been taken to secure uniform conditions in selecting locations of plots and in the collection and curing of samples.

Digitalis. The plants for this experiment were grown from seed obtained in Oregon from wild plants. They were germinated December 8th, 1911, in the greenhouse, transplanted to flats and retained in the greenhouse until March 19th, 1912, when they were transferred to cold frames of double glass construction. Strong, hardy plants were thus obtained, eight hundred and seventy-five of which were used in the experiment. These were transplanted to the open field May 10th, 1912. Clean cultivation was practised throughout the summer. The plot was located in an apple orchard between two rows of trees upon a soil which had been cropped to potatoes for several consecutive years without fertilization. The plot was divided into six equal parts and the fertilizers applied at the rate of six hundred pounds per acre. The nitrate of soda was divided into three equal portions and applied at intervals of two weeks. The fertilizers were not applied until the plants were well established. They were then distributed by hand as uniformly as possible about the plants of each plot and immediately worked into the soil by cultivation. Mixed samples were collected for assay in early September, 1912, and cured at 100° centigrade. The following table gives the fertilizers used and the comparative results as obtained by the one hour frog heart method for assaying digitalis leaf.

Plot No.	Sample No.	Fertilizer Used.	Assay.
1.....	B-1232	Nitrate of Soda.....	0.0065
2.....	B-1233	Sulphate of Potash.....	0.0062
3.....	B-1234	Normal Fertilizer.....	0.0060
4.....	B-1235	Acid Phosphate.....	0.0062
5.....	B-1236	Nitrate of soda, Sulphate of potash (equal parts).....	0.0060
6.....	B-1237	Control	0.0062

Little or no effect can be attributed to the use of these commercial fertilizers upon digitalis. This is evident from the fact that the difference in the comparative value of the samples from the different plots as indicated by the above figures is less than the possible experimental error.

Stramonium. The effects of a normal fertilizer upon the percentage of total alkaloids in stramonium when applied at the rate of 600 pounds per acre have been previously noted (6). The average results obtained are repeated below.

DATURA STRAMONIUM.

No Fertilizer.	Fertilizer.	No Fertilizer.	Fertilizer.
0.50%	0.61%	0.60%	0.64%

DATURA TATULA.

No Fertilizer.	Fertilizer.	No Fertilizer.	Fertilizer.
0.49	0.54	0.62	0.68

Belladonna. It is not only desirable to know the effects of commercial fertilizers upon medicinal plants but also the effects of various types and mixtures of soils. Only in this manner can the growth requirements of these plants be determined and their cultivation intelligently recommended. An open field experiment was performed upon first year belladonna plants using sodium nitrate, potassium sulphate, acid phosphate, and a normal fertilizer. The plants were started in the greenhouse March 8, 1912, from seed taken from a commercial shipment of crude belladonna leaves, assaying 0.62 percent total alkaloids. All

fertilizers were applied July 15, when the plants had reached a height of from twelve to twenty inches. They were applied by hand as uniformly as possible and immediately worked into the soil by cultivation. The total amount of sodium nitrate used was divided into three equal portions and applied at intervals of two weeks. All the fertilizers used were applied at the rate of six hundred pounds per acre. No commercial fertilizer other than stable manure had been used upon these plots for a period of at least twelve years. The samples for assay were collected September 19, 1912, from representative plants of each plot. The following results were obtained:

FIRST EXPERIMENT.

Plot No.	Sample No.	Fertilizer Used.	ASSAY.	
			Leaves.	Root.
1.....	B-1258	Sodium Nitrate.....	0.699%	0.510%
2.....	B-1259	Potassium Sulphate.....	0.858%	0.504%
3.....	B-1261	Acid Phosphate.....	0.911%	0.380%
4.....	B-1260	Normal Fertilizer.....	0.835%	0.575%
5.....	B-1262	Control	0.688%	0.420%

The results of the first experiment indicate that marked changes may be produced in the percentage of alkaloids through the application of certain commercial fertilizers. However, sufficient data have not been obtained to justify any statement concerning the regularity of these changes. It is not known whether the changes indicated are due to the direct or indirect action of the fertilizers and what their influence would be when applied to different types of soils, under varied climatic and meteorological conditions. The extent of the error as introduced by individual plant variation in an experiment of this kind is also not known but must be considerable. Ten individual plants from this plot showed a variation of 50 percent. True (7) in examining individual plants has found this variation to be as much as 70 percent.

Disregarding this possible source of error, the increase in percentage of total alkaloids in the leaf as indicated by these trials is 20 percent for potassium sulphate, 24 percent for acid phosphate, and 18 percent for the normal fertilizer, the sodium nitrate causing no change. The increase in the root is 18 percent for sodium nitrate, 17 percent for potassium sulphate, 27 percent for the normal and a decrease of 9 percent for acid phosphate.

To further test the effect of sodium nitrate and acid phosphate upon percentage of alkaloids another experiment has been performed upon second-year plants. It was hoped in this experiment to eliminate the factor of individual plant variation in percentage of alkaloids. To accomplish this, fifteen uniform plants were selected and marked with conspicuous tags. These were divided into three groups of five plants each, leaving considerable space between each of the three groups. All weeds were removed from around these plants and the soil thoroughly cultivated and pulverized. Before applying any fertilizer, samples were collected from the three groups of plants. In collecting these samples care was taken to obtain an equal number of leaves from each plant of a given group, and that these leaves should be of uniform size. This same procedure was followed in collecting the samples after the fertilizers had been applied. In this manner and by the utilization of the same plants throughout the

experiment it is believed that the individual characteristics of the plants have been obviated and that the results should be more accurate than where no attention is given to the proportion of samples from different plants or to the utilization of identical plants throughout the experiment. After the original samples were collected plots number 1 and 2 were given a liberal application of sodium nitrate and acid phosphate, respectively. Plot number 3 received no fertilizer. After an interval of two weeks plots 1 and 2 were given a second application. At the end of another two weeks period samples were collected for assay in the manner designated. At this time the fifteen plants were removed from the soil and the principle roots from all plants of each group were taken for assay. At the beginning of the experiment a root sample was taken from three plants which were growing near the control group. Rain occurred after both applications of fertilizers thus insuring immediate availability.

SECOND EXPERIMENT.

Samples collected before applying fertilizers.

Plot No.	Sample No.	Fertilizer Used.	Assay Leaf.	Assay Root.
1.....	B-1624	Potassium Nitrate.....	0.558%	
2.....	B-1625	Acid Phosphate.....	0.569%	
3.....	B-1626	Control	0.598%	
	B-1627	Control, 3 plants.....		0.385%

Samples collected after applying fertilizer.

Plot No.	Sample No.	Fertilizer Used.	Assay Leaf.	Percentage Increase in Leaf.	Assay Root.
1.....	B-1712	Potassium Nitrate.....	0.724%	23%	0.345%
2.....	B-1713	Acid Phosphate.....	0.742%	23%	0.345%
3.....	B-1714	Control	0.724%	18%	0.322%

The results indicate a considerable increase in the percentage of alkaloids in the leaf samples from all plots. The percentage increase in the fertilized plots is but little greater than that in the control. Practically no change is indicated in the alkaloidal content of the root samples.

The third experiment upon belladonna was carried on in the greenhouse with soils of widely different types. The plants used in the experiment were obtained by vegetative propagation from individuals of known alkaloidal yield. These individual plants were field grown and were selected at random. Cuttings were made from them and placed in a propagating bed filled with sand. As soon as strong roots were developed the plants were potted in two-inch pots, using a loam soil. They were later transferred to four-inch pots. December 16, 1912, they were removed from these and after all soil was carefully washed from the roots they were placed in six-inch pots which had previously been filled with the different types of soils. In addition to the potted plants, ten were grown on a greenhouse bench, filled with rich fibrous loam.

All the plants made very poor growth during the winter, due to the low temperature of the greenhouse which was essential to the success of propagating work, being done at that time. The experiment was brought to a close September 7, 1913, and on account of their small size it was necessary to use the entire plants for assaying. The proportions of root to stem and leaves were about the same in all cases. On account of the presence of roots in the assay samples the

results would be expected to run lower than those of the original plants. The soils used in the experiment were as follows:

- No. 1. From field in which original plants were grown.
- No. 2. Equal parts clay and No. 1.
- No. 3. Equal parts clay and sand.
- No. 4. Equal parts clay and leaf mould.
- No. 5. Leaf mould.

The clay was obtained from an excavation eight feet below the top soil. Sand was used in number 3 to improve the physical condition of the clay. The leaf mould consisted of well decayed vegetable substance obtained from a woodlot of mixed growth.

The following table gives the number of the original plants from which the vegetative cuttings were made, soil and sample numbers, percentage of total alkaloids as determined upon leaf samples from the original field grown plants. All numbers of the same denomination in the first column refer to the same original plants from which the cuttings were made. A complete series from each of these original plants was started in the different soils but many of them were lost before the completion of the experiment.

The results indicate a considerable decrease in percentage of alkaloids in all plants examined, regardless of soil treatment. Even when grown upon the same soil as the original plant the decrease has been as great as from 20 percent in

THIRD EXPERIMENT.

Number.	Soil Number.	Sample Number.	Assay.	Assay, Original Plant.
10	1	B-1664	0.351%	0.820%
10	2	B-1665	0.373%	0.820%
10	4	B-1666	0.364%	0.820%
13	3	B-1667	0.351%	0.870%
13	4	B-1668	0.382%	0.870%
13	5	B-1669	0.323%	0.870%
13	Bench	B-1670	0.498%	0.870%
13	Bench	B-1671	0.396%	0.870%
13	Bench	B-1672	0.477%	0.870%
14	1	B-1673	0.441%	0.664%
14	2	B-1674	0.365%	0.664%
14	Bench	B-1676	0.383%	0.664%
15	1	B-1677	0.283%	0.600%
15	Bench	B-1678	0.471%	0.600%
15	Bench	B-1679	0.501%	0.600%
15	Bench	B-1680	0.442%	0.600%
16	1	B-1681	0.412%	0.516%
16	Bench	B-1682	0.398%	0.516%
16	Bench	B-1683	0.436%	0.516%
17	1	B-1684	0.454%	0.616%
17	2	B-1685	0.404%	0.616%
17	3	B-1686	0.370%	0.616%
17	4	B-1687	0.412%	0.616%
17	Bench	B-1688	0.373%	0.616%

number 16, to 57 percent in number 10. Where two or more plants from the same individual parent were grown in the uniform soil on the greenhouse bench a variation is noted of from 9 percent in number 16, which is only slightly greater than the experimental error, to 20 percent in number 13. On the other hand, such widely different soils as number 1 and 4 produced a difference in alkaloidal

yield of only 4 percent in plants from number 10, and 9 percent in those from number 17, and 8 percent on soils 3 and 5 in plants from number 13. After allowing 5 percent for experimental error there is little difference in favor of soil influence in the foregoing instances. The results as a whole indicate that further work is necessary on the influence of soil composition upon medicinal plants, before any generalizations can be made. The second experiment indicates that seasonal variations in alkaloidal percentage may have to be investigated more thoroughly. In this instance the percentage of alkaloids in the control plants increased nearly as much as in the fertilized plants. Also the influence of the two fertilizers, though apparently slight, seem to be identical with reference to the percentage of alkaloids. It is believed that there have been considerable sources of error in most of the work upon soils and fertilizers. It is desirable in this respect to first locate these sources of error and then attempt to eliminate them before proceeding further upon the problems of soil composition.

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BOTANICAL DEPARTMENT, ELI LILLY & Co., Indianapolis, August 16, 1913.

FURTHER STUDY OF THE ALKALOID GELSEMININE.

L. E. SAYRE.

In previous papers read before this Section by the writer on the alkaloids of Gelsemium, it will be seen that there has been a progressive study of the uncrystallizable alkaloid, named by Thompson, Gelseminine.

The attempt has been to bring this alkaloid into such a state of purity that it will be available for making an ultimate chemical analysis.

The present year's work has been that resulting from an investigation of the alkaloids from 50 pounds of the crude drug. From this 50 pounds, there was obtained in an unpurified condition 21.5 gms. of Gelsemic acid, 75.7 gms. of crude Gelsemine and 36.4 gms. of crude Gelseminine, making in all 112.1 gms. of crude alkaloids and 21.5 gms. of crude Gelsemic Acid.

The effort in the present year's investigation was to purify the gelseminine for physiological testing and for the comparison with the alkaloid gelsemine. It should be stated in passing that hitherto we have found it very difficult to rid gelseminine absolutely from the contaminating impurity, gelsemine. We have found the separation of the two alkaloids to be made more complete by treating the crude gelseminine hydrochlorid first with alcohol which separates out most of the gelsemine hydrochlorid. The alcoholic extractive resulting from the evaporation of the alcoholic filtrate is now re-dissolved in acetone and a further separation of gelsemine hydrochlorid is possible.

By treating the extract resulting from the evaporation of the acetone solution of gelseminine hydrochlorid with water and precipitating the solution

with a slight excess of ammonium hydroxide, the precipitate, after washing, is dissolved in diluted sulphuric acid, and re-precipitated with ammonium hydroxide and the resulting precipitate washed until free from sulphates. This precipitate, when dried in a desiccator was a light brown powder apparently free from resinous and gummy material. This was the product mentioned in the physiological experiments in the following paper.

Since Dr. Chillingworth's experiments, we have been able to further purify gelseminine and we have separated this substance into two parts,—one more highly colored and weaker, the other very much lighter and stronger in physiological action.

During the next year, we shall continue this investigation and have strong hopes of bringing the so-called gelseminine into such a state of purity that it may be analyzed for its elementary chemical constituents.

The gelsemine used by Dr. Chillingworth was a purified product resulting from the purification of the alkaloid obtained from this year's lot of drug. It was perfectly white, and apparently free from any of the uncrystallizable coloring matters or uncrystallizable alkaloids.

PHYSIOLOGICAL STUDY OF GELSEMINE AND GELSEMININE.

F. P. CHILLINGSWORTH, M. D., PHARMACOLOGIST, UNIVERSITY OF KANSAS.

In this paper I will adhere strictly to the physiological action of the alkaloids of gelsemium. For the chemistry and preparation of these active principles consult F. A. Thompson,¹ L. E. Sayre,² E. D. Reed,³ Kimberly, Robertson and Vanderkleed,⁴ and L. E. Sayre.⁵

We will first take up the physiological actions of gelsemine and gelseminine in detail and later will draw our conclusions.

Throughout these experiments two standard solutions were used (one of the active principle gelsemine and the other of the active principle gelseminine) so made that one cubic centimeter of the solution equalled .001 gram of the alkaloid.

Our results though not extensive enough to serve as a basis for far reaching conclusions, nevertheless are of enough importance perhaps to add to the observations of others, and we hope suggest certain lines of experimentation which might be followed up to good advantage.

The two standard solutions referred to above were prepared for us by Prof. L. E. Sayre, Dean of the School of Pharmacy at the University of Kansas. This being the first time that the two alkaloids of Gelsemium have been successfully isolated in the pure state.

The literature on the action of these alkaloids is very confusing and unsatisfactory. Prof. C. Binz, of Bonn, is by far the clearest on this subject and we cannot do better than to quote in brief: "Gelsemium paralyzes the motor centers of the brain as well as the respiratory center in the medulla oblongata. Sen-

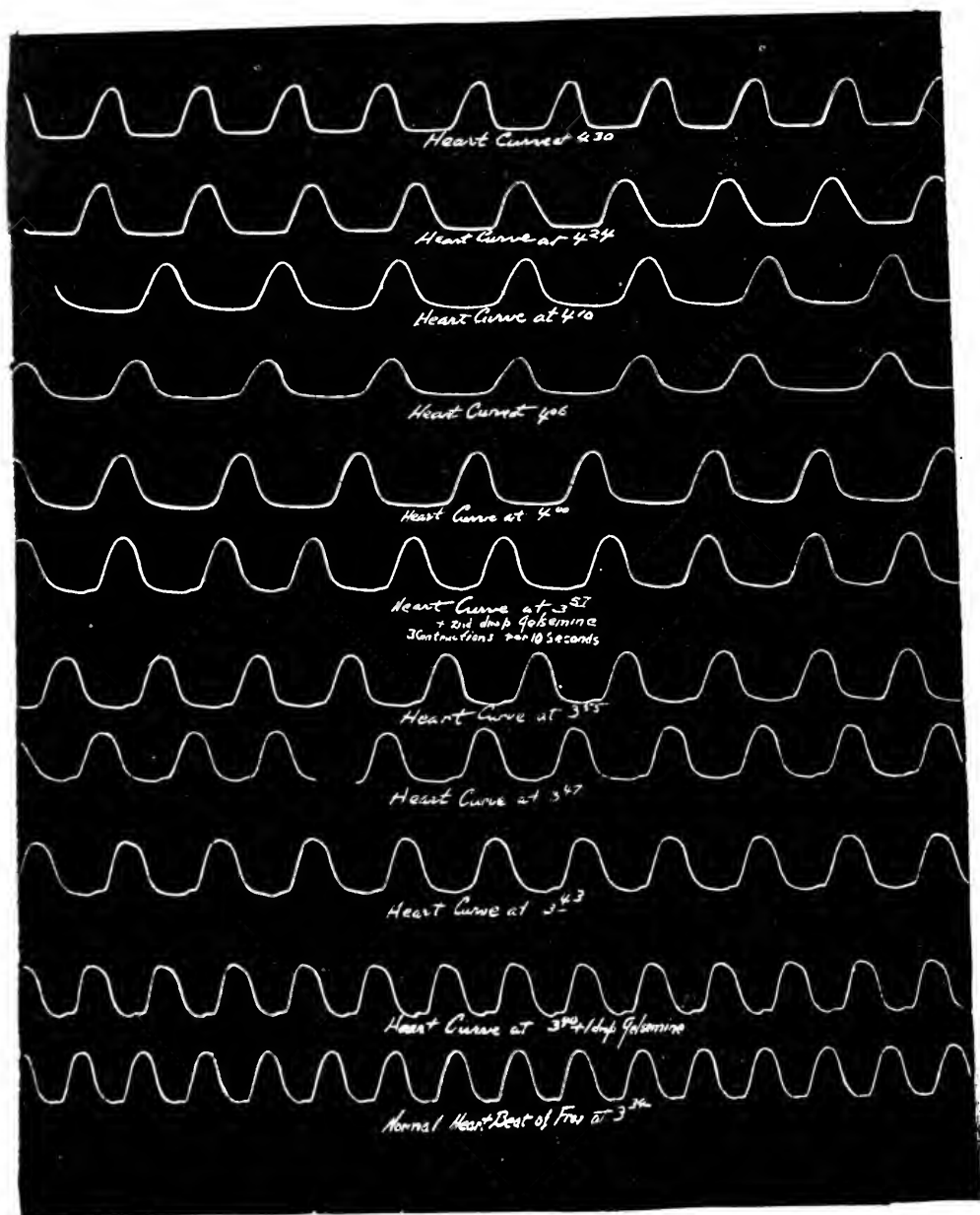
¹Thompson, F. A.: *Phar. Era*, 1887, page 2.

²Lloyd Library: Sept., 1910.

³*Proc. A. Ph. A.*, 1908, page 855.

⁴*Jour. A. Ph. A.*, 1912, April.

⁵*Jour. A. Ph. A.*, 1912, May.



EXPERIMENT NO. 1.

sibility remains intact, and the irritability of the muscles and the motor nerves is retained. Death is produced by paralysis of respiration." Bartholow states that, "Gelsemium dilates the pupils owing to paralysis of the circular fibers."

Recently Prof. Sayre contends that the actions of these two alkaloids are not the same and that the action of one often masks the action of the other.

Experiment No. 1. Frog—weight 35 grams. Showing the true action of the alkaloid gelsemine upon the frog's heart.

Time	Rate	Remarks
3.34	60	Normal.
3.40	60	One drop of gelsemine applied to the heart.
3.43	52	Gradual slowing with increasing diastole, systole still complete.
3.47	50	No marked change.
3.55	46	Heart continues to slow.
3.57	44	Second drop of gelsemine applied.
4.00	36	Here is best seen the action of this alkaloid.
4.06	30	Slowing most marked at this time, systole less complete—diastole prolonged.
4.15	36	Beginning recovery of tone of heart. Rate picking up.
4.30	46	Shows continued recovery of heart from gelsemine.

This experiment shows the typical action of gelsemine, it also shows that its action is not as intense as that of gelseminine—in other words the alkaloid is not as powerful. It is to be noted that here we employed two (2) drops of the preparation to get definite results. Also the absolute recovery of the heart (in about twenty-five minutes suggests that the action is not lasting.

Experiment No. 2. Frog—weight 37 grams. Showing the true action of the alkaloid gelseminine upon the frog's heart.

Time	Rate	Remarks
2.20	65	Normal.
2.24	60	One drop of gelseminine applied to the heart, note immediate slowing.
2.27	54	Slowing more marked.
2.31	50	Systole failing, diastole more marked.
2.35	48	
2.40	40	Tendency to stay in diastole.
2.45	28	Here we find the heart dropping a beat. Rate and output much decreased.
2.47	24	
2.52	20	
2.54	18	Typical gelseminine action.
2.59	14	Characteristic pauses between systole.

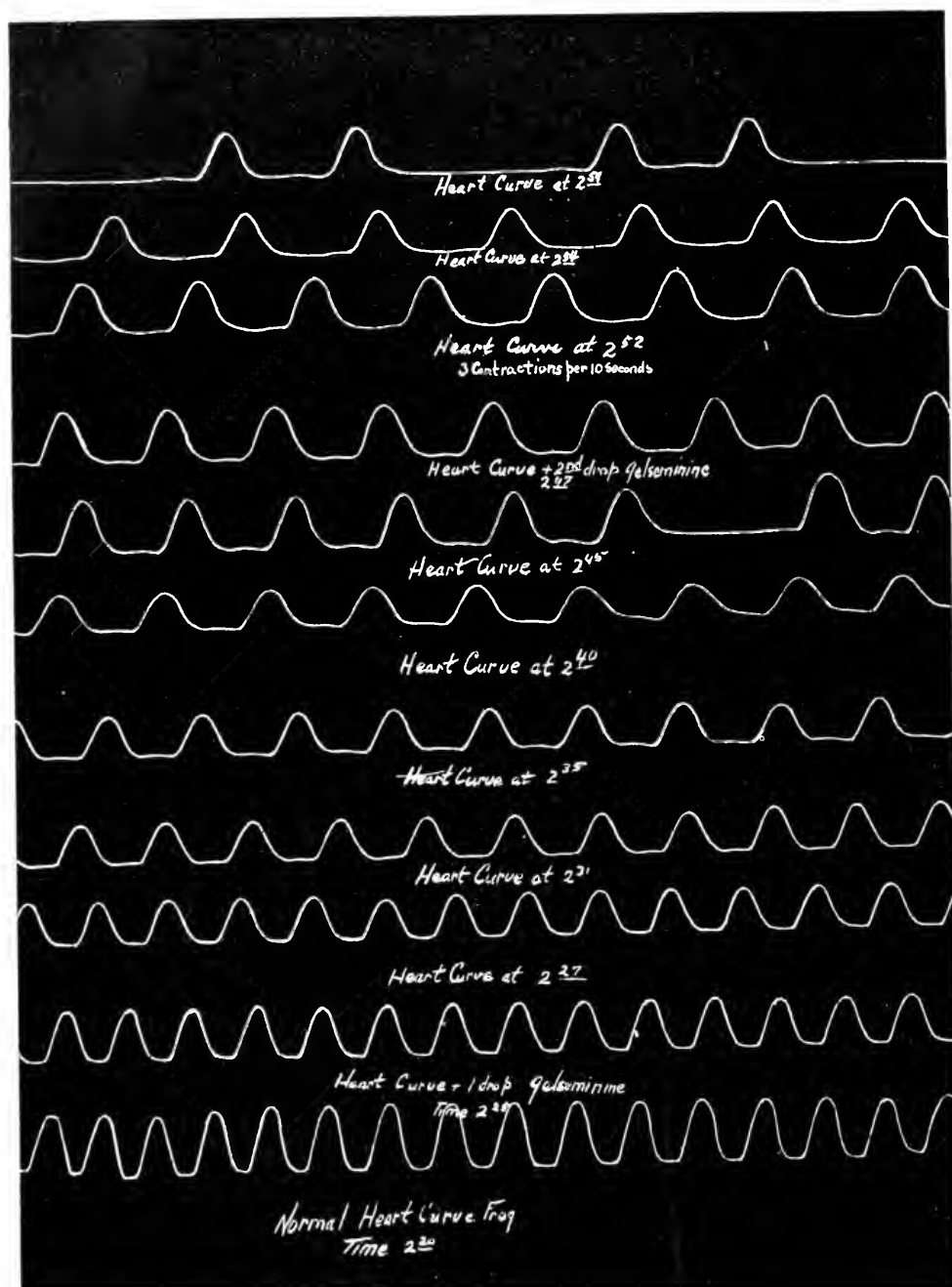
This experiment shows the intense action of the alkaloid gelseminine upon the heart. However it must be borne in mind that this action is via the central nervous system and not as might be first supposed to direct action upon the cardiac muscle.

This primary action upon the nervous tissues we will discuss later on.

Experiment No. 3. Turtle (medium.) Showing typical gelseminine action upon the heart.

Time	Rate	Remarks
10.55	60	Normal.
10.57	..	One drop of gelseminine applied to the heart.
10.59	50	Slowing of ten beats per minute obtained in two minutes.
11.00	50	
11.04	28	Marked slowing: Systole very imperfect, diastole slightly prolonged.
11.06	25	See above.
11.10	20	Rapid failure of heart in all its phases.
11.14	20	
11.18	00	Heart stopped in diastole.

This record is of especial interest in that it is a well known fact that the



heart of a turtle will stand violent abuse—in fact Howell states that after complete stoppage of the heart by electrical stimulation it can be made to resume beating and will recover at the end of four hours.

One drop of gelseminine as is shown in this experiment will completely stop the heart of the turtle in exactly twenty-three minutes, thus showing the marked strength of this alkaloid.

Experiment No. 4. Frog—weight 31 grams. Showing the action of the alkaloid gelsemine on the living frog.

Time	Remarks
3.35	Injected fifteen drops of gelsemine solution into dorsal lymph sac.
3.37	Movements retarded slightly.
3.38	Stimulation required to produce movements.
3.40	Can still retract both legs.
3.42	Cannot swim.
3.43	Respiration is rapid: seems to retain air in lungs.
3.45	Foam at mouth: respirations sixty per minute.
3.46	Reflexes still O. K.
3.48	Same condition.
3.52	Respiration is slower and irregular: hard to count.
3.55	Same condition.
3.58	Abdomen opened: stomach distended with air.

Here we see for the first time the toxic action of gelsemine, caused by the large injection (15 min.) of this alkaloid. In this experiment the heart rate was sixty beats at the end of the experiment, showing that even in toxic doses, the heart of the frog is not affected by gelsemine. Furthermore the sole site of action was centered upon the respiration through the respiratory center of the medulla. This experiment suggests that this solution must be applied direct to the heart in order to produce slowing.

Experiment No. 5. Frog—weight 36 grams. Showing the action of the alkaloid gelseminine on the living frog.

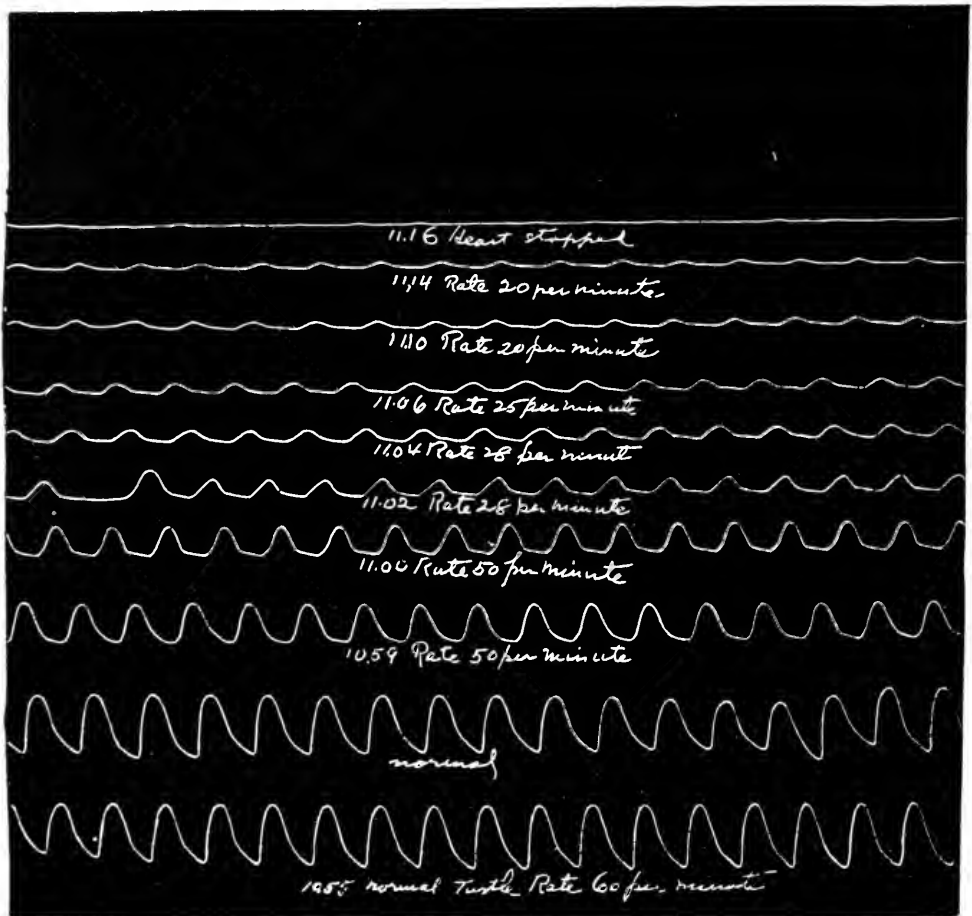
Time	Remarks
2.22	Injected seven drops of gelseminine solution into dorsal lymph sac.
2.23	Movements retarded at once.
2.24	Same.
2.25	Cannot retract the legs.
2.30	Cannot swim.
2.31	Respiration upset: rapid and very irregular: retains air in the lungs and stomach.
2.32	No attempt to recover when placed on back. All power of motion lost.
2.33	Fibillary twitchings.
2.35	Swallows often when trying to breathe.
2.37	Abdomen opened: frog died at 2:36: stomach distended with gas(due to swallowing movements).
	Abdominal organs greatly congested. Heart stopped in extreme diastole.

The full meaning of this experiment is best obtained by comparing it with Exp. No. 4. Noting that only one half as much alkaloid was used and that at the end of the experiment the frog was dead, also note the condition of the heart and the early loss of the reflexes.

It will be seen then that here we get marked depression from the start and that again the site of action is upon the respiratory center. We must also observe the muscular twitchings caused by this toxic dose of the alkaloid gelseminine.

Experiment No. 6. Dog—weight 15.5 K. Showing the effect of gelseminine upon blood pressure. A. C. E. mixture used.

The carotid artery was dissected out and connected by means of a glass cannula to an upright glass tube. This cannula had previously been filled with a saturated solution of magnesium sulphate to prevent clotting. The column of blood was next allowed to remain stationary in the tube for five minutes at the end of which time five (5) drops of the gelseminine solution was injected into the jugular vein. Three (3) minutes later we observed a direct fall in blood pressure amounting to fifty (50) mm. of Hg.



EXPERIMENT No. 3.

Ten minutes later a second injection of five (5) drops was given and we again obtained a drop in blood pressure of twenty (20) mm. of Hg. It will be noted that this dog was not given the customary dose of morphine in order that this factor should not enter into our conclusions.

In Experiment 7 a second dog was used as above but we replaced the gelseminine with gelsemine, using twice the dose used in Exp. No. 6. After the total injection of twenty (20) drops of the gelsemine solution we noted a fall in blood pressure amounting to but 12 mm. of Hg. Here again we see the difference in action.

In results of this nature this question naturally presents itself—where is the action located? Is it in the muscle itself or is it in the central nervous system.

We believe we have answered this question in the following experiment. A frog was pithed in the usual way and next the thigh muscles of one leg were ligated, care being taken to leave the great sciatic nerve free.

The alkaloid was now injected as before into the dorsal lymph sac and the results carefully noted. After a short period of quiescence, sudden fibrillations were noted in both legs. This fact, supported by the fact that in all our experiments the respiration failed long before the heart beat, confirms in a way the earlier investigators, and tends to show that the action of these two alkaloids is primarily upon the central nervous system. The action on the heart and blood pressure we likewise explain through the inhibitory influence carried by the vagi. The dilatation of the eye we attribute to the nervous relaxation of the circular fibers.

CONCLUSIONS.

1. From the evidence at hand it is evident that the action of these alkaloids is upon the central nervous system, and that the action upon the heart is secondary via the vagi.

2. Furthermore as will be seen by examining experiments No. 1 and No. 2, the strength of the alkaloid gelsemine is only about one fourth as great as that of gelseminine, also that the action in the case of gelseminine is much more lasting and profound. Again, these two alkaloids seem to have but little action in common.

3. The therapeutic value of these alkaloids has doubtless been overlooked; and now that they are to be obtained in the pure state their definite action will be utilized.

I wish to express my sincere thanks to my assistant, Mr. L. R. Hoffman, for his valuable aid.

BE AN ORIGINATOR.

Every tub should stand on its own bottom is a homely old proverb, but it is just as true now as when first spoken. Why should an intelligent druggist seek to imitate some successful preparation instead of trying to make one better? If the success of the article is due to good advertising and has merit, then the men who put their brains and money into it deserve their success and reward. If it is a fraud and is successful only because of the credulity and ignorance of the people, the druggist should shun it and not try to grab a few dollars by trailing behind the band wagon with a feeble imitation. It never pays. It is a mighty small man who is satisfied with the crumbs from the table; a real man wants to sit at the table himself, and this means that every druggist should be an originator, not an imitator. The follower always gets the leavings, the leader gets the prizes and the honors.—*American Druggist*.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-First Annual Convention

CONCERNING SOME OF THE PROPOSED ADDITIONS TO THE NATIONAL FORMULARY.

W. S. AMOS, PH. G.

When the formulas proposed for inclusion in the National Formulary were first made public the writer prepared a number of samples, of most of the elixirs, the two spirits, antiseptic solution of pepsin, aromatic castor oil, four tinctures liquid petroxolin, iodine petroxolin, one fluidextract and the fluidglycerates.

These preparations have been kept on a shelf in a room having a north exposure and at ordinary room temperature. Over a year has passed since they were made.

Compound spirit of cardamom made May 15, 1912, has darkened slightly and contains a slight precipitate. The taste suggests pimenta.

The writer made a sample of spirit using oil of pimenta, and from it an elixir which are superior to the spirit and elixir made as directed in the proposed formulas.

The compound spirit of vanillin made May 15, 1912, has darkened in color to a light brown; there is no precipitate.

Compound elixir of almond made May 15, 1912, has darkened slightly. The odor is that of orange flower water—"heavy" and unpleasant, the taste is at first pleasant but weak—afterwards that of the orange flower water and vanillin combination.

Aqueous elixir of licorice made May 15, 1912, has kept perfectly. We would suggest that the fluidextract of licorice of the formula be replaced by the fluidglycerate to be in keeping with the title, which suggests no alcohol.

Red elixir does not contain enough color and it is suggested that the amount of cudbear be doubled, so that the elixir may be diluted, as in prescription work, and the color still be noticeable.

Compound elixir of cardamom (made May 15, 1912) is cloudy, with precipitate. The taste is not unpleasant, but is too weak. The remarks above under spirit of cardamom will apply to this elixir.

Compound elixir of vanillin (made May 15, 1912) has darkened to a caramel brown. The taste is not pleasant. We consider this the poorest elixir of any proposed.

Elixir of three bromides has kept well but compound elixir of almonds is not a good vehicle for the bromides; sweetened water would do as well.

Compound elixir of sodium salicylate contains a precipitate and the taste is objectionable. It should not be included as proposed in the new formulary.

We made no samples of the formates elixirs; we do not believe there is demand enough for them to justify their inclusion in the National Formulary.

Antiseptic solution of pepsin (made Jan. 25, 1912) contains a slight precipitate, taste strongly acid—the odor indicates that the pepsin is old. The name "Physol" suggests a nostrum. Reject antiseptic solution of pepsin.

Liquor carbonis detergens should be admitted—but the directions for making it should be changed. The coal tar should be macerated in tincture of quillaja.

The writer has made several gallons of this preparation and has observed that coal tar is not soluble in the alcohol and forms a coating over the quillaja, so that the alcohol cannot act upon the latter.

Aromatic castor oil is a good preparation and is in demand; a slight increase in the oil of cinnamon is advisable. We suggest also that the kind of oil be definitely prescribed, as there is quite a difference between the flavor of oil of Ceylon cinnamon and oil of cassia, the latter being the most commonly stocked by druggists.

Syrup of poppy could well be replaced with a syrup of morphine hydrochloride. We would then have something definite, the elixir of morphine hydrochloride seems to be a preparation of value and is quite common in many drug stores today.

The tinctures proposed, excepting two, viz.: cactus grandiflorus and saw-palmetto and santal, should be included.

We find conflicting reports regarding the efficacy of tincture of cactus grandiflorus and think elixir saw-palmetto and santal would be a more useful preparation than the tincture.

The spray solutions are good combinations, if they would be used, but we notice most physicians employ their own formulas when prescribing sprays.

Salicylated mixture of iron, and compound gargle of guaiac, may have a local use somewhere, but they do not appeal to us as being of sufficient importance to justify their inclusion.

The borax honeys we pass without comment other than to say that our grandmothers had many such remedies.

The fluidextracts should be included. We made but one of this class, that of baptisia; it is a very satisfactory preparation.

The fluidglycerates should be increased in number. We made samples of all of the ones proposed, and they are satisfactory except that of cascara, which has a slight precipitate. Fluidglycerate of licorice we have had for three years and consider it the best form of licorice in fluid state; its uses may be many and the taste is much like that of ammoniated glycyrrhizin.

We predict that the fluidglycerates will become popular, excepting perhaps krameria, which is little used in the middle west.

Liquid petroxolin is an improvement on the one of the present formulary. The iodine petroxolin separated for us after two weeks standing.

We did not make the granulated effervescent salts, but they seem to be somewhat out of line with those in common demand.

It is a disappointment that the majority of the proposed formulæ are not such

preparations as those in demand by the medical profession in this section of the country.

If a manufacturing pharmacist should confine his manufacture to the preparations now official, including the formulas proposed, he would have to close his business as soon as his cash on hand was exhausted.

LABORATORY OF THE MCPIKE DRUG CO., KANSAS CITY, MO.

SOME COMMENTS ON THE PROPOSED FLUIDGLYCERATES OF THE N. F.

ERNEST R. SMITH.

The fluidglycerates, as proposed by the committee on National Formulary constitute a class of preparations in which each cc. contains the active constituents in 1 gm. of drug. They are intended to be of the same strength as the fluidextracts.

The menstuum contains 50 percent by volume of glycerin and no alcohol. This class of preparations, consisting of about 86, was first experimented on by Geo. M. Beringer. Five of them are now suggested for inclusion in the forthcoming National Formulary.

The writer made and tested the different preparations as suggested in the "Journal of the A. Ph. A., Vol. 1, No. 3," using 125 gm. of drug for 125 cc. of the finished product.

In each case the drug was ground by hand and passed through a sieve corresponding to the number of powder required.

Fluidglycerate of Glycyrrhiza. A number 20 powder was used and an alkaline menstuum. The writer experienced some difficulty with this preparation. The formula suggests that it be "*packed very lightly*." The drug being in a coarse powder the menstuum has a tendency to run through unevenly when packed as directed, but when packed a little more firmly the writer had no difficulty.

Using the prescribed amount of menstuum there was not enough to saturate the drug and leave a stratum above, and the chloroform water was used to make up the deficiency.

The finished product is a first class preparation and the taste is superior to the fluidextract. The peculiar sweetening properties of glycerin seem to do away with the slight acid taste which the fluidextract has.

It is of interest to note that in a preparation made 2 years ago, only a slight precipitate has formed, hence the keeping qualities are good.

Fluidglycerate of Krameria. No difficulty was experienced with this preparation and the finished product has every appearance of a good preparation.

Fluidglycerate of Cascara Sagrada. The writer met with the same difficulty as in the fluidglycerate of licorice, viz.: the amount of menstuum was not sufficient to saturate the drug and leave a stratum above.

The finished product seems to be of good quality, and the drug is entirely exhausted of its desirable constituents.

Fluidglycerate of Cascara Sagrada Aromatic. In this preparation there was insufficient amount of menstruum to saturate and leave a stratum above.

The finished product is an excellent preparation and the bitterness which Cascara possesses is entirely disguised.

Fluidglycerate of Rhubarb. The finished product is a thick, clear, brownish black liquid, free from sediment, and has the appearance of an excellent preparation.

The marc contained none of the active constituents of the drug, which shows that the drug was entirely exhausted.

In conclusion, it is the writer's opinion that the fluidglycerates, as a class, possess many advantages over the fluidextracts. They do away with alcohol which is expensive, and in some states, hard to obtain. Their keeping qualities are excellent. Also, alcohol is frequently therapeutically contraindicated, and these preparations give the physician a concentrated infusion.

It remains to be determined, whether the glycerol-water menstruum and chloroform water, dissolves any of the undesirable constituents from the drug.

LABORATORY OF THE MCPIKE DRUG CO., Kansas City, Mo.

THE EDUCATION OF THE PUBLIC.

The education of the public in matters pharmaceutical is being attempted in various (American) states, with the object of putting the druggist right in the eyes of the public. During the past decade certain lay newspapers have carried on campaigns against the proprietary medicine business, with the admitted object of destroying it. Recently there appeared in the "Ladies' Home Journal" an article entitled, "The Meanest Business in the World—Cheating the Sick," wherein remedies for women's ailments, soothing syrups, and headache and cough preparations were condemned as a class. Unfortunately, the writer made his attack too inclusive, stating that such medicines (excluding the first named) "all depend for their effect upon alcohol, and one or all of the stupefying drugs—opium, morphine, or chloroform." The writer went on to say that, "used to excess, they kill outright; used even in moderation, they gradually become a necessity to the child's system, and before the parents realize the danger they have on their hands a victim of the drug-habit." Such misstatements are freely copied by the newspapers throughout the country, with the result that an unmerited slur is cast upon the drug business. In order to combat this influence, the Wisconsin State Pharmaceutical Association has formed a publicity bureau, charged with the duty of disseminating among the country papers short articles that will set the druggist right in the public eye. The time has come when the public must be told that the maker of ready-made medicines is not necessarily a faker and charlatan.—*The Chemist and Druggist* (London).

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

THE LETTER OF THE LAW.

CHARLES H. LAWALL.

"There are nine and sixty ways of constructing tribal lays,
And every single one of them is right."

To one who has had practical experience in legal cases and has observed criminal court procedure from the standpoint of an impartial witness, the most noteworthy feature is the unvarying adherence to forms and customs which magnify the letter of the law, frequently to such an extent that the spirit of the law is either entirely lost to view or is so obscured by the mass of technicalities as to be practically unrecognizable as a factor in arriving at a verdict.

When an experienced criminal lawyer and brilliant district attorney are on opposite sides in a case presided over by an able judge, a feeling of bewilderment is experienced by the spectator who sees the real issue disappearing in the mists of legal controversy which arise over points non-essential to that real issue.

It is like some gigantic game which must be played strictly according to the rules and in which the stake is often human liberty or even life, where the jury and many of the participants and spectators, having very little knowledge of the "rules of the game," sit through the trial with but slight appreciation of the finer points that are argued and decided in the preliminary skirmishing which always characterizes a hard fought case. To the credit of our jury system be it said that, if the case actually reaches the jury for decision and no binding instructions have been given them by the judge who presides in the case, the jury is usually able to separate the wheat from the chaff and to decide the case strictly upon its merits.

The prosecution of food and drug adulteration cases is usually along simple, well defined lines, technical, literal or trivial though they may be. The defense, however, is hampered by no restrictions as to consistency and cases are sometimes tried in which the defense reminds one of the story, hypothetical, of course, of the man who was arrested for breaking a neighbor's axe which he had borrowed. His defense was along three lines: First, that the axe was sound when he returned it; second, that the axe was broken when he borrowed it; and third, that he had never borrowed the axe.

What must be the feelings of a layman in examples like one recently offered in an Eastern city, where a municipal ordinance was being enforced in prohibiting food adulteration, when a judge of one of the courts acted as attorney for the defense and attacked and overthrew the ordinance upon the purely technical

grounds that it had not been read and published the number of times required by law and that some of its penalties differed slightly from those prescribed by another municipal ordinance which had not been repealed and which, on account of its priority, took precedence over the later one in some particulars. No question as to the guilt or innocence of his clients was involved in this defense, that being made as an entirely separate and distinct effort, with the final outcome that his clients were found guilty but that the ordinance had been illegally passed and was therefore non-effective.

The prosecution of cases for technical breaches of laws where the spirit of the law has not been violated, have been frequently reported in pharmaceutical news columns. Take for example the celebrated tincture of *nux vomica* case in New Jersey many years ago, where adherence to the requirement then official in the U. S. Pharmacopœia, of a certain amount of extractive matter in the finished preparation resulted in the penalizing of a pharmacist whose preparation differed in this non-essential particular, although it was clearly proved that the alkaloidal strength (which is now the standard) was fully up to the requirements for a full strength preparation.

Another instance is found in the prosecutions brought for violation of the requirements in distilled water which was supposed, under the U. S. P. 1890 to leave no residue upon evaporation. It has since been proved that distilled water takes up small amounts of soluble matter from the glass containers in which it is kept, and this point is now covered by a more liberal provision of the standards in the matter of the residue, while retaining tests sufficiently rigid to exclude the use of raw water as a substitute, thus preserving the spirit of the requirements.

Few laws are fool proof in the hands of a commissioner or other official who wishes to multiply cases regardless of their actual merits. No pharmacist, however conscientious and careful he may be, is safe unless he has a knowledge of laws and requirements impossible to expect in one who has so many other and more important matters affecting the public health to occupy his attention. How many pharmacists know that only the "unpeeled" *calamus* is recognized in the Pharmacopœia or would hesitate to sell to the casual purchaser, who said that he wanted some *calamus* to make his own "bitters," the peeled rhizome usually found in the stores; and yet such a seller would be guilty of a technical violation of the law and could be legally prosecuted under any of the state food and drug acts which are in conformity with the national law. This may be dangerous information to place in the hands of some officials charged with the enforcement of these acts, but it illustrates the manner in which the letter of the law may be enforced irrespective of its spirit.

One instance which has occurred within the writer's experience, illustrating a ridiculously literal interpretation of the law, with just about as much justice in it as there would be in a *calamus* case, was of a drug commissioner who prosecuted a firm of wholesale druggists because their tincture of opium showed but 46 percent of alcohol, a difference of only several percent from the amount found in a tincture made by the official process under the most favorable conditions, and which might easily be accounted for by variation in the extractive matter present in the opium or slight loss during the final filtration. The alcoholic strength is made no part of the requirements of the tincture and is only inferential. It was

shown by the defendants and admitted by the Commissioner that the morphine strength of the laudanum was fully up to the standard, but much time, trouble and money was expended in defending a case which had absolutely no merit whatever from the standpoint of justice or of protection to the public.

The same kind of blind, unreasoning interpretation of laws and rulings was recently indulged in by an official in the Bureau of Animal Industry, who, in his over zealous efforts to enforce the new rulings regarding the declaration of cereal starches in sausage, discovered that coriander as commercially found upon the market, contained a few vetch seeds which were necessarily ground with the coriander and, notwithstanding the efforts of a dealer in spices to clean the seeds as far as was possible by mechanical means, ruled that "if the coriander seed contained only one vetch seed in a million it would necessitate the labeling of sausage in which a fraction of a percent of such coriander were used as seasoning, as containing leguminous starch." This may sound ridiculous, but it is a fact, and the spice dealer was forced to appeal to the Secretary of Agriculture to bring about a common sense interpretation of the ruling in question.

A case is also upon record where one of the Government departments turned down a sample of cresol (which is well known to be a varying mixture of three isomeric compounds) because it differed a decimal figure in the third or fourth place in its specific gravity from the official pharmacopœial requirements, although it was shown that the antiseptic and germicidal value was as high or even slightly higher than the average of samples conforming absolutely to the specific gravity of the Pharmacopœia.

It required a legal interpretation of the Federal Food and Drugs Act by the courts to decide that the silver coating on dragees or cachous is not a violation of that section of the Act which prohibits the use of mineral substances in confectionery and there is yet opportunity on the part of fanatic officials to prosecute candy manufacturers for the use of salt or cream of tartar, both of which are undoubtedly mineral substances within the literal meaning of the Act and both of which have a legitimate use in making certain kinds of candies. There is really no limit to the possibilities which may yet confront us in the matter of freak rulings and ridiculously technical prosecutions.

The injustice is not always on the part of the officials, however. Many manufacturers juggle words and phrases on their labels in a manner which reminds one of the episode in "Alice in Wonderland," where Alice and the Red Queen are conversing and the Red Queen offers Alice a position in which one of the inducements in the matter of wages is "jam every other day." Alice declines the offer saying that she does not care for any jam, whereupon the Red Queen's answers to the effect that it is just as well for "jam every other day means jam yesterday or jam tomorrow but never jam today."

The recently published cases of alleged adulteration of broken senna and of ground colocynth are examples of the lengths to which dealers will go in attempting to win a technical victory irrespective of the spirit of the law. The use of synonyms, such as "bitter apple" for colocynth, which constituted the defense in the case referred to, always leads, if not to ambiguity, at least to a basis for argument.

Synonyms are frequently used with about as much consideration and fore-

thought and with as much definiteness as in the following case which happened a number of years ago in my presence, and which is a fine example of their unreliability.

A party of men on a vacation trip in Pike County, Pa., where there are many French settlers, were sitting on the porch of the inn where they were stopping, when one of the typical French farmers came up the road carrying a large size vegetable which belonged unmistakably to the Cucurbitaceæ or gourd family. An argument immediately arose as to whether the specimen was a squash or a pumpkin and without any idea as to the ability of the peasant to decide such a momentous (?) question, a small bet was made by two members of the party and it was decided to leave it to the Frenchman. "What is the name of that vegetable?" asked the interlocutor, an unbiased member of the party. "It is ze squash," replied the peasant. Quick as a flash the man who had the losing side of the bet asked, "What is it used for?" Equally prompt was the reply on the part of the peasant, "To make ze punkin pie." Tableau! All bets declared off.

There is no doubt whatever that now, since the grosser forms of adulteration have been largely eliminated by the combined effect of a rigorous enforcement of the laws and the awakened consciences of the majority of manufacturers, the pendulum will swing even further than it yet has in the direction of basing prosecutions upon non-essential technical points, before we return to safe and sane conditions.

What we need to bring about a healthy condition in food and drug legislation is not large numbers of prosecutions based upon trivial or non-essential points, in which nominal fines (that act in no way as a deterrent) are imposed, but fewer and more wisely selected cases which involve basic principles where a penalty is imposed that really makes the defendant feel the weight of the punishment, and then to follow up these prosecutions by a continued enforcement of the law in similar cases until such violation is entirely stamped out. Concentration of effort, wisely directed, was never more needed than at present in matters pertaining to food and drug adulteration, for a continuation of some of the abuses of the past will bring about a chaotic condition in which the old laws will be discredited and no new legislation can be enacted.

Every honest manufacturer, and the large majority of them are honest, will welcome and uphold the enforcement of laws according to their spirit, but much of the opposition to food and drug legislation of any kind has been stimulated by the injustice which has often been done by the magnification of harmless technicalities into crimes of the first or second magnitude.

This change in the methods of conducting prosecutions must be accompanied by an equally sincere change on the part of some manufacturers who exert their efforts, not in seeing how good a product can be turned out, but how close they can come to violating the law without actually rendering themselves liable. When these two classes of reform have been brought about and when the letter of the law has ceased to be magnified out of all proportion to the spirit of the law, then and not until then, will we be considered as having really progressed.

STANDARDIZING A THREE YEAR COURSE.

HENRY L. TAYLOR, PH. D.

The Point of View Looks Forward: The December, 1912, Pharmaceutical Era contained an article in which National Standards in the schools of Pharmacy of the United States were discussed.

That analysis looked to the future rather than to the past, and the time seems opportune for discussing it.

As evidence that this conclusion is justified and to further establish the point of view let me quote from the proceedings of two pharmaceutical associations that met in Denver, August, 1912.

National Association, Boards of Pharmacy: "Your committee (Legislative) would, therefore, recommend that a National Committee on examinations be named by this Association, whose duty it shall be to provide the questions and direct the method of examination of all candidates desiring a National Reciprocal Certificate, and also rate the papers after the examination." The qualifications exacted of a candidate for a National certificate should be, not less than four years of practical experience, high school education, or its equivalent. Graduation from a school of pharmacy complying with all the requirements of the National Syllabus Committee.

"The adoption of this plan need not interfere with the Reciprocal Registration now in effect between the various states, nor in any sense does it serve to take the place of such registration, but it provides a plan whereby all states regardless of the law requirements may give an opportunity to a pharmacist who deserves it, a certificate of registration that will be evidence of his qualification to practice in any state and be recognized without being required to take another examination.

The American Conference of Pharmaceutical Faculties:

"There is a large and growing field for the preparation of municipal, state and federal inspectors, analysts and other administrators of food, and drug laws; of private analysts and others engaged in the higher lines of professional pharmaceutical work; of instructors and professors in pharmacy schools; of members of boards of pharmacy, who shall be really qualified for the performance of their high and difficult duties; of men qualified to take charge of manufacturing establishments or departments thereof. It is believed that the splendid facilities possessed by many of our pharmacy schools should be utilized in preparing such workers and that the practical instruction given in our better pharmacy schools is fully equal to that given in any of the scientific departments of the universities. If such an extension and elevation of the work of the pharmacy schools can be accomplished without in any way disturbing the conditions in the separate department, which is devoted to preparing students to become practicing pharmacists, this is a consummation devoutly to be wished, and one that cannot fail to reflect credit upon this conference for all time to come, and to place professional pharmacy on a far higher plane of reputation than it has ever before enjoyed."

From these quotations it is apparent that the next step upward in pharma-

ceutical education *is being taken*, and that the three-year course in process of standardization. It is my present purpose to attempt to show how this course lends itself to the proposed national license valid for the United States. The placing of the two quotations in juxtaposition seems well nigh sufficient. But there are details of the national license that must be worked out. Let us consider a tentative plan, and that you may follow it more intelligently, it is before you in type: *The Requirements for the National License.*

The life license valid for the United States shall be issued by the American Pharmaceutical Association.*

The examinations on which it is issued shall be conducted by the National Association of Boards of Pharmacy through the State Board signators to the agreement.

Satisfactory evidence verified by oath shall be required by the National Association of Boards of Pharmacy of all candidates for admission to the examinations. It shall admit to the examinations for the national license any candidate that pays a fee of \$25 and

- 1 Is more than twenty-three years of age;
- 2 Is of good moral character;
- 3 Had prior to beginning the first year of study in the school of pharmacy,
 - (a) At least the equivalent of one year's apprenticeship under pharmacists registered by the state board,
 - (b) A general preliminary education equivalent to the successful completion of a four years' course in a secondary school recognized by the state educational authorities;
- 4 Has studied pharmacology as outlined in the Pharmaceutical syllabus *not less than three years* in a registered or accredited school of pharmacy;
- 5 Has received the diploma of pharmaceutical chemist (Ph. C) from a school the member of, or affiliated with the American Conference of Pharmaceutical Faculties;
- 6 Has had two years successful experience as a licensed pharmacist, one year of which must have been in a pharmacy of the United States.

The Standard Three Years Course: The discussion of the requirements for the three years course may emphasize as many points as there are requirements, including such questions as the general preliminary education for admission to the school; the professional subjects and the time devoted to them; the general culture subjects and their relative values.

It is not my purpose (and some may think it not my province) to discuss the professional side of the subject. What subjects should comprise the course and what proportion of time be given each is now being worked out in the best of laboratories—the stronger schools of the country. Moreover other organizations are discussing its underlying principles, outlining and perfecting their details. Their conclusions will be reported in due time.

The emphasis will be thrown on the general preliminary education in the following: "You can do a great deal in pharmaceutical education by emphasizing the absolute necessity of more preliminary education before the study is undertaken. The trouble is that matriculates of one year high school education cannot grasp the intricacies of pharmaceutical education.

*(The recognition of such a license would be wholly optional with the various states.—EDITOR.)

It is deplorable that otherwise intelligent men cannot see the folly of their activity—the standardization of a degree that will make us appear ridiculous in the eyes of intelligent people.”

Absolute Necessity of More Preliminary Education: How shall this necessity be emphasized? How many of you this year looked into the faces of the graduating class of your local grammar school? Note that I said grammar school, *not* high school; the latter experience is more common and the exercises more formal.

You saw, did you not? Children on the average less than fifteen years old. *American* children, not European, Asiatic, African, or Australian. Children just entering the period of adolescence. One year later you will miss from that class how many that have died physically? how many that have died intellectually? how many that have lagged behind from unavoidable reasons,—sickness or removal of person or family? But there has been a survival,—*wonderful* when one thinks of the perils of the period; *pitiable*, when one views the wreckage.

After ten years campaign you have persuaded yourselves that it is reasonable to require that your profession be recruited from the ranks of the survivors. *What* is the physical condition of these survivors of the first year of high school life? They are our boys of sixteen and our girls of fifteen on the average, who have just entered on that marvelous period of life—the period of adolescence.

Their intellectual capacity is being measured by what tests? Fair ability to read, write and think the ideas of simple arithmetic through proportion, English of Cooper and Longfellow; the Elements of Algebra, of History, of Latin, of Drawing, and of Biology.

And what is their moral fiber? The sixteen year old powers of children attracted by the movies; listening to the growls against graft; interested in the national game and tempted by the glitter of gain at the expense of others, at the expense of principles, at the expense of self.

After years of study your experts are in practical agreement that your recruits from the survivors should, during the next five years, acquire a practical experience of at least from one to five years. But you are not agreed as to what that experience shall be. You are not clear in your definition of apprenticeship. Some of you say that the recruit washing glasses at a soda fountain becomes thereby learned—*doctus*, a doctor; while others affirm that a recruit older and wiser by those additional years of high school instruction working under the skilled instruction of a teacher in the dispensary department of a university course does not acquire the requisite skill.

What are you advising your recruits from the survivors of the first high school year to do with the half decade of their life between the date of their survival of your preliminary tests,—the promotion examinations to the second high school year,—and their final tests—the examinations of your State Boards? Are you requiring them to pack themselves full of the educational opportunities you and others furnish so lavishly by public and private munificence in high schools and schools of pharmacy from Maine to California, and from Minnesota to Texas. Or, the rather, are you letting them waste the five years, acquiring little intellectual power and less moral fiber?

How are you helping parents in the critical period of the family's life—the period of adolescence? Are you going out into the highways and hedges and

compelling them to come into the feast spread for them in schools and colleges, to enjoy at the feast the society of the great of all ages?

A generation ago the thought of a compulsory school law was intolerable to the American voter. Today the compulsory school law is common throughout the United States for the elementary school. Is not the prerequisite clause in the professional laws in effect a compulsory law for secondary schools?

Does not the duty lie with your profession to help in securing to the parents, to the teachers, to the school officials the help of a prerequisite law, for admission to the practice of pharmacy in its simplest forms?

And is not the corollary equally clear? That the higher forms of license make more preliminary education "absolutely necessary?"

The Prerequisite Clause: Let us in closing throw the emphasis on the necessity for an aggressive campaign to secure this beneficent regulation in all states not now passing it. Such campaign properly lies with the N. A. B. Ph. and the A. Ph. A. The joint sessions of these bodies afford the opportunities for outlining and directing the propaganda. Only a definite plan is necessary to inaugurate the movement.

PHARMACY LAWS PROPOSED, ENACTED OR AMENDED DURING 1912-1913.*

FRANK H. FREERICKS.

(Concluded from February Issue.)

MISCELLANEOUS PHARMACY LAWS PROPOSED OR ENACTED.

ANTI-TRUST AND UNFAIR COMPETITION LAWS OF NEW JERSEY OF 1913.

1. It shall be unlawful for any person, firm, corporation or association, engaged in the production, manufacture, distribution or sale of any commodity of general use, or rendering any service to the public, to discriminate between different persons, firms, associations or corporations, or different sections, communities or cities of the state, by selling such commodity or rendering such service at a lower rate in one section, community or city than another, or at a different rate or price at a point away from that of production or manufacture as at the place of production or manufacture, after making due allowance for the difference, if any, in the grade, quality or quantity, and in the actual cost of transportation from the point of production or manufacture, if the effect or intent thereof is to establish or maintain a virtual monopoly, hindering competition, or restriction of trade.

*Continuation of the report of the secretary of the Section on Education and Legislation. See Journal for January, p. 67, and February, p. 196.

2. Any person or corporation violating this act shall be guilty of a misdemeanor and on conviction thereof shall be punished accordingly.

3. This act shall take effect immediately.

Approved February 19, 1913.

1. It shall be unlawful for any merchant, firm or corporation, for the purpose of attracting trade for other goods, to appropriate for his or their own ends a name, brand, trade-mark, reputation or good will of any maker in whose product said merchant, firm or corporation deals, or to discriminate against the same, by depreciating the value of such products in the public mind, or by misrepresentation as to value or quality, or by price inducement, or by unfair discrimination between buyers, or in any other manner whatsoever, except in cases where said goods do not carry any notice prohibiting such practice, and excepting in case of a receiver's sale, or a sale by a concern going out of business.

2. Any person, firm or corporation violating this act shall be liable at the suit of the maker of such branded or trade-marked goods, or any other injured person, to an injunction against such practices, and shall be liable in such suit for all damages directly or indirectly caused to the maker by such practices, which said damages may be increased threefold, in the discretion of the court.

3. This act shall take effect immediately.

Approved April 1, 1913.

THE DEFEATED ITINERANT VENDOR'S BILL OF OHIO.

Be it enacted by the General Assembly of the State of Ohio:

Section 1. Any person, firm or corporation desiring to engage either as principal or as agent, in the business of selling, or vending by peddling, or by canvassing from house to house, or by vending from valise, pack, bundle, wagon or other vehicle, or by public out-cry, or upon the street or public highway, any drug or medicine, or any combination or mixture of drugs and medicines recommended for the cure, treatment or mitigation of disease, injury, or deformity, either of men or other animals, shall apply to the state dairy and food commissioner for a license, or for a certified copy thereof as provided in section two of this act, authorizing such peddling, canvassing, selling or vending.

Every application shall be in the form prescribed by the state dairy and food commissioner, and shall particularly set forth the drugs, medicines, or combinations or mixtures thereof desired to be vended or sold, and shall be accompanied by samples of such drugs, medicines, combinations or mixtures, and if a compound or mixture, by a true statement of the composition thereof, and by copies of the circulars, labels or other printed matter by which such articles are to be accompanied or advertised.

If the state dairy and food commissioner is satisfied that such application is in the proper form and that the drugs, medicines, combinations or mixtures proposed to be sold or vended do not contain poisonous or habit-forming drugs in greater proportion than is permitted by law, or alcohol in greater proportion than is necessary to preserve or hold the essential ingredients of such drugs, medicines, combinations or mixtures in solution, and that such preparations cannot be used as alcoholic beverages nor to create or satisfy a drug habit, and that they are not dangerous to life or health, nor intended for unlawful or immoral

purposes, he shall upon receipt of the fees hereinafter described, cause to be issued to such applicant a license authorizing the selling, peddling or vending of such drugs, medicines, combinations or mixtures thereof.

Such license shall particularly describe the drug, medicine, combination or mixture authorized to be sold thereunder, the name of the person, firm or corporation to which the license is issued, the date when such license expires, and shall be signed by the state dairy and food commissioner.

It shall be unlawful for the state dairy and food commissioner or for any inspector of any employe of the state dairy and food department to disclose any information concerning the composition of any drug, medicine, compound or mixture which is set forth in any application for license under this act, except in legal proceedings instituted for the enforcement of this act or of other provisions of law. Nothing in this or in any other section of this act shall be construed to affect the operation of any provision of law regulating the practice of pharmacy, medicine, dentistry, or veterinary medicine, or regulating the sale of alcoholic liquors, habit-forming drugs, or of food and drugs, nor shall it be construed to suspend or avoid the operation of any legal ordinance of any municipality regulating the itinerant vending or peddling of drugs, medicines or other articles.

Section 2. The state dairy and food commissioner shall be authorized to charge and collect the sum of ten dollars (\$10.00) for each such license, and if the sale of more than one drug, medicine, compound or mixture is authorized thereunder, he shall be authorized to charge and collect the sum of one dollar (\$1.00) for each such additional drug, medicine, compound or mixture. No person, firm or corporation shall be required to procure more than one license for the sale of any preparation, but each agent shall be required to carry with him the license obtained by his principal, or a certified copy thereof, and to produce the same for inspection when requested to do so by any officer of the law, or by any inspector of the state dairy and food department, and when more than one agent or canvasser is employed by any person, firm or corporation, the state dairy and food commissioner shall furnish certified copies of such license for each of such agents or canvassers and shall charge the sum of two dollars (\$2.00) for each copy thereof. No license shall be issued for a longer period than one year.

The state dairy and food commissioner shall cause a record to be kept of such licenses issued under this act, to whom issued and of the dates of expirations thereof, which licenses shall be consecutively numbered, and all drugs, medicines, combinations or mixtures thereof, authorized to be sold or vended thereunder shall bear a label upon which is printed in plain and easily read letters the words, "Sale authorized by Ohio license No. ———" accompanied by the serial number of such license and the date when such license will expire.

Section 3. Any person, firm or corporation, who, either as principal or agent, shall sell or offer for sale, by peddling, or by canvassing from house to house, or by vending from valise, pack, bundle, wagon or other vehicle, or by public out-cry, or upon the street or public highway, any drug or medicine, or any combination or mixture of drugs and medicines recommended for the cure, treat-

ment or mitigation of any diseases, injury or deformity, either of man or other animals, without first having obtained a license from the state dairy and food commissioner as hereinbefore provided, or any one who shall state falsely the composition of any drug, medicine, combination or mixture in any application for license under this act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than fifty dollars (\$50.00) nor more than two hundred dollars (\$200.00) for the first offense, and on any subsequent conviction for the same offense shall be fined not less than two hundred dollars (\$200.00) nor more than five hundred dollars (\$500.00).

All license and other fees and all fines collected under this act shall be paid to the state dairy and food commissioner, and by him shall be paid into the state treasury, where they shall be disposed of according to law.

Section 4. It shall be the duty of the state dairy and food commissioner to administer the provisions of this act, to investigate charges of violation of any of the said provisions, to prosecute or cause to be prosecuted any person, firm or corporation guilty of such violation and to make such proper and lawful rules and regulations as may be necessary to carry the provisions of this act into effect.

NEW YORK WEIGHTS AND MEASURE LAW.

Section 1. Chapter twenty-five of the laws of nineteen hundred and nine, entitled "An act relating to general business, constituting chapter twenty of the consolidated laws," is hereby amended by adding thereto, at the end of article two, eight new sections, to be sections sixteen, sixteen-a, seventeen, seventeen-a, seventeen-b, seventeen-c, eighteen, and eighteen-a, respectively, as follows

Section 16. Method of sale of certain commodities. All meat, meat products and butter, shall be sold or offered for sale by weight. All other commodities not in containers shall be sold or offered for sale by standard weight, standard measure or numerical count, and such weight, measure or count shall be marked on a label or a tag attached thereto; provided, however, that vegetables may be sold by the head or bunch.

Section 16-a. Certain sizes of containers when used for vegetables, produce and fruit prescribed. No person shall manufacture, sell, offer or expose for sale containers for vegetables, produce or fruit that are not of the capacity of one barrel, half-barrel, one bushel, or multiples of the barrel, or sub-multiples of the bushel divisible by two; provided, however, that fruits, vegetables and produce may be sold in other sized containers if the net capacity in terms of standard dry measure is plainly and conspicuously marked, branded or otherwise indicated in the English language on the outside or top thereof, or is marked in accordance with the provision of section seventeen. A barrel within the meaning of this and the ensuing sections of this article shall represent a quantity equal to seventy hundred and fifty-six cubic inches or conform to the following dimensions. Head diameter, seventeen and one-eighth inches; length of stave, twenty-eight and one-half inches; bilge not less than sixty-four inches outside measurement; distance between heads not less than twenty-six inches; and to be known as a standard barrel. A reasonable variation of the capacity specified shall be allowed.

Section 17. Net contents of containers to be indicated on the outside thereof. When commodities are sold or offered for sale in containers of other sizes than

those specified in section sixteen-a or whose sizes are not otherwise provided by statute, the net quantity of the contents of each container, or a statement that the specified weight includes the container, the weight of which shall be marked, shall be plainly and conspicuously marked, branded or otherwise indicated on the outside or top thereof or on a label or a tag attached thereto in terms of weight, measure or numerical count; provided, however, that reasonable variations shall be permitted.

Section 17-a. When sections sixteen, sixteen-a and seventeen shall not apply. Sections sixteen, sixteen-a and seventeen shall not apply to containers or commodities in containers with ornamentations or decorations exclusively for gifts or social favors, or to commodities dispensed for consumption on the premises, or to commodities or containers put in receptacles used merely for the purpose of carrying or delivering of commodities or containers complying with the provisions of such sections, or when the numerical count of the individual units is six or less, or in the case of liquids when the contents is two fluid ounces or less, or when the weight of the contents is three avoirdupois ounces or less, or to commodities packed, put up or filled prior to eight months after this section takes effect or to bottles used for the purpose of the bottling of spirituous, maltous, vinous, or carbonated beverages until eight months after this section takes effect.

Section 17-b. Guaranty furnished by wholesaler, jobber or manufacturer. No person shall be prosecuted under the provisions of this article, following section fifteen thereof, when he can show guaranty signed by a wholesaler, jobber or manufacturer, residing in the State of New York from whom he purchased the commodity in containers to the effect that they were not incorrectly marked within the meaning of such sections of this article. The person making the sale and guaranty shall then be amenable to the prosecution, fines, and other penalties, which would in due course attach to the dealer under the provisions of such sections. The name appearing on the container and the marking as provided by section seventeen shall be deemed to constitute a guaranty.

Section 17-c. Definition of terms "container" and "person." "A container" as used in this article, following section fifteen thereof, shall include any carton, box, crate, barrel, half-barrel, hamper, keg, drum, jug, jar, crock, bottle, bag, basket, pail, can, wrapper, parcel or package. "A person" as used in such sections shall be considered to import both the singular and the plural and shall include corporations, companies, societies and associations, and whether acting through an agent or servant.

Section 18. Examination and prosecution. The examination of the weight, measure or numerical count of the contents of containers as provided by section seventeen shall be made by the State superintendent of weights and measures or under his supervision or direction by any of the weights and measures officials of the State; except that in the city of New York such examination shall be made by the commissioner of the mayor's bureau of weights and measures of the city of New York. When after such examination there is cause to believe that a provision of section seventeen has been intentionally violated the State superintendent of weights and measures shall, after notifying in writing the person so accused of such accusation, certify the results to the attorney-general with a copy

of the results of the examination duly authenticated under oath by the official making examination. The attorney-general shall cause appropriate proceedings in the name of the people of the State of New York to be commenced and prosecuted in the proper courts of the State without delay for the enforcement of the penalties therefor; except that in the city of New York the commissioner of the mayor's bureau of weights and measures shall in cases where he acts, after notifying in writing the person so accused of such accusation certify the result to the attorney-general, with a copy of the result of the examination duly authenticated under oath by the official making such accusation. Such attorney-general shall cause appropriate proceedings in the name of the people of the State of New York to be commenced and prosecuted in the courts of the State of New York without delay for the enforcement of the penalties therefor. The State superintendent of weights and measures with the co-operation of the chief or principal weights and measures officials of the cities of the first class shall establish uniform tolerances or amounts of reasonable variation and shall make uniform rules and regulations for carrying out the provisions of sections sixteen, sixteen-a, seventeen, seventeen-a and seventeen-b.

Section 18-a. Penalties. A person violating any of the provisions of sections sixteen, sixteen-a, seventeen, seventeen-b, shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars for the first and second violations, and by a fine of not less than one hundred dollars nor more than five hundred dollars for subsequent violations.

Section 2. Section nine of such chapter and section two hundred and sixty-three of chapter nine of the laws of nineteen hundred and nine, entitled "An act in relation to agriculture, constituting chapter one of the consolidated laws," are hereby repealed.

Section 3. This act shall take effect June first, nineteen hundred and thirteen.

THE WEST VIRGINIA PROHIBITION LAW EXEMPTION WITH REFERENCE TO PHARMACY.

Section 4. The provisions of this act shall not be construed to prevent any one from manufacturing for his own domestic consumption wine or cider; or to prevent the manufacture from fruit grown exclusively within this state of vinegar and non-intoxicating cider for use or sale; or to prevent the manufacture and sale at wholesale to druggists only of pure grain alcohol for medicinal, pharmaceutical, scientific and mechanical purposes, or wine for sacramental purposes by religious bodies; or to prevent the sale and keeping and storing for sale by druggists of pure grain alcohol for mechanical, pharmaceutical, medicinal and scientific purposes, or of wine for sacramental purposes, by religious bodies, or any United States Pharmacopœia or National Formulary preparation in conformity with the West Virginia pharmacy law, or any preparation which is exempted by the provisions of the national pure food law, and the sale of which does not require the payment of a United States liquor dealer's tax. But no druggist shall sell any such grain alcohol except for medicinal, scientific pharmaceutical and mechanical purposes, or wine for sacramental purposes, except as hereinafter provided, and the same shall not be sold by such druggist for medicinal purposes,

except upon a written prescription of a physician of good standing in his profession and not of intemperate habits, or addicted to the use of any narcotic drug, prescribing the amount of alcohol, the disease or malady for which it is prescribed, and how it is to be used, the name of the person for whom prescribed, the number of previous prescriptions given by such physician to such person within the year next preceding the date of such prescription, and stating that the same is absolutely necessary for medicine, and not to be used as a beverage, and that such physician, at the time such prescription was given, made a personal examination of such person, and that such person is known to such physician to be of temperate habits and not addicted to the use of any narcotic drug, and only one sale shall be made upon such prescription, and such prescription shall be at all times kept on file by such druggist and open to the inspection of all state, county and municipal officers. It shall be the duty of such druggist to register in a book kept for that purpose all prescriptions from physicians mentioned in this section, stating the name of the party for whom prescribed, the date of the prescription, the name of the physician by whom the prescription is issued, the quantity of such alcohol and the use for which prescribed, and such record shall at all times be open to the same inspection as such prescriptions.

It shall be lawful for a druggist to sell grain alcohol for pharmaceutical, scientific and mechanical purposes, or wine for sacramental purposes by religious bodies, only to any person, not a minor, and who is not of intemperate habits, or addicted to the use of narcotic drugs, who shall, at the time and place of such sale, make an affidavit in writing signed by himself before such druggist, or a registered pharmacist at the time and place in the employ of such druggist, stating the quantity and the time and place and fully for what purpose and by whom such alcohol or wine is to be used; that affiant is not of intemperate habits or addicted to the use of any narcotic drug; and that such alcohol or wine is not to be used as a beverage, or for any purpose other than that stated in such affidavit. Such affidavit shall be filed and preserved by such druggist and be subject to inspection at all times by any state, county or municipal officer, and a record thereof made by such druggist in the record book mentioned in this section, showing the date of the affidavit, by whom made, the quantity of such alcohol or wine, and when, where, for what purpose and by whom to be used. Only one sale shall be made upon such affidavit, and only in the county where the same is made, and no greater quantity than is therein specified. For the purpose of this act, any druggist or registered pharmacist making such sale shall have authority to administer such oath.

If any druggist, owner of a drug store, registered pharmacist, clerk or employe shall upon such prescription or affidavit, or otherwise, knowingly sell or give any such alcohol or wine to any person who is of intemperate habits or addicted to the use of any narcotic drug, or knowingly sell or give the same to any one to be used for any purpose other than that named in said affidavit or prescription, or who shall sell or give away any liquors without such affidavit or prescription, he shall be deemed guilty of a misdemeanor and punished by fine of not less than one hundred nor more than five hundred dollars and confined in the county jail not less than thirty days nor more than six months. In any prose-

cution against a druggist, owner of a drug store, registered pharmacist, clerk or employe, for selling or giving liquor contrary to law, if a sale or gift be proven, it shall be presumed that the same was unlawful in the absence of satisfactory proof to the contrary and the presentation of such prescription or affidavit by the defendant at the time of the trial for such sale or gift, shall be sufficient to rebut the presumption arising from the proof of such sale or gift. Provided, the jury shall believe, from all the evidence in the case, that such sale or gift was made in good faith under the belief that such prescription or affidavit and statements therein were true; and, provided, however, that such druggist, owner of a drug store, registered pharmacist, clerk or employe shall have complied with all other provisions of this act relating to the sale or gift.

An indictment against any druggist, registered pharmacist, clerk or employe, for any offense committed under the provisions of this section, shall be sufficient, if in the form and effect following:

State of West Virginia,

County of....., to-wit:

In the Circuit Court of said County:

The grand jurors in and for the body of said county of.....
, upon their oaths do present that A. B., within one year next
 prior to the finding of this indictment, in the said county of.....
 did unlawfully sell, give, offer, expose, keep and store for sale and gift, liquors,
 against the peace and dignity of the State.

Section 5. If any person who is of intemperate habits or addicted to the use of any narcotic drug shall make the affidavit mentioned in the preceding section, or if any person making such affidavit shall use as a beverage, or for any purpose, or at any place other than that stated in such affidavit, or shall knowingly permit another to do so, said alcohol or wine, or any part thereof, or shall knowingly make any false statement in such affidavit, he shall be guilty of a misdemeanor and upon conviction be punished by a fine of not less than one hundred nor more than five hundred dollars, and be confined in the county jail not less than two nor more than six months for the first offense hereunder; and for the second offense he shall be deemed guilty of a felony and punished by confinement in the penitentiary not less than one nor more than five years.

And if any physician who is not in good standing in his profession, or who is of intemperate habits, or who is addicted to the use of any narcotic drug, shall issue any such prescription as is mentioned in the last preceding section; or if any physician shall issue such prescription without, at the time, making a personal examination of the person for whom the liquor is prescribed, or shall prescribe for any person who is in the habit of drinking to intoxication and whom he knows, or has reason to believe is in the habit of drinking to intoxication, or shall give such prescription and make the statements therein required, or any part thereof, falsely he shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than one hundred nor more than five hundred dollars and imprisoned in the county jail not less than thirty days nor more than six months, and in addition thereto, for the first offense under this statute, the court may, in its discretion, suspend the license of such physician for a period of six

months and for each offense thereafter the court shall suspend such license for a period of six months.

THE CIGARETTE LAW OF PENNSYLVANIA.

Section 1. Be it enacted, etc., That any person who shall furnish to any minor, by gift, sale or otherwise, any cigarette or cigarette paper, shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine of not less than \$100.00, nor more than \$300.00.

Section 2. Any minor, being in possession of a cigarette or of cigarette paper and being by any police officer, constable, juvenile court officer, truant officer or teacher in any school, asked where and from whom such cigarette or cigarette paper was obtained, who shall refuse to furnish such information, shall be guilty of a misdemeanor; and upon conviction thereof, before any alderman, magistrate or justice of the peace, such minor, being of the age of sixteen years or upwards, shall be sentenced to pay a fine not exceeding \$5.00 or to undergo an imprisonment in the jail of the proper county not exceeding five days or both. If such minor shall be under the age of sixteen years, he or she shall be certified by such alderman, magistrate or justice to the juvenile court of the county, for such action as to said court shall seem proper.

Section 3. The act approved May 7, 1889, entitled, "An Act to prohibit the sale of cigarettes to persons under the age of sixteen years and prescribing the punishment for the same" and the act approved April 4, 1903, entitled, "An Act for the protection of the health of persons addicted to the smoking of cigarettes, and imposing a fine for the violation of its provisions" and the Act approved the 16th day of March, 1905, entitled, "An Act for the protection of the health of persons addicted to the smoking of cigarettes and imposing a fine for the violation of its provisions, approved April 4, 1903" and all other acts and parts of acts inconsistent with the provisions of this act, are hereby repealed.

Approved the Ninth day of May, A. D. 1913.

John K. Tener.

The foregoing is true and correct copy of the Act of the General Assembly, No. 137.

Robert McAfee,
Sec. of the Commonwealth.

THE NEW HONEST ADVERTISING LAW AS PROPOSED AND ENACTED IN MANY STATES.

Be it enacted, etc.:

Any person, firm, corporation or association who, with intent to sell or in any wise dispose of merchandise, securities, service, or anything offered by such person, firm, corporation, or association, directly or indirectly to the public for sale or distribution, or with intent to increase the consumption thereof, or to induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or an interest therein, makes, publishes, disseminates, circulates, or places before the public, or causes, directly or indirectly, to be made, published, disseminated, circulated, or placed before the public, in this state, in a newspaper

or other publication, or in the form of a book, notice, hand-bill, poster, bill, circular, pamphlet, or letter, or in any other way, an advertisement of any sort regarding merchandise, securities, service, or anything so offered to the public, which advertisement contains any assertion, representation or statement of fact which is untrue, deceptive or misleading, shall be guilty of a misdemeanor.

MODERN SHOE POLISHES AND DRESSINGS.

By far the most important and widely used dressing is "*Ladies' dressing*," so called for its use on women's and children's footwear of kid and goat leathers. It is essentially a colored solution of shellac; borax, or an alkali, being the solvent and nigrosin the color. A little glycerin is usually added to prevent cracking and to preserve the softness of the leather. It is applied with a sponge and leaves, when dry, a soft, pleasing gloss. If soap solution is added to "*Ladies' dressing*" it becomes "*Gun-metal dressing*." This does not dry bright, but leaves a dull, gun-metal finish. *Patent leather dressing*.—This is usually simply olive or cottonseed oil, or vaseline, or white wax and turpentine. To hide cracks in patent leather, a solution of gun-cotton in amyl acetate, colored with a black spirit-soluble dye. *Nappy dressing*, for ooze, suede, castor, and nappy leathers is wood alcohol tinted with a color insoluble in water. The alcohol cleans the nap, and leaves the color, which, being insoluble in water, does not soil damp garments. *White leather dressings* may be the old-fashioned pipe-clay, or pipe-clay mixed with light magnesium carbonate. The latter gives a better white than pipe-clay alone. Another white dressing is zinc oxide suspended in water with a small quantity of an adhesive. This is applied with a sponge. These white dressings may obviously be tinted with umber, ochre, or other pigments, for canvas shoes of various shades. *Polishes*.—Carnauba wax is the basis of the best modern friction polishes. Candelilla wax may be substituted for the cheaper qualities of polishes. The wax is boiled until emulsified with a solution of borax. The product is known as "white stock." If a paste is required, this "white stock" is mixed with a sufficiency of hot, strong solution of common yellow soap and tinted with nigrosin. A soft paste is thus obtained. If a liquid is required, the best Castile soap is used, as this does not gelatinize on cooling. With moderate friction, the hard waxes held on the leather by the soap give a fine polish. Another method is to melt carnauba or candelilla wax, or a mixture of these, with paraffin wax or beeswax in hot turpentine, and mix with very finely powdered animal black. A firm paste is thus obtained, which easily spreads. When this is poured into boxes, it must be quickly cooled, or separation of the waxes may occur. Beeswax gives a toughness and lack of shortness to the paste, with a smooth finish, which cannot be obtained without it. For *tan leather polish* the basis is the same, but brown or yellow dyes are used instead of nigrosin. *Liquid shoe cleaner* is merely mucilage of tragacanth containing a little oxalic acid in solution.—J. T. Donald, (*J. S. C. I.*, 1913, 32, 459, through *Pharmaceutical Journal*.)

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

THE MOST DIFFICULT THINGS TO LEARN IN DISPENSING.

HENRY P. HYNSON, PHAR. D., BALTIMORE.

The acts, the manipulations and the solving of the dispensing problems to which I refer, may be considered difficult to learn, because, comparatively, few learn to do them easily and well, and because actual experience in teaching, plainly and forcefully impresses the fact upon every careful observer. It must not be understood that I have in mind complex problems in higher physics, complicated chemical combinations, the differentiation of allied botanical species or the identification of peculiar plant cells. No, none of these are near so difficult to become familiar with and master as are the every day doings of the modern drug store; such things as the ultra scientific look upon as far beneath their notice.

It may be questioned whether or not all these very ordinary things are difficult to learn or are difficult to teach and there may be other questionings regarding them, for instance, whether their accomplishment is dependent upon natural fitness, adaptability or application; certain it is, that, no matter how secured, one must possess, at least, a moderate amount of *ability to justly estimate the relative value of pharmaceutical doings* before he can learn to meet the requirements just now under consideration; this is intended to mean that unless he regards these common place acts as essential to true success, he will not acquire sufficient knowledge regarding them to meet the actual demands of his vocation.

Touching the subject of special talents or particular fitness, much of interest may be gained from the experiences of teachers of pharmacy. From my own very limited opportunities, I unhesitatingly conclude that so called special talents or natural inclinations are no more or less than results of accidental environment and accidental training. Sensitiveness or, perhaps, vanity has lead me to closely observe students in this regard, and it is a most peculiar fact or, better, a most gratifying fact, that it is invariably the case that students do work in dispensing that is exactly consistent with the work they do in other laboratories and, further, their examinations in the theories of dispensing are almost without exception of the same value as their examinations in the theories of other branches of pharmacy. This is very interestingly shown, in that class of students with which every teacher is familiar: those who impress their instructors favorably and as making excellent progress, but who painfully disappoint when put to a real test. It is believed that these positive observations should finally become helpful, when we decide that a more intelligent segregation of students of all kinds will be the real beginning of better educational methods.

I admit that it may be well to let this discussion pass, for it matters not to us or to many more whether these dispensing accomplishments are difficult to learn or difficult to teach, the fact remains that many of them must be acquired without teaching; also, that few there are in pharmacy today, who have acquired that dexterity and facility in manipulation that to some of us seems an actual essential to worthy success.

It may also be wondered or questioned whether the want or appreciation of the difference, the very great difference between the doing and the *well* doing of things is an infirmity or something that follows a lack of standards. This applies more particularly and with remarkable directness to nearly all very common-place doings; for instance, to walking and talking. Why do so many of us talk badly or, why do we not walk better? These surely are usual and very generally performed acts. Probably, some of us have forgotten, because much of it happened very early in our lives, what great difficulty we experienced and how much pain we suffered in learning to balance ourselves that we might stand upright and move about. Word sounding and word arrangement was not easily acquired and has not yet been fully accomplished. Some of us have never stopped, probably, to ascertain whether our manner of speech is creditable, or not, and there are others who suppose that, to "get along," is all that is required of the walker. Undoubtedly, it is *very, very* difficult either to walk or talk and that is why so comparatively few are highly accomplished in these most becoming essentials. It is quite likely, however, that many are unfortunately unattractive walkers and talkers because there are no sufficiently well-fixed and generally published standards for walking and talking. There are, though, examples of excellence in these with which we may compare our own similar actions and there may be found examples worthy of close study and possible imitation. It is of the "walking" and "talking" in dispensing that I am writing; therefore, all this applies with direct and particular force, to the subject under consideration.

All the difficulties to which I have referred and shall refer, may be easily divided into two classes: those which require mental effort alone, and those which require carefully controlled physical force of greater or less amount, but always properly directed by a mind which has been trained to direct it.

I am uncertain as to the proper sequence of my classes of difficulties. If I knew which was first created, my mind or my body I could better arrange them; after all, these troubles of the dispenser are a confusion of mind and matter and the supremacy is yet, I believe, undetermined. In 1907, I must have thought the body "had the call" for I then presented a paper, at the New York meeting, under the caption, "The Hands and Eyes in Dispensing," (Proceedings, Volume 55, page 124), which is closely related to this discussion and I will be happy if any of my hearers or readers are sufficiently interested to read or re-read that effort, in connection with this later one.

It is decidedly "bromidic" as society folk say, to refer to the general difficulty of applying knowledge, but no matter how common-place this difficulty, it pertains, especially to dispensers, it is fundamental and remarkably prevalent. May not the teachers of the abstract sciences, attached to pharmacy, or the text books be somewhat to blame. The difficulty is not so great in connection with very special subjects, but it is pronounced when general or fundamental teachings are

involved. It may be that we give our dispensing students too much education and not enough training; actual dispensing exercises.

To apply and helpfully use knowledge, then, is difficult to learn. One may have run through the reaction of iron, repeatedly; may have made the solution of its chloride from the metal, oxidized it, diluted the solution with alcohol to make the tincture and then forget that it contains iron, that the iron is in the ferric state, that a chloride is present, that it is strongly alcoholic and decidedly acid. This is not the case with students, only, nor with the graduates of a particular school. Neither does it apply to any one or another class of knowledge, chemistry, physics, drug history, galenical pharmacy, all are very nearly alike in the neglect they suffer. There is a difference, however, in favor of physics and physical characteristics—the more commonplace are, oddly enough, most frequently overlooked. It is very hard for the average dispenser to learn to take advantage of the peculiar physical characteristics of medicinal substances. Many can glibly recite these characteristics, but few can evaluate their helpfulness, or the contrary. Often it is the very slight difference that must be remembered and utilized. The *physical* difference, for instance, between an alkaloid and the salt of an alkaloid; chemical differences, are, always, much more apparent. The physical differences of the three great classes of oils,—formidable stumbling block to the thoughtless, but a world of helpfulness to the thinker.

But these more subtle physical differences are not the only ones that are undervalued; the difference in dispensing between a lighter or a heavier substance, between a gummy and a friable drug, between a smooth, caking powder and one that rapidly separates into individual particles, between hard-grinding chemicals and those that are slippery and soft. So many, young and old, with whom I come in contact, still strive and struggle, yet fail to learn, when to properly use light magnesium oxide and when the heavy. Others will never really learn to know why milk sugar is better than powdered talcum for making a dilution of an active alkaloid, or why licorice root is a better absorbent than starch.

You and I may know the solubilities of many drugs, their specific gravity and their volatile or non-volatile tendencies, but how many of us have learned and know the *mechanical* possibilities of different drugs. I would be surprised if some are not quietly asking, "What does he mean by mechanical possibilities, in this connection?" I can assure you if the meaning is not quite clear, then you have not yet learned to advantageously use those possibilities. The dispenser must learn to use medicinal substances, some of them, as veritable tools, with which to do things, with other substances; they are just as much tools as are mill stones, files, planes and scissors; some of them are used for precisely the same purposes, in principle. A fair appreciation of the mechanical abilities of drugs, together with experience, good judgment, and even, a moderate sense of proportion and its value make almost the "IT" of dispensing.

Proportion in dispensing, I fear, is a term almost as new as "mechanical possibilities." It is, of course, a very general term, but want of consideration for it, is the cause of many, very many dispensing shortcomings. Nothing in dispensing technique seems more difficult to acquire than a sense of proportion. To so many, a particular manipulation is always the same, both in extent and force; it is made to fit all quantities and all characters of substances; it is subject to no

modification. Proportion applies to the quantities or to the measurements of things as they exist or as they may be made to exist. Whether a plan, a process, a force or a substance is used, in proper proportion or not, in dispensing, makes a world of difference. It is a law that controls many important dispensing manipulations and should be carefully studied, however much time it may require to master; it is knowledge that is not acquired so well by practice as by sound reasoning. Sense of proportion is entirely wanting when a dispenser throws a grain of strychnine sulphate in a mortar already containing a dram of quinine sulphate and proceeds to mix them. It is also lacking when he proceeds to make an ordinary solution of potassium bromide in the same manner he would make the usual solution of potassium chlorate. No matter what the relative bulk of the several ingredients may be, if they weigh the same, they are "coons" and all look alike to him. The preparation of an ounce of ointment to contain two percent of yellow mercuric oxide, would be prepared with the same regard for proportion, that he would prepare an equal quantity of an ointment to contain twenty percent of zinc oxide; morphine sulphate is dissolved in much the same manner as Epsom salt.

This law of proportion applies with particular force to the size and uniformity, essential and attractive uniformity, of pills, lozenges, tablets, suppositories and so forth; to the size of powder papers and their relation to powder boxes, and especially to containers. Oh! what dispensing sins are committed by using containers out of proportion to their specific purposes. In labelling, proportion must be very difficult to follow because it is so seldom shown; in the one item of spacing the writing on labels, its absence is more pronounced than any where else. I would feel that I had, by no means, lived in vain, if I could be assured that I had communicated to coming generations of pharmacists, to even a small degree, a better and more helpful appreciation of proportion in its relations to containers, labels and label writing. I am confident I would have added years to my life and much to my fortune, could I have always secured regard for proportion, in my employees.

True esthetics in pharmacy is a thing I have been harping upon for many years, not from a sentimental standpoint, but because I early learned that pharmacy and pharmacists were very "short" on the esthetic and because I had observed that those in other vocations who were "long" on it, were almost invariably successful and, if a personal reference can be excused, I will most positively affirm, with more than forty years of business life behind me, that this fortunate early realization has been my most profitable asset. But it is very difficult to acquire these true esthetic abilities and quite as difficult to apply them to all phases of dispensing. I confess to have made small progress, but the few forward steps I have taken have brought me to interest, to comfort, and I believe and hope, to the holding of much of the public's respect. This is written as the shadows lengthen and not with the slightest tincture of vanity, but simply as encouragement to those who may follow. Others may enjoy a contemplation of the truly beautiful much more intensely than do I, and I am heartily glad if they do, for I am sure they possess a thrilling pleasure that is beyond expression.

The *cause and effect* in dispensing is very difficult to learn. This will bring a smile, I am confident, to the lips of many very learned, so called pharmacists, who are not dispensers and who have had no actual experience with dispensers in

business. It is a person who has seen would-be dispensers, time after time and generation after generation, miscut pills, who realizes that the irregularity follows a want of appreciation of so general a principle as cause and effect. There are thousands and thousands of pharmacists today, with a normal temperature of 98.2° F., who cannot make a presentable cacao-butter suppository by hand, and there are just as many other pharmacists who are living with their blood at exactly the same temperature, who can and do make such suppositories very quickly and successfully. One class cannot be made to understand that the effect of holding the solidified fat between their fingers is to fuse it. Has any one, here, ever closely watched thirty-five or forty different persons fill gelatin capsules with sodium salicylate; the capsules out of the one original container, with identically the same salt, at the same time, in the same atmosphere, at an equal temperature, and notice the results? These results are always exactly consistent with the operator's appreciation of cause and effect.

A dispenser will scarcely presume to call himself accomplished who cannot fold any number of powders of exactly the same size and of a size that will properly fit a box with no other appliance than a spatula and without the aid of the box. Did you ever notice how many give their powders a "twist"; that is fold the ends on different planes? You may tell such dispensers over and over again how this effect is produced, but they will never correct the defect, until they learn themselves to connect the cause with the effect.

This more fundamental consideration of the difficulties of dispensing is nowhere so fruitful in results as in the generally thought, very simple matter of wrapping packages. The bad effects here, from certain very definite causes, are most pronounced. If there is one thing in the art of dispensing that can be reduced to an exact science, it is the wrapping of packages, with results that are not only esthetic, but such as make the very best advertisement. The proof that package wrapping is difficult to learn is strongly presented in the packages that go out of our stores. The cause of bad wrapping is generally too much paper and the absence of a few essential movements of the fingers; the effect is a waste of material and an unattractive, confidence-destroying package.

I trust this broader treatment of the subject, broader than I first intended, has added interest to quite prosaic matters. If to any one, it is not yet quite apparent, what, in my opinion, are some of the most difficult things to learn in dispensing, then to them, I would say: to make "round" pills round and "white" pills white, and the pills of the same lot of exactly equal size; to wrap powders tight, uniform and alike, to mold suppositories easily, without the possibility of mishap or to form them quickly by hand in cold weather or hot; to fill capsules *full*, dry or mass, with the medicament on the inside, only, and the outside clean and bright; to select appropriate containers and label them sensibly, fulfilling the real object of labeling, yet, withal, attractively and finally, to send out packages that look like they came from the hands of a pharmacist, who had been properly trained and not from a hardware store or grocery.

After all, I suppose, the most difficult thing to learn in dispensing is to learn, to really learn, how to dispense.

PRACTICAL PHARMACY AND SYSTEM IN THE PRESCRIPTION
DEPARTMENT.

H. G. POSEY, NEW ORLEANS, LA.

Your chairman has with mistaken zeal insisted upon my writing for you a paper on Practical Pharmacy and Dispensing, to be read before the next meeting of that section. I am fully aware of my limitations, but nevertheless there are a few ideas and wrinkles which occur to us all at times and which would be of appreciable benefit were they called to the attention of probable users, and I shall jot them down here.

The writer was actively engaged in prescription and laboratory work for some years, and although now one of that great army of travelling representatives who call upon the drug trade, still maintains a very lively interest in the back portion of the drug store, the place where the mortars and graduates and the pots and pans are used. Practical pharmacy in its truest sense, comprises both preparing and dispensing the various galenicals and other complex substances which enter into the dispensing or prescription work of the drug store. Such being the case, the writer has been shocked to see the tendency of the pharmacist to *buy everything*, and to be content to pour out of the manufacturer's bottle or package into his own, write out the physician's directions, slap on the label, and let it go at that. Practical pharmacy, I take it, necessitates a clean and orderly prescription counter, and scales. Shades of our ancestors! when I think of the condition of some of the prescription scales I have seen I throw up my hands in horror! Dirt incrustated scale pans, small amounts of powdered and crystalline chemicals which have spilled onto the glass portion of a torsion or a Troemner balance and left to remain there until by its hygroscopic nature it had corroded the metal parts and incrustated both the metal and the glass, rendering the balances sensitive to anywhere from one to five grains instead of one-sixty-fourth or one one-hundredth of a grain as they properly should be. Coupled with that, a dirty disorderly arrangements of the stock bottles and a heterogenous collection of graduates, etc., seems to be the condition existing in too many of our stores. How delightful on the other hand to go behind the prescription counter of a store where all is order and system, and where cleanliness is paramount. That fellow is usually the one who is able to compound that batch of difficult pills or suppositories and do it right. In the routine of the busy prescription store a full line of working solutions of the various salts, acids, etc., is always a great help, and such solutions as potassium iodide, potassium bromide, sodium bromide, sodium salicylate of definite strength, boric acid, citric acid, tartaric acid, and others of their class, also a solution of strychnine sulphate, 1 in 60, all of which remain stable for a time if a small quantity of alcohol be added thereto when making up to the required volume. Such solutions can be measured with greater ease and more expeditiously than the corresponding substance can be weighed, made into solution in the vehicle and strained through cotton or filtered; and let me say right here that

had I a man in my employ who sent out a murky liquid when it should have been clear, I would fire him at once.

Practical pharmacy goes still further than the prescription department. How many so called practical pharmacists have we who would make a botch of Fowler's Solution by putting the arsenic trioxide and potassium bicarbonate in a porcelain evaporating dish, adding the water, and then applying heat. What is the result? In the ebullition caused by the heat the bubbles are forced to the surface and bursting there carry a part of the arsenic with them to the rim and over the rim of the dish. If you doubt, it, get your old tripod, scrape some of the incrustation from its rings and apply any arsenic test; or better still, when you have finished your lot of Fowler's Solution assay it for its arsenical content. I am satisfied that you will in the future use a Florence flask. How many of you in making a U. S. P. tincture of an alkaloidal drug, mydriatic or otherwise, know that the drug is thoroughly exhausted before percolation is finished. Do you just rely upon the absence of chlorophyll, or coloring matter in the last few cubic centimeters of the percolate, or do you subject it to the action of say Mayers reagent?

In handling a prescription containing a large quantity of a glycerophosphate, for instance, which was intended to be in solution, have you ever tried the efficacy of a small quantity of lactic acid?

In making solution of lead subacetate U. S. P. have those of you who have an open steam pipe handy, ever tried coupling a hose on that steam pipe putting the lead oxide, lead acetate and water all together in a stone crock, sticking that hose down into it, turning on the steam and letting the good work go on by itself?

Have any of you ever had to make large quantities of a phosphorous rat and roach paste? No? Well if you ever do, try it this way: Get an ice cream freezer, place the phosphorous in the freezer can, with water enough to cover it. Put it on a water bath until the phosphorous melts, then put in the dasher, pour in fifty percent of the total volume of glucose (syrupy) turn the crank until it is thoroughly mixed, after which add enough previously made flour paste to make up the required volume, then add oil of anise or any other odor desired. That is practical pharmacy from the manufacturing standpoint and just as much practical pharmacy is needed there as behind the prescription counter.

In making large quantities of Aromatic Elixir, U. S. P. have you had trouble in filtering the finished product? Of course you have. Try dissolving the oils or aromatic spirit in part of the alcohol triturating that with talcum in a large mortar, or other vessel, then adding the balance of the alcohol and water, filtering, and adding the syrup last. Have you ever made Compound Resorcin Ointment? Certainly you have, but did you ever try using anhydrous wool fat, dissolving the resorcin in the necessary quantity of water and doing your own hydrating, instead of having the manufacturer to do it for you, and at the same time getting in the resorcin? Try it once. All these things are practical pharmacy and go a very long way toward determining whether or not a man has the ability to make a success in pharmacy.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

A BRIEF HISTORY OF THE MAINE PHARMACEUTICAL ASSOCIATION.

A. G. SCHLOTTERBECK.

The formation of the Maine Pharmaceutical Association was the result of a friendly call from H. T. Cummings at the store of the writer during the month of June, 1867.

The conversation naturally drifted to Pharmacy, its various aspects and conditions, in the State of Maine, and how to elevate it. Various plans to improve the status were considered, culminating in the opinion that a school or college of pharmacy ought to be established to teach the several branches of Chemistry, Materia Medica, Botany and Pharmacy, providing sufficient support could be obtained to make it a success.

With this end in view a circular letter was issued inviting the apothecaries of Maine to attend a convention to be held in Portland, July 23, 1867, to deliberate upon the subject, to which the following responded by their presence:

John G. Cook of Lewiston.
Samuel Anderson of Bath.
Charles K. Partridge of Augusta.
Alden F. Keene of Gorham.
Emmons Chapman of Portland.
Harry T. Cummings, of Portland.

Charles H. Marks of Portland.
H. H. Hay of Portland.
J. H. J. Thayer of Portland.
M. S. Whittier of Portland.
William E. Short of Portland.
A. G. Schlotterbeck of Portland.

All of whom have passed away except the writer.

The assembly was called to order by H. T. Cummings, who stated the subject matter for consideration; a temporary organization was formed with Mr. Cummings as Chairman and Mr. Partridge, Secretary. Upon motion it was voted to form a State Pharmaceutical Association. After discussion of various questions adjournment was made to 2:30. The convention having reassembled, the temporary organization, so far as made, was declared to be the permanent organization to be known by the title of the Maine Pharmaceutical Association.

The following were chosen to complete the list of officers: for

Vice-President—J. G. Cook.

Treasurer—M. S. Whittier.

Corresponding Secretary—A. G. Schlotterbeck.

Executive Committee—H. T. Cummings, H. H. Hay, J. H. J. Thayer, all of whom were elected.

Cummings and Schlotterbeck were appointed to draft and report a constitution and by-laws at the adjourned meeting to be held August 20, 1867.

Thus was formed the *first State Pharmaceutical Association* in the United States.

On August 20, the Committee on Constitution, etc., reported as follows:

Preamble: Whereas, the advancement of Pharmaceutical knowledge and the elevation of the professional character of apothecaries and druggists throughout the State of Maine are dear to us in common with all well-disposed pharmacists

And whereas, a large portion of those in whose hands the practice of pharmacy now exists are not properly qualified for the responsible office it involves, chiefly by the many difficulties that impede the acquirement of a correct knowledge of their business

Therefore, We, the members of a convention now assembled at Portland, Me., July 23, 1867, composed of apothecaries and druggists from different sections of the State of Maine with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent association to meet annually at such time and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

CONSTITUTION AND BY-LAWS.

This Association shall be called the Maine Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmacists and Druggists of Maine in the following objects (the most salient points being):

To improve and regulate the Drug Market of this State.

To prevent the importation of inferior, deteriorated and adulterated drugs and detecting and exposing home adulteration.

To improve the science and art of Pharmacy.

To regulate the system of apprenticeship.

To suppress Empiricism and as much as possible to restrict the sale of medicines to regularly educated druggists and apothecaries.

The report was accepted and adopted for the government of the Association. The third Tuesday of July of each year was chosen for the annual meeting.

On July 21, 1868, the President reported the act of incorporation as follows:

CHAPTER 513.

An act to Incorporate the Maine Pharmaceutical Association.

CHARTER.

Be it enacted by the Senate and House of Representatives in Legislature Assembled, as follows:

Sect. 1. Henry T. Cummings, John G. Cook, Charles K. Partridge, Moses S. Whittier, Augustus G. Schlotterbeck, Samuel Anderson, Jr., Henry H. Hay and J. H. J. Thayer, and all such persons as are now members of an association known as the Maine Pharmaceutical Association, or shall hereafter become members of the same, are hereby constituted a body politic in law and in fact, to have continuance for twenty-five years, by the name of the Maine Pharmaceutical Association, for the purpose of cultivating, improving, and making known the principles of pharmacy, its collateral branches of science, and the best modes of preparing medicines and their compounds, and of giving instruction in the same, by public lectures or otherwise, as circumstances shall render advisable; and may hold real and personal estate to an amount not exceeding twenty thousand dollars.

Sect. 2. The said association may establish by-laws and rules for its government and regulation, and for the preservation and application of the funds thereof, not repugnant to the constitution and laws of the United States, or of the State of Maine; and shall have power to do all and singular acts as may be proper and necessary for the establishment of said association, and for the promotion and fulfilment of its objects.

Sect. 3. The officers of the association shall be a president, vice-president, recording secretary, corresponding secretary, treasurer and auditor, whose respective duties may be assigned by the by-laws, and who shall be elected by printed or written ballots at the stated

annual meeting on the third Tuesday of July of each year, and any vacancy may be filled by a special election by the members of said association. There shall also be elected at said annual meeting an executive committee of six members, who, with the other officers of the association above enumerated, shall constitute a board of trustees, and whose duties shall be defined by the by-laws, and who shall serve one year or until others are chosen to fill their place. Said board, of which not less than five shall constitute a quorum, shall conduct the ordinary affairs of the association. They may make such rules and regulations, and do such other things for the support and government of the Pharmaceutical Association as they may deem fit and proper, and perform such duties as are or may be from time to time committed to them by said association; their acts, however, to be submitted to the association for revision at each stated meeting of the association.

Sect. 4. The board of trustees shall have power to issue certificates of membership, to adopt rules and regulations in the examination of candidates, and the granting of diplomas to those who shall have attended two full courses of lectures, given under the authority of this association, whenever such shall have been established, or shall have passed a satisfactory examination in a course of study prescribed by the board of trustees, and shall have studied not less than four years, with one or more reputable druggist or apothecary, in the theory and practice of the science and art of pharmacy.

Sect. 5. The association may have the right to issue scrip stock, execute bonds, mortgages, conveyances, and to sell its property, whether in real estate, books, productions of nature or art, under the common seal of the association, and acknowledged by its president, or in any way so dispose of its possessions as to promote pharmaceutical education, and the mutual advancement of its members, and the elevation of the art and business of the pharmacist in the community.

Sect. 6. If the annual election for officers of the association and members of the board of trustees for any cause shall not be held on the day before mentioned, the said corporation shall not be thereby dissolved, but the officers and trustees shall continue in office until a new election.

Sect. 7. The corporation hereby created shall be subject to the provisions and possess the general powers specified in reference to kindred and educational societies in the revised statutes of the state of Maine; and the legislature may at any time modify, alter or repeal this act.

Approved February 17, 1868.

It was also voted to hold a semi-annual meeting on the third Tuesday of January each year.

January 19, 1869, the Legislative Committee reported that the petition to the Legislature for apothecaries to be authorized to dispense liquors on physicians' prescription was killed by politicians, leaving matters in the same humiliating and derogatory condition—the apothecary being stigmatized as a rumseller (which in many cases, the writer confesses was true). The public, however, demanded and expected that the apothecary should supply the “ardent” if wanted, notwithstanding that by doing so he was obliged to violate the law and subject himself to the penalties thereof.

The annual meeting of 1869 adjourned without any special business. The Association did not meet again until 1870, when a committee was appointed to consult with the professors of the Boston College of Pharmacy in regard to making arrangements for their delivering a course of lectures in Portland.

On July 16, 1872, the old officers, who had served from the beginning, were again elected and adjournment was made to the third Tuesday of October, which was also selected for the future annuals. A vote to again petition the Legislature to enact the Pharmacy Law, which was indefinitely postponed in 1871; was passed.

OFFICERS OF THE MAINE PHARMACEUTICAL ASSOCIATION FROM 1867 TO 1913.

Year	President.	Vice-President.	2d Vice-President.	3d Vice-President.	Secretary.	Treasurer.	Cor. Sec'y.
1867	H. T. Cummings	John G. Cook			C. K. Partridge	M. S. Whittier	A. G. Schlotterbeck
1868	do	do			Christopher Way	N. S. Harlow	do
1869	do	do			do	do	do
1870	do	do			do	A. G. Schlotterbeck	Christopher Way
1871	do	do			do	H. H. Butler	do
1872	do	do			do	do	do
1873	John G. Cook	Chas. K. Partridge			S. D. Wakefield	do	do
1874	Chas. K. Partridge	A. G. Schlotterbeck			Hershell Boynton	do	do
1875	do	do			do	Hershell Boynton	do
1876	do	do			do	do	do
1877	do	do			do	do	do
1878	C. A. White	E. Dana, Jr.			Edward Merrill	Ed. Merrill	
1879	E. Dana, Jr.	James B. Totten			S. B. Graves	Thos. G. Loring	
	No meetings.					F. R. Buck	
1890	Chas. K. Partridge	A. M. Robinson			H. E. Bodwich	do	H. T. Cummings
1891	do	do			do	H. B. Pennell	do
1892	Ava Warren	D. W. Heseltine			do	do	John Williamson
1893	do	do			Chas. A. Fowler	John Williamson	do
1894	D. W. Haseltine	Geo. W. Dorr			do	do	Chas. M. Hay
1895	do	do			do	do	do
1896	Geo. W. Dorr	F. H. Wilson	F. H. Wilson	Wm. Robinson	do	do	
1897	F. H. Wilson	W. A. Robinson	W. F. Norcross	W. F. Norcross	do	do	
1898	W. A. Robinson	A. M. Robinson	G. A. Farcher	A. M. Robinson	do	do	
1899	do	do	do	Hershell Boynton	do	do	George A. Parche
1900	Hershell Boynton	F. R. Partridge	D. P. Moulton	F. T. Crane	do	do	
1901	F. R. Partridge	D. P. Moulton	F. T. Crane	G. R. Wiley	do	do	
1902	D. P. Moulton	F. T. Crane	G. R. Wiley	Ed. A. Hay	do	do	
1903	F. T. Crane	G. R. Wiley	E. A. Hay	A. W. Meserve	do	do	
1904	G. R. Wiley	A. W. Meserve	John Williamson	O. W. Jones	do	do	
1905	A. W. Meserve	John Williamson	O. W. Jones	H. J. Hathaway	do	do	
1906	John Williamson	O. W. Jones	H. J. Hathaway	John Coughlin	do	do	
1907	O. W. Jones	H. J. Hathaway	John Coughlin	C. H. Davis	do	do	
1908	H. J. Hathaway	John Coughlin	Chas. H. Davis	Geo. O. Tuttle	do	do	
1909	John Coughlin	Chas. H. Davis	Geo. O. Tuttle	H. F. McClean	do	M. L. Porter	
1910	Chas. H. Davis	Geo. O. Tuttle	H. F. McClean	F. W. Murphy	do	A. W. Meserve	
1911	Geo. O. Tuttle	E. W. Murphy	F. H. Tupper	W. H. Wood	do	do	
1912	E. W. Murphy	F. H. Tupper	W. H. Wood	D. T. Dougherty	do	do	

October 20, 1872. Meeting held in Augusta—Officers re-elected—Committee appointed to confer with a similar committee from the Maine Medical Association to have a law enacted requiring physicians and apothecaries to pass an examination before entering upon either profession.

October 17, 1876. The Committee on Legislation was instructed to procure an amendment to the pharmacy bill pending so its provisions for registration and examination shall be mandatory only in their application to towns and cities of not less than two thousand (2,000) population.

A midsummer session for business and social purposes was suggested and adopted.

The Legislature during the winter enacted the first pharmacy law which was as follows:

Chapter 204.

An act to prevent incompetent persons from conducting the business of Apothecaries.

PHARMACY LAW,

Be it enacted by the Senate and House of Representatives in legislature assembled, as follows:

Sect. 1. The governor, with the advice of the council, shall appoint three suitable persons to be commissioners of pharmacy, one of whom shall hold his office for three years, and each until his successor shall be appointed and qualified; and each year thereafter another commissioner shall be so appointed and qualified. If a vacancy occurs in said commission, another shall be appointed, as aforesaid, to fill the unexpired term thereof. Before entering upon the duties of their office, the commissioners shall be sworn to faithfully and impartially discharge the same, and a record thereof shall be made on their commissions.

Sect. 2. Said commissioners shall examine any person who hereafter desires to engage in the business of an apothecary, and if found skilled in pharmacy, shall give him a certificate of that fact, and that he is authorized to engage in the business of an apothecary, and such certificate must be signed by at least two commissioners. They shall register in a suitable book, to be kept in the secretary of state's office, the names and places of residence of all persons to whom they issue certificates, and the dates thereof, and for each certificate of registration given under the provisions of this act, said commissioners shall be entitled to receive from the applicant five dollars, which shall be in full for all services and expenses.

Sect. 3. Every person hereafter entering upon the business of an apothecary shall first be examined by said commissioners, and present to them satisfactory evidence that he has been an apprentice or employed in an apothecary store where physicians' prescriptions are compounded, at least three years, or has graduated from some regularly established medical school, or college of pharmacy, and is competent for the business, and the commissioners may then grant him a certificate and registry as hereinbefore provided.

Sect. 4. Any person engaged in the business of apothecary at the passage of this act may receive a certificate and be registered as aforesaid, on application to said commissioners, and presenting to them satisfactory evidence of his competency therefor.

Sect. 5. Apothecaries registered as herein provided, shall have the right to keep, under such restrictions as the legislature may impose, all medicines and poisons authorized by the United States dispensatory and pharmacopœia as of recognized medicinal utility; *provided*, that nothing herein contained shall be so construed as to authorize the sale of intoxicating liquors.

Sect. 6. If any person shall hereafter engage in the business of an apothecary, who is not now in said business, contrary to the provisions of this act, he shall be subject to a penalty of fifty dollars for each week he shall so continue in such business, to be recovered by an action of debt for the use of any person suing therefor, or by indictment for the use of the county.

Sect. 7. This act shall not apply to physicians putting up their own prescriptions, or to the sale of proprietary medicines.

Approved February 9, 1877.

The provision in regard to registration being misconstrued by some created an active acrimonious opposition against those who had strenuously exerted themselves to obtain the law, nearly disrupting the State Association.

July 16, 1877. The announcement that the business session would be followed next day by a sail down the bay and a clam bake added fifty-four new members.

October 16, 1877. Annual Meeting. Thirty-one were added to roll of membership and though the old officers were re-elected, the control of the Association was to pass into new hands—at the next annual meeting.

July 24, 1878. An entirely new list of officers was elected. The year proved uneventful. The records do not show that the Association was ever presided over by the President-elect.

September 18, 1879. Mr. Dana was elected President. His administration proved unfortunate as the Association passed into a dormant state remaining in same eleven years, during which time no meetings were held, until its revival July 17, 1890, by the re-election of Chas. K. Partridge as President, with a full line of officers. By 1895, the Association seems to have begun to realize and fulfill its mission. The standard of examination had been raised by the Pharmacy Commission. Four papers were contributed and read in the annual meeting, competing for the prize; this was won by W. A. Robinson, subject, "The Apothecary of 1860 versus 1895." All reference to the prohibitory law was ignored.

July, 1896. Dr. M. L. Porter, of Danforth, was elected Secretary, proving such a host in himself that he has been retained in that position ever since. To him is due the greater part of the success achieved by the Association of late.

The Commissioners of Pharmacy were appointed a Sub-Committee on Legislation and obtained the enactment of the Pharmacy Law of 1897.

1898. A new constitution and by-laws were adopted.

1899. The Pharmacy Department of the Maine State University was highly commended by the President in his annual address and has since been endorsed by the Association.

1900. Resolutions were adopted as to the status of the pharmacist in the Army and Navy with petition forwarded for his betterment to the President and Secretary of Army and Navy.

Since the passage of the Pharmacy Law of Maine to the present time, 1913, the following gentlemen have served as Commissioners of Pharmacy for varied periods:

N. S. Harlow
Chas. K. Partridge
H. T. Cummings
J. H. Plaisted
A. G. Schlotterbeck
John H. Hammond
W. H. Jordan
Seth D. Wakefield
Herschel Boynton
J. Q. A. Hawes
Frank R. Partridge

Edward H. Thompson
Noble C. Earle
Percy L. Lord
D. W. Heseltine
Jos. F. Young
Fred H. Wilson
Chas. H. Davis
Frank W. Bucknam
Frank F. Cram
Jas. A. Broe
Ernest L. Cowan

The new Constitution and By-Laws adopted in 1898 are as follows:

THE CONSTITUTION.

Article I.

This Association shall be called the Maine Pharmaceutical Association.

Article II.

The object of this Association shall be to promote the interest of pharmacy by urging the enactment of such laws as will be of mutual advantage to pharmacists and the public, restricting to competent persons the dispensing and sale of medicines, to encourage a more thorough training of assistants, and to bring the pharmacists of this State into more intimate social relations.

Article III.

Section 1. This Association shall consist of active, associate and honorary members.

Section 2. Active members shall consist of legally registered apothecaries of the State, of good moral character and professional standing, whether in business for himself, retired from business or employed by another in a store where drugs and medicines are legally dispensed.

Section 3. Associate members shall consist of persons of good moral character and professional standing who are in business for themselves or employed by another in a store where drugs and medicines are legally dispensed. Commercial travelers who are employed by wholesale druggists, manufacturing chemists, and druggists' sundry houses, actively engaged in soliciting business from the drug trade in the State, are eligible as associate members.

Section 4. Pharmacists, chemists and other scientific men who may be thought worthy the distinction, may be elected honorary members. They will not, however, be expected to pay any dues. Active members only shall be eligible to vote for candidate for Commission of Pharmacy.

Article IV.

The officers shall consist of a president, three vice-presidents, a secretary, an assistant or local secretary (to be elected from the place of the next meeting) and a treasurer, all of whom shall be elected annually, and shall hold office until the election of their successors.

The executive committee shall consist of the president, vice-presidents, secretary and two members to be appointed by the president.

The auditing committee shall consist of the three vice-presidents, who shall examine the accounts of the secretary and treasurer and report at the annual meeting.

Article V.

Section 1. The president, or in his absence or inability to serve, the vice-presidents in their order, shall preside at all meetings of the Association, and administer the rules of order usual in deliberative assemblies, shall call special meetings at the written request of fifteen members, shall present at each annual meeting a report of the affairs of the Association for the past year, together with such suggestions for its future management as may seem to him proper. He shall sign all certificates of membership, and countersign all orders on the treasurer.

He shall approve the bonds of the secretary and treasurer, and keep the same in his custody.

Section 2. The secretary shall collect all moneys due the Association from dues and other sources, paying the same to the treasurer once at least every three months and with the aid of the local secretary keep a faithful record of the proceedings of the Association, and carefully preserve on file all reports, essays and papers of every description received by the Association. He shall keep a roll of the names of the members and their residences, conduct all correspondence of the Association, notify all members four weeks in advance of each annual meeting, notify all members of committees of their appointment and election, and furnish each member of the committee with the names of their associates, and in con-

junction with the executive committee, superintend such publications as the Association may direct, and at each annual meeting render a report of the duties performed by him since the last annual meeting with a report of his accounts, and the names of such members as have not paid their dues for three successive years. He shall receive a salary of one hundred dollars per year.

He shall file a bond in the sum of one thousand dollars, the expense of which shall be paid by the Association. He shall sign all certificates of membership, and draw all orders on the treasurer to be countersigned by the president.

Section 3. The treasurer shall receive all moneys from the Secretary and faithfully care for the same. He shall pay all bills for the Association only upon orders drawn by the secretary and countersigned by the president.

He shall present a report of his accounts at each annual meeting.

He shall receive as salary the sum of fifteen dollars per year. He shall give a bond in the sum of one thousand dollars, the expense of which shall be paid by the Association.

Section 4. The executive committee shall have full power to act for and have general charge of the affairs of the Association, providing that the action of such committee shall not contravene instructions of the Association.

Section 5. This Association may establish for its future government and regulation, such by-laws not in conflict with this constitution as may be deemed proper and advisable.

Section 6. The annual meeting of this Association shall be held at such date and place as the Association shall direct.

Section 7. Every proposition to alter or amend this constitution shall be submitted in writing and received at an annual meeting and may be voted for at the next annual meeting, when, upon receiving the votes of three-fourths of the members present and entitled to vote, it shall become a part of this constitution.

BY-LAWS.

Article I.

Fifteen members shall constitute a quorum for the transaction of business at all meetings.

Article II.

The names of persons applying for membership, with their residences, shall be presented in writing, recommended by two members in good standing and referred to the executive committee, and if reported favorable, the candidates may be balloted for, and if they receive two-thirds of the votes cast, shall be declared elected.

Article III.

The membership fee shall be two dollars, which shall include the dues for the current year, which amount shall accompany the application and be paid to the secretary.

Article IV.

Every member shall pay annually in advance into the hands of the Secretary the sum of two dollars. Any member in arrears at the annual meeting shall not be entitled to vote, and if three years in arrears shall lose his membership.

Article V.

Section 1. The President shall, before the close of each annual meeting, appoint the following committees (of which he shall be a member ex-officio), each to consist of three members, viz.: Committee on the drug market and trade interests; committee on pharmacy; committee on legislation and committee on papers.

Section 2. The committee on the drug market and trade interests shall report at each annual meeting such observations and information on these subjects as may seem to them of interest to the Association.

Section 3. The committee on pharmacy shall report annually respecting the scientific progress, discoveries and investigation during the year.

Section 4. The committee on legislation shall compile for reference the laws of the dif-

ferent states regulating the practice of pharmacy and the sale of medicines, and report at each annual meeting what important changes, if any, have occurred during the year, and what additional legislation shall be desirable in this State.

Section 5. The committee on papers shall invite members and others, as they deem proper to prepare and present papers on subjects of interest to the profession, and shall have general management of any prize offered by the Association.

Section 6. Special committees may be appointed as occasion requires, but such committees shall be limited to the scope of the resolution under which they act.

Article VI.

This Association shall annually elect five delegates to the American Pharmaceutical Association, and they shall present their report at the next annual meeting of this Association. Delegates to other Pharmaceutical Associations shall be appointed by the President.

Article VII.

Any amendment to these by-laws must be made in writing, read before the Association at one sitting and laid over to a subsequent sitting, when upon receiving the votes of two-thirds of the members present, it shall become a part of these by-laws.

FEE-SPLITTING.

This is a practice which leads to several indictments. It induces family physicians to betray the sacred confidences of their trusting patients and refer them not to those men who are most competent and who offer the greatest possibility of the saving of life and the preservation of health, but to men who pay for the victim. It lowers the dignity and value of the services of the family physician, who is presumably rendering valued services for nothing, and gives a magnified value to surgery, which is presumably receiving all. How much more exalted would be the standing of the general practitioner if people were taught to value his services in diagnosis and his responsibility in counseling surgery and recommending a surgeon and that they should pay for this service as they would for any other. It should be the privilege of the surgeon to aid the physician openly to secure this just compensation. As a rule the patient is robbed, paying two fees instead of one, as he supposes. Fee-splitting is the stepping-stone by which incompetent men secure business. It penalizes honesty in the young surgeon who is capable but must sit idly by and starve while his less competent competitor buys the business. It leads to many unnecessary operations with their attendant risk and expense performed merely because the patient can be induced to submit and has the price. It is a betrayal of trust, encourages dishonesty, breeds incompetency and should in short, be held a crime. Dr. Jabez N. Jackson, Kansas City, Mo., before the Western Surgical Association, St. Louis, Dec. 19, 1913.—*Journ. Am. Med. Assn.*

Contributed and Selected

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

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PART II—FIRST PROOF.

A second installment of the abstract of proposed new descriptions and standards, and of changes in descriptions and standards is herewith submitted.

This abstract embraces most of the drugs of vegetable and animal origin. Many descriptions have been amplified or added and it has been found necessary to present these in full.

Where no reference is made to definitions and descriptions it is understood that the material facts remain the same as in the United States Pharmacopœia, Eighth Revision.

Other abstracts will be submitted later. Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, 1832 Pine street, Philadelphia, before May 1, 1914.

Acacia.—The air-dried gummy exudation of *Acacia Senegal Willdenow*, and other African species of *Acacia*. In ovoid, more or less spheroidal tears or in broken, angular fragments from 2 to 30 mm. in diameter, varying from whitish, yellowish-white to light amber-colored. Slowly and almost completely soluble in twice its weight of water, the solution having a slight, characteristic odor. The requirement that it should not reduce alkaline cupric tartrate V. S. is omitted. Powder: Not more than 1 percent. should be insoluble in water (limit of plant tissues, sand, and dirt). The powder should contain not more than 15 percent. of moisture.

Aconitum.—Not more than 5 percent. of stem-bases or other foreign matter should be present. More or less conical or fusiform, from 4 to 10 cm. in length, from 1 to 2 cm. in diameter at the crown; externally dark brown or grayish-brown, smooth or longitudinally wrinkled, the upper end with a bud, remains of bud-scales or stem-scars, the other portions with numerous root-scars or short rootlets; fracture short, horny or somewhat mealy; internally, bark light or dark brown, 1 to 2 mm. in thickness, cambium zone usually 5- to 8-angled, with a small fibro-vascular bundle in each angle, pith whitish or light brown, 2 to 7 mm. in diameter; odor very slight; taste sweetish, soon becoming acrid and developing

*Permission to reprint for purposes of comment can be had on application to the Chairman of the Board of Trustees, J. H. Beal, Scio, Ohio.

a tingling sensation, followed by numbness. Under the microscope transverse sections made near the middle of the tuberous root of Aconite show an epidermis replaced by a layer consisting of one or more rows of cells with blackish-brown walls; a primary cortex of 8 to 15 rows of parenchyma and characteristic stone cells, occurring either singly or in small groups; a more or less modified endodermis; a secondary cortex, consisting chiefly of starch-bearing parenchyma and interspersed with a few small fibro-vascular bundles; a more or less star-shaped and characteristic cambium with from 5 to 12 collateral fibro-vascular bundles; and a pith composed of large parenchyma cells filled with starch. Powder: Grayish-brown; starch grains numerous, spherical, somewhat plano-convex, single or 2- to 5-compound, the individual grains from 0.003 to 0.015 mm. in diameter and frequently with a central cleft; tracheæ mostly with slit-like, simple pores, sometimes with spiral or reticulate thickenings or with bordered pores; stone cells single, tabular, irregular in shape or elongated to fibers from 0.100 to 0.400 mm. in length, walls from 0.008 to 0.025 mm. in thickness, strongly lignified and having large simple pores; fragments of cork few, yellowish-brown; fragments of parenchyma numerous, the cells being filled with starch grains; bast-fibers from stems few, very long, with lignified walls about 0.005 mm. thick, and marked by transverse or oblique, slit-like pores. Ash not exceeding 6 percent.

Agar-Agar.—The dried mucilaginous substance extracted from *Gracilaria* (*Sphaerococcus*) *lichenoides* Greville and other marine algæ growing along the eastern coast of Asia, particularly several species of *Gelidium* or *Gloiopeltis* (Class Rhodophyceæ. Mostly in bundles from 4 to 6 dm. in length, consisting of thin, translucent, membranous, agglutinated pieces from 4 to 8 mm. in width; externally yellowish-white or brownish-white, shiny; tough when damp, brittle when dry; odor slight; taste mucilaginous. A fragment mounted in water and examined under the microscope gradually becomes more transparent, showing a granular structure and a few diatoms, notably the frustules of *Arachnoidiscus Ehrenbergii* Baillon, which are disk-shaped, from 0.100 to 0.200 mm. in diameter, and also fragments of the spiculæ of sponges; upon the addition of iodine some of the granules or hyphal-like portions are colored bluish-black. Insoluble in cold water, slowly soluble in hot water. A solution made by boiling 0.100 Gm. of Agar-agar in 100 Cc. of water, upon cooling, should yield no precipitate upon the addition of tannic acid T. S. (gelatin) and should not produce a blue color upon the addition of iodine T. S. (starch). One part of Agar-agar boiled for about ten minutes with 100 parts of water, and replacing the water lost by evaporation, should yield a stiff jelly upon cooling. Powder: Pale buff; when mounted in water and examined under the microscope it shows transparent, more or less granular, striated angular fragments. In some mounts occasional frustules of diatoms are present; with iodine T. S., fragments for the most part are colored bright red, certain more or less definite areas being stained bluish-black. Ash not exceeding 5 percent.

Aloe.—Definition: The inspissated juice of the leaves of *Aloe Perryi* Baker, yielding Socotrine Aloes; or *Aloe vera* (Linné) Webb, yielding Curaçao Aloes; or of *Aloe ferox* Miller, yielding Cape Aloes (Fam. Liliaceæ). Socotrine Aloes: In yellowish-brown to blackish-brown, opaque, or smooth and glassy masses; fractured surface somewhat conchoidal; sometimes soft or semi-liquid;

odor aromatic or saffron-like, never fetid or putrid; taste nauseous, bitter. Not less than 50 percent. of Socotrine Aloes should be soluble in cold water, the solution being of a yellowish color. Powder: Very dark brown; when mounted in one of the fixed oils and examined under the microscope it shows yellowish or reddish-brown, irregular, or angular fragments. Upon the addition of nitric acid, it yields a yellowish or reddish-brown solution. Curaçao Aloes: In orange to blackish-brown, opaque masses; fractured surface uneven, waxy, somewhat resinous; odor characteristic but not aromatic as in Socotrine Aloes. Not less than 60 percent. of Curaçao Aloes should be soluble in cold water, the solution being of a purplish-red color. Powder: Deep reddish-brown; when mounted in one of the fixed oils, and examined under the microscope it shows numerous blackish-brown or reddish-brown, irregular angular, more or less opaque fragments. Upon the addition of nitric acid it yields immediately a deep red solution. Cape Aloes: In reddish-brown or olive-black masses, usually covered with a yellowish powder; in thin, transparent fragments, of a reddish-brown color; fracture smooth and glassy; odor characteristic. Not less than 60 percent. of Cape Aloes is soluble in cold water, the solution being of a pale yellow color. Powder: Greenish-yellow changing to light brown on aging; when mounted in one of the fixed oils and examined under the microscope it shows numerous, distinctly angular, bright yellow fragments. Upon the addition of nitric acid it yields a solution that is colored reddish-brown, changing to purplish-brown and finally greenish. The tests which follow apply to Socotrine, Curaçao and Cape Aloes: Aloes should contain not more than 10 percent. of moisture. If to 1 Gm. of Aloes 50 Cc. of alcohol be added, the mixture first gently heated and then cooled, a nearly clear solution should be obtained (gum and inorganic impurities). Intimately mix 1 Gm. of Aloes with 10 Cc. of hot water and dilute 1 Cc. of this mixture with 100 Cc. of water; a green fluorescence should be produced upon the addition of a 5 percent. solution of sodium borate. Dilute 1 Cc. of the original aqueous mixture of Aloes with 100 Cc. of water, shake it with 10 Cc. of benzene; upon separating the benzene solution and adding to it 5 Cc. of ammonia water, a deep rose color, which is permanent, should be produced in the lower layer. Ash not exceeding 4 percent.

Althæa.—The root of *Althæa officinalis* Linné (Fam. Malvaceæ) deprived of the brown, corky layer and small roots, and carefully dried. Root: Usually cut into small pieces about 5 mm. in diameter, of a uniform grayish-white color and otherwise having the characters of entire roots; occasionally entire, slenderly tapering, attaining a length of 30 cm. and a thickness of 2 cm.; externally whitish, longitudinally furrowed, frequently spirally twisted and covered with the somewhat loosened bast-fibers; fracture of bark fibrous, of wood short and granular; internally yellowish-white, bark from 1 to 2 mm. thick, porous, due to mucilage cells, and separated from the slightly radiating wood by a distinct, grayish, cambium zone; odor slight; taste sweetish, mucilaginous. Powder: Whitish; starch grains, numerous, from 0.005 to 0.020 mm. in diameter, usually with a long cleft at the point of origin of growth; sclerenchymatous fibers in groups, the walls being quite thick and more or less lignified; tracheæ with scalariform thickenings or with bordered pores; calcium oxalate crystals few, in rosette aggregates, 0.020 mm. to 0.030 mm. in diameter. Add 1 Gm. of *Althæa*

Root to 10 Cc. of cold water, allow it to stand with occasional stirring, and filter it through cotton; a pale yellow colored mucilage should be obtained, which should be neutral to litmus, and colored a deep yellow on the addition of a few drops of potassium hydroxide T. S. The mucilage should not have a sour or ammoniacal odor. Ash not exceeding 8 percent.

Amygdala Dulcis.—Powder: Creamy-white, exhibiting numerous very small oil globules, 0.001 mm. or less in diameter, larger oil globules and crystalloids, the latter sometimes with adhering globoids; fragments of parenchyma of endosperm, containing oil globules and aleurone grains; also occasional fragments of seed-coat with characteristic, more or less scattered, large elliptical, thin-walled, strongly lignified epidermal cells and narrow, closely spiral tracheæ. Starch grains are absent. Ash not exceeding 4 percent.

Amylum.—Taste slight, characteristic. Residue on incineration changed from "not more than 1 percent." to "not more than 0.5 percent."

Anisum.—Definition requires the dried ripe fruit with not more than 3 percent. of foreign seeds and other vegetable matter. Fruit: The cremocarp broadly ovoid or pyriform, laterally compressed, 3 to 6 mm. in length, 2 to 3 mm. in breadth; mericarps usually cohering and attached to a slender pedicel 2 to 12 mm. in length, summit with a ring-like disk and 2 projecting, diverging styles; externally grayish or greenish-gray, seldom grayish-brown, slightly pubescent; each with five light brown, filiform ridges and in cross-section with from 15 to 45 vittæ or oil tubes; odor and taste agreeable and aromatic. Under the microscope transverse sections of Anise show an epidermal layer with numerous papillæ and short, one-celled, non-glandular hairs having very thick, papillose walls; primary ribs each with a small, fibro-vascular bundle, surrounded by a few sclerenchymatous fibers; vittæ or oil tubes, 13 to 56 in number, extending as a more or less interrupted circle in the tissues of the mesocarp on the dorsal side of each mericarp; 2 large vittæ on the commissural surface, each separated from the other tissues of the mericarp by a large cavity due to shrinkage of the seed-coat; inner epidermis of pericarp consisting of a layer of narrow tangentially elongated cells closely united with the seed-coat, the inner walls of which are yellowish-brown and considerably thickened; endosperm of polygonal, thick-walled cells, filled with spherical or ellipsoidal aleurone grains, each containing a small rosette aggregate of calcium oxalate; the aleurone grains surrounded with an oily protoplasm, the oil of which is liberated upon mounting sections in hydrated chloral T. S., and appearing in the form of small globules; epidermal layer near the middle of the commissural surface composed of 2 or 3 rows of cells with thick, porous walls, and beneath which occur small groups of thick-walled cells resembling stone cells. Powder: Yellowish-brown, consisting of numerous irregular fragments of pericarp showing portions of the yellowish vittæ, fragments with tracheæ and sclerenchymatous fibers of carpophore; cells of endosperm filled with aleurone grains, 0.006 mm. in diameter, each usually enclosing a rosette aggregate crystal of calcium oxalate 0.002 mm. in diameter; non-glandular hairs 1-celled, from 0.025 to 0.200 mm. in length, either straight or curved and with numerous, slight, centrifugal projections on the outer surface. Ash not exceeding 10 percent.

Apocynum.—The dried rhizome and roots of *Apocynum cannabinum* Linné

(Fam. Apocynaceæ), with not more than 5 percent. of stems and other foreign matter. Cylindrical, somewhat branched, of varying length, from 3 to 10 mm. in thickness; externally reddish-brown to grayish-brown, longitudinally wrinkled and occasionally with transverse fissures, having vertical sides, extending through the bark; fracture short; internally, bark light brown, 1.5 to 3 mm. in thickness, wood faintly radiate and with large tracheæ, a small pith occurring in pieces of the rhizome; almost inodorous, taste starchy, afterwards becoming bitter and somewhat acrid. Under the microscope sections of *Apocynum* show numerous laticiferous vessels in both the bark and pith. Stems of *Apocynum* have a comparatively thin fibrous bark, a light brown porous wood and a large, hollow pith. Powder: Light brown, starch grains numerous, from 0.003 to 0.015 mm. in diameter, spherical, ellipsoidal, ovate, pyriform or more or less irregular, sometimes more or less altered, swollen, and with a hyaline central cleft; numerous fragments of strongly lignified wood-fibers, associated with tracheæ mostly having bordered pores, occasionally with spiral thickenings; fragments of cork layer few, the walls being of a reddish-brown color; an occasional fragment with laticiferous tissues; stone cells few or absent. (*Apocynum androsæmifolium* Linné.)

Arnica.—Florets: Consisting chiefly of the tubular and ligulate flowers, occasionally with the involucre and receptacle present; involucre bracts narrowly lanceolate, about 1 cm. in length, dark green and pubescent; receptacle slightly convex, deeply pitted and densely short-hairy; ray flowers bright yellow, the ligulate portion, 2 cm. in length, more or less folded lengthwise, 3-toothed, 7- to 12-veined, pistillate; tubular flowers perfect, reddish-yellow, stamens without a tail-like appendage (distinguished from anthers in flowers of *Inula* *Helenium* Linné, which have two bristles or long tails at the base); the achenes spindle-shaped, 5 to 7 mm. in length, dark brown, finely striate, glandular-pubescent and surmounted by a pappus a little longer than the achene and composed of a single circle of nearly white barbellate bristles; odor characteristic and agreeable; taste bitter and acrid. Powder: Yellowish-brown, pollen grains numerous, from 0.025 to 0.035 mm. in diameter, spherical, triangular in section and spinose; non-glandular hairs of three kinds, either unicellular, 4- to 6-celled, or consisting of a pair of united unicellular hairs with numerous pores in the dividing wall; glandular hairs of three kinds, either with a large unicellular stalk and a unicellular, glandular head or with a 4-celled stalk and a unicellular glandular head, or a stalk of a double row of 5 cells and a 2-celled glandular head; pappus consisting of a multicellular axis with unicellular branches. Ash not exceeding 9 percent.

Asafætida.—The gum-resin, obtained by incising the rhizomes and roots of *Ferula Asafætida* Linné and *Ferula foetida* Regel and of other species of *Ferula* (Fam. Umbelliferae) indigenous to Persia and adjacent countries, yielding not less than 60 percent. of alcohol-soluble constituents. A soft, putty-like mass, sometimes almost semi-liquid, or in irregular, more or less pliable hard masses composed of agglutinated tears of variable size embedded in a yellowish-brown or dark brown matrix, or in loose, ovoid tears, from 1 to 4 cm. in diameter, the surface being sometimes streaked a violet, yellowish-red or brownish-red and with a few vegetable fragments; when fresh the mass is either soft or tough, becoming hard and occasionally even brittle on drying; the surface of the freshly fractured tears is milky-white and opaque, changing gradually to a

pinkish or reddish-purple or even reddish-brown on exposure; on moistening with water, the tears become milky-white; odor persistent, alliaceous; taste bitter, alliaceous and acid. Triturate one part of Asafetida with three parts of water; it should form a milk-white emulsion which should become yellowish on the addition of alkalis. Heat a fragment of one of the tears of Asafetida with sulphuric acid; a reddish-brown solution should be formed; greatly dilute the latter with water, filter, and add an excess of any of the alkalis, the solution should acquire a blue fluorescence, becoming more pronounced upon the addition of a slight excess of ammonia water. An alcoholic solution of the tears, on the addition of a few drops of phloroglucinol T. S. and a few drops of hydrochloric acid should become of a cherry-red color. Add a few drops of ferric chloride T. S. to a portion of the alcoholic solution of Asafetida, obtained in the assay process given below; an olive-green color should be produced (most foreign resins). Add hydrochloric acid to another portion of the same alcoholic solution until a faint turbidity results; a bluish-green color should be developed, which fades on standing (galbanum). Evaporate enough of the same alcoholic solution, representing 5 Gm. of Asafetida, to 25 Cc., mix it with 25 Cc. of purified petroleum benzin in a separatory funnel and afterwards add twice its volume of water; the mixture and the petroleum benzin layer, after washing with water and subsequent separation, should exhibit no green color when shaken with 30 Cc. of a freshly made aqueous solution of copper acetate (1 in 20) (rosin). Mix 2 Cc. of emulsion of Asafetida with 5 Cc. of water and add 5 Cc. of sodium hypobromite T. S., so as to form a separate layer; a red color should not be produced (ammoniac). Ash of the gum-resin not exceeding 15 percent.. Powder: Powdered Asafetida may be prepared by drying the gum-resin over freshly burnt lime or by exposing it to currents of warm air until it ceases to lose weight, and then reducing it to a powder at a low temperature. Diluents of starch or magnesium carbonate may be added in order to maintain the powdered form. The color of powdered Asafetida is light brown. Not less than 50 percent. should be soluble in alcohol. Ash of the powder not exceeding 30 percent. Assay: Place about 10 Gm. of Asafetida in a tared, 250 Cc. Erlenmeyer flask, determine the exact weight of the drug, add 100 Cc. of alcohol, and, having connected the flask with an upright condenser, boil the mixture in the flask during one hour or until the drug is disintegrated completely. Then transfer the contents of the flask to two counterpoised, plainly folded filters, one within the other, so that the triple fold of the inner filter is laid against the single side of the outer, and wash the flask and filter with consecutive, small portions of boiling alcohol until the washings no longer produce a cloudiness when dropped into water. Collect and reserve the mixed alcoholic solutions and dry the filters and flask to a constant weight at a temperature of about 115° C. Now determine the weight of the residue on the filter and in the flask and calculate its percentage from the amount of Asafetida originally taken. This percentage of alcohol-insoluble material, when subtracted from 100, will give the percentage of alcohol-soluble constituents contained in the Asafetida.

Aspidium.—The “uncomminted rhizome and stipes” should be collected in the autumn, freed from the roots and dead portions of rhizome and stipes and dried at a temperature not exceeding 70° C. Usually with the blackish-brown

outer layers removed; rhizome 1 to 3 cm. in thickness, cylindraceous and nearly straight, or curved and tapering toward one end, usually split longitudinally, roughly scarred with remains of the stipe-bases, or bearing several coarse longitudinal ridges and grooves, stipes cylindrical, 3 to 5 cm. in length, about 6 mm. in thickness, nearly straight, or somewhat curved, tapering toward one end, and with occasional elongated patches of the still-adhering, blackish-brown out-layers; fracture short, pale green in the inner half, the texture rather spongy, and exhibiting in an interrupted circle from 6 to 12 vascular bundles, each surrounded with an endodermis; odor slight; taste sweetish, astringent, bitter and acrid. Ash not exceeding 3 percent.

Aurantii Amari Cortex.—Rind from “unripe” fruit of *Citrus Aurantium amara* Linné. In narrow, thin bands (ribbons), or more often elliptical, flattened, more or less curved pieces (quarters), varying from 3 to 6 cm. in length; outer surface convex; varying from reddish-brown (ribbons) to greenish-brown (quarters), coarsely reticulate and with the edges recurved; inner surface concave, whitish, with numerous conical projections and yellowish-white, linear, more or less anastomosing, fibro-vascular bundles; fracture hard; cross section light brown, somewhat spongy, outer layer with 1 or 2 rows of oil reservoirs; odor fragrant; taste aromatic and bitter. Powder: Yellowish-white or light brown; fragments of parenchyma cells numerous, the walls from 0.004 to 0.012 mm. in thickness; few fragments of tracheæ with close spiral markings or simple pores; occasional membrane crystals of calcium oxalate in monoclinic prisms, from 0.020 to 0.035 mm. in diameter. Powdered Bitter Orange Peel should be colored yellowish upon the addition of potassium hydroxide T. S. Ash not exceeding 7 percent.

Aurantii Dulcis Cortex.—The outer rind of the fresh, ripe fruit of *Citrus Aurantium sinensis* Gallesio (Fam. Rutaceæ). The outer, orange-yellow layer recently separated by grating or paring and consisting of epidermal cells, parenchyma cells of the sarcocarp, with chromoplastids, oil reservoirs and globules of volatile oil; odor highly fragrant; taste pungently aromatic.

Belladonna Folia.—The dried leaves and tops with not more than 10 percent. of stems; usually much twisted and matted together; leaves much crumpled, when soaked in water and spread out, from 6 to 20 cm. in length, 4 to 12 cm. in breadth, broadly ovate, summits acute, margins entire, narrowed into the long petioles; upper surfaces brownish-green; lower surfaces grayish-green, epidermis more or less papillose and slightly hairy; flowers with yellowish-purple, campanulate corollas; fruits globular; fruits dark green or greenish-brown, subtended by a dark green calyx, and with numerous small seeds; odor distinct, heavy, especially on moistening; taste somewhat bitter and acrid. Stems of variable length, not exceeding 7 mm. in diameter, longitudinally wrinkled, older parts smooth and usually hollow, younger parts flattened and finely hairy. Powder: Dark green, consisting of irregular fragments of leaf tissues and woody elements, calcium oxalate in sphenoidal micro-crystals; hairs few, the non-glandular being simple 2- to 5-celled, and the glandular with stalks of 1 to 3 cells; tracheæ with annular, spiral, scalariform or reticulate thickenings and with bordered pores; starch grains and pollen grains few; occasional fragments of the stems of *Belladonna* with long, thin-walled and slightly lignified bast-fibers.

Raphides should not be present (leaves and stems of *Phytolacca decandra* Linné). Ash not exceeding 20 percent.

Belladonna Radix.—The dried root with not more than 10 percent. of its stem-bases; cylindrical or somewhat tapering, usually split into longitudinal pieces, of 0.5 to 2.5 cm. in thickness; externally pale brownish-gray, longitudinally wrinkled, outer layers of the periderm rather soft, frequently abraded, and thus showing lighter patches; fracture nearly smooth, mealy, and emitting a characteristic puff of dust consisting chiefly of starch grains; internally whitish, with a distinct cambium zone and yellowish wood wedges; nearly inodorous; taste sweetish, afterwards bitterish and strongly acrid. Transverse sections of *Belladonna Root*, when moistened with iodine T. S., should be colored bluish-black and by transmitted light should show an imperfectly radiate structure within and near a conspicuous cambium line. Under the microscope sections exhibit a bark and wood composed mainly of parenchyma, the cells being filled with starch grains, single and 2- to 6- or more compound, the individual grains being somewhat spherical and from 0.003 to 0.030 mm. in diameter. A section cleared with hydrated chloral T. S. should show occasional cells of parenchyma filled with sphenoidal micro-crystals of calcium oxalate in both bark and wood; bark free from bast-fibers; wood containing scattered groups of large tracheæ with simple and bordered pores or reticulated thickenings, and associated in older roots with wood-fibers. Stem fragments of *Atropa Belladonna* occur either separate or attached to the roots, light brown or greenish-brown, finely, longitudinally wrinkled, with transverse leaf-scars, pith frequently hollow. Under the microscope sections of *Belladonna stem* show an outer epidermis with slightly cuticularized walls; a primary cortex of parenchyma, the cells being separated by large, intercellular spaces; an endodermis, beneath which occur in an interrupted circle bast-fibers either singly or in small groups, the walls of which are relatively thin and slightly lignified; a few layers of sieve; a central cylinder of a few tracheæ with numerous wood-fibers; an internal phloem with isolated, small groups of bast-fibers similar to those found in the inner bark; pith, if present, with large irregular parenchyma cells. Powder: Light-brown; starch grains numerous, from 0.003 to 0.030 mm. in diameter, spherical, plano-convex, polygonal, and 2- to 6- or more compound; sphenoidal micro-crystals numerous, from 0.003 to 0.010 mm. in length; fragments of cork cells and tracheæ with wood-fibers few. Occasional fragments of stems of *Belladonna* showing long thin-walled and slightly lignified bast-fibers. Ash not exceeding 7 percent.

Benzoinum.—A balsamic resin obtained from *Styrax Benzoin Dryander*, and other species of *Stryax* (Fam. *Styracæ*) growing in the East Indies, and known in commerce as *Sumatra Benzoin* and *Siam Benzoin*. *Sumatra Benzoin*: In blocks or lumps of varying size, made up of tears, compacted together with a reddish-brown, reddish-gray, or grayish-brown resinous mass; tears externally yellowish or rusty-brown, milky-white on fresh fracture; very hard, becoming soft on warming; odor aromatic, upon digesting with boiling water, suggesting the odor of cinnamic acid or storax; taste aromatic and slightly acrid, the resin gritty on chewing. Heat a few fragments of *Sumatra Benzoin* in a test-tube; a sublimate should be formed consisting of plates and small, rod-like crystals that strongly polarize light. Add carefully an ethereal solution of *Sumatra Benzoin*

to a small quantity of sulphuric acid contained in a porcelain dish; the solution should be colored a brownish-red. Not less than 75 percent. of Sumatra Benzoin should dissolve in alcohol; the alcoholic solution, upon the addition of water, should become milky and give an acid reaction to litmus. Ash not exceeding 2.5 percent. Siam Benzoin: In pebble-like tears of variable size, compressed, yellowish-brown to rusty-brown externally, milky-white on fracture, separate or very slightly agglutinated; fracture short; odor agreeable, balsamic, vanilla-like; taste slightly acid, the resin becoming plastic on chewing. Heat a few fragments of Siam Benzoin in a test-tube; a sublimate should be formed directly above the melted mass consisting of numerous, long, rod-shaped crystals, which do not strongly polarize light. Add carefully an ethereal solution of Siam Benzoin to a small quantity of sulphuric acid contained in a porcelain dish; the solution should be colored purplish-red. Not less than 90 percent. of Siam Benzoin should dissolve in alcohol; the alcoholic solution upon the addition of water should become milky and give an acid reaction to litmus. Ash not exceeding 2 percent. The tests which follow apply to both Sumatra and Siam Benzoin: Heat gently 1 to 2 Gm. of either Sumatra or Siam Benzoin with 15 Cc. of petroleum benzin, and after cooling transfer the supernatant liquid to a separator. Wash with 10 Cc. of a saturated aqueous solution of sodium bicarbonate, draw off and discard the aqueous layer and then wash the mixture in the separator with water until it is free from bicarbonate. On adding 20 Cc. of an aqueous solution of copper acetate (1 in 200) and vigorously shaking the mixture, no green color should be observed in the petroleum benzin layer (rosin and foreign resins). Treat 1 Gm. of powdered Benzoin with 15 Cc. of warm carbon disulphide, filter the solution, wash the filter with an additional 5 Cc. of carbon disulphide and allow the mixed liquids to evaporate spontaneously. A residue, weighing not less than 0.125 Gm. and corresponding to the identification tests under *Acidum Benzoicum*, should remain.

Buchu.—The dried leaves of *Barosma betulina* (Thunberg) Bartling and Wendland, known in commerce as Short Buchu; or of *Barosma serratifolia* (Curtis) Willdenow, known in commerce as Long Buchu (Fam. Rutaceæ), with not more than 10 percent. of stems and other foreign matter. Short Buchu: Rhomboidally oval or obovate; from 9 to 25 mm. in length and 4 to 13 mm. in breadth; summit obtuse, and recurved; margin somewhat serrate or finely dentate with an oil gland at the base of each tooth; the base more or less wedge-shaped; yellowish-green, some being light brown; glandular punctate; both surfaces papillose, under surface longitudinally striate; petiole 1 mm. in length; texture coriaceous; odor and taste characteristic, aromatic and mint-like. Long Buchu: Linear-lanceolate, 2.5 to 4 cm. in length, 4 to 6 mm. in breadth, summit somewhat rounded or truncate with an oil gland at the apex; margin sharply serrate and glandular, otherwise resembling Short Buchu. Stems in both Short and Long Buchu about 1 mm. in diameter, yellowish-green or brownish-red, cylindrical, longitudinally furrowed, with prominent leaf-scars nearly opposite to each other and giving the stems a jointed character. Ash not exceeding 4 percent.

Calumba.—In circular or oval disks attaining a diameter of 9 cm. and seldom exceeding 22 mm. in thickness, or in longitudinal or oblique slices attaining a length of 30 cm., a breadth of 35 mm. and a thickness of 16 mm.; externally brown and roughly wrinkled; cut surface varying from yellowish-brown to gray-

ish-yellow, with a few interrupted circles of fibro-vascular bundles, the transverse slices distinctly radiate in the outer portion and with a dark cambium, central portion often depressed; fracture short, mealy; odor slight; taste slightly aromatic, very bitter. Powder: Greenish-brown to grayish-yellow; starch grains numerous, mostly single, occasionally 2- to 3-compound, the individual grains from 0.003 to 0.085 mm. in the long diameter, ovoid, ellipsoidal, frequently very irregular, slightly lamellated, with an excentral, linear, x-shaped or branching cleft; stone cells few with irregularly thickened, strongly lignified, coarsely porous walls and containing one or more prisms of calcium oxalate 0.010 to 0.030 mm. in length or numerous sphenoidal micro-crystals; fragments with tracheæ few, the latter with reticulate thickenings, or bordered pores, and associated with wood-fibers having long, oblique, slit-like pores. Ash not exceeding 8 percent.

Cambogia.—When rubbed with water it should yield a yellow emulsion becoming darker and almost transparent upon the addition of ammonia water. The emulsion should not turn green upon the addition of iodine T. S. (starch). Powder: Bright yellow, containing few or no starch grains. When mounted in hydrated chloral T. S. and examined under the microscope, the particles, for the most part, should slowly dissolve, leaving scattered fragments of vegetable tissues. Not less than 65 percent. soluble in alcohol. Ash not exceeding 2 percent.

Cannabis.—The dried flowering tops of the pistillate plants of *Cannabis sativa* Linné, or of the variety *indica* Lamarck, (Fam. Moraceæ), freed from the thicker stems and large foliage leaves and with not more than 10 percent. of mature fruits (seeds). In dark green, more or less brownish, compressed, and more or less agglutinated, resinous fragments, consisting of the short stems with their leaf-like bracts and pistillate flowers, a few of the latter being sometimes replaced with more or less developed fruits; stems cylindrical, of varying length, not more than 3 mm. in diameter; longitudinally furrowed, light green to light brown, strigose-pubescent; leaves digitately compound; leaflets, when soaked in water and spread out, linear-lanceolate, nearly sessile, margin deeply serrate; bracts ovate, pubescent, each enclosing 1 or 2 pistillate flowers, or more or less developed fruits; calyx dark green, pubescent and somewhat folded around the ovary or fruit; styles 2, filiform and pubescent; ovary with a single campylotropous ovule; fruit light green to light brown, broadly ellipsoidal, about 3.5 mm. in length; finely wrinkled and slightly reticulated; odor agreeably aromatic; taste characteristic. Powder: Dark green, giving a strong effervescence on the addition of dilute hydrochloric acid; numerous sharp-pointed fragments of upper portion of non-glandular hairs; fragments of bracts and leaves showing yellowish-brown laticiferous vessels, rosette aggregates of calcium oxalate and bases of non-glandular hairs; rosette aggregates of calcium oxalate from 0.005 to 0.025 mm. in diameter; non-glandular hairs, unicellular with a very slender pointed apex and a considerably enlarged base containing, usually in the lumen, some calcium carbonate; glandular hairs of two kinds, one with a short one-celled stalk and the other with a multicellular, long, tongue-shaped stalk, the glandular portion being globular and consisting of from 8 to 16 cells; fragments of fruits with palisade-like, non-lignified sclerenchymatous cells, walls yellowish-brown, finely porous and lumina usually containing air; tissues of embryo and endosperm with numer-

ous oil globules and aleurone grains, the latter from 0.005 to 0.010 mm. in diameter and consisting of large crystalloids and globoids. Alcoholic extractive not less than 8 percent.; alcoholic solution bright green in color. Ash not exceeding 15 percent.

Cantharis.—From 15 to 25 mm. in length, 5 to 8 mm. in breadth, oblong, somewhat compressed above; of a brilliant green or bluish-green, metallic luster, changing in different parts, especially beneath, to a golden-green; head triangular, separated into two lateral lobes by a faint median line; mandibles stout and partly concealed; antennæ filiform, of 11 conical joints, the upper ones being black; eyes comparatively small; prothorax angulate; legs with five tarsal joints; wings membranous and brownish; elytra or wing sheaths each with 2 parallel lines and finely wrinkled; odor strong, disagreeable; taste slight, afterwards acid. Powder: Grayish-brown, with shining green particles and a number of long, pointed, 1-celled hairs about 0.5 mm. in length and 0.002 mm. in width. Moisture not more than 10 percent. Ash not exceeding 9 percent.

Capsicum.—The fruit may include not more than 2 percent. of stems, calyxes and other foreign matter. Oblong-conical, from 8 to 20 mm. in length and from 2 to 15 mm. in diameter; pericarp brownish-red or orange, shining, membranous and translucent; 2- or 3-locular, united below, and containing 6 to 17 flat, reniform, yellowish seeds attached to the placenta or frequently separated from it; calyx light greenish-brown, inferior, inconspicuous, 5-toothed, usually attached to a long, straight peduncle; odor characteristic; sternutatory; taste intensely pungent. Powder: Yellowish-brown; mounts made with hydrated chloral T. S. and examined under the microscope show yellowish-red oil globules; stone cells of two kinds, those of endocarp being more or less elongated, walls yellowish, uniformly and moderately thickened, wavy in outline, porous and slightly lignified, those of the seed coat being yellowish, irregularly and strongly thickened, wavy in outline and strongly lignified. Non-volatile ether-extract not less than 15 percent. Total ash not exceeding 7 percent. Ash insoluble in hydrochloric acid, not exceeding 1 percent.

Cardamomi Semen.—The dried seeds of *Elettaria Cardamomum* White et Maton (Fam. Zingiberaceæ), which should be kept in the capsules until wanted for use. Mostly agglutinated in groups of from 2 to 7, the individual seeds, oblong-ovoid in outline, 3- or irregularly 4-sided, convex on the dorsal surface, strongly longitudinally grooved on one side, from 3 to 4 mm. in length; externally reddish-gray-brown, coarsely tubercled, and with more or less adhering portions of the membranous aril, moderately hard but easily crushed; in section showing a thin reddish-brown seed coat, a large white perisperm and a central greenish endosperm enclosing a small straight embryo; odor aromatic; taste aromatic, pungent. Capsules broadly or narrowly ellipsoidal, occasionally ovoid, more or less triangular in transverse section, from 10 to 20 mm. in length; externally usually of a pale buff color or whitish or greenish-brown; longitudinally striate; 3-locular; pericarp thin; leathery, and nearly tasteless, enclosing from 10 to 20 seeds. Powder: Greenish-brown; consisting chiefly of coarse, angular fragments of cells of the reserve layers and seed-coat; cells of endosperm and perisperm filled with compound starch grains, the individual grains from 0.001 to 0.004 mm. in diameter; fragments of seed-coat with dark brown stone cells, which are

polygonal in surface view and about 0.020 mm. in diameter; in mounts made with hydrated chloral T. S. single prisms or crystals in rosette aggregates may separate in the cells of the endosperm and perisperm; fragments of spiral tracheæ with accompanying slightly lignified bast-fibers, relatively few. Ash not exceeding 8 percent.

Carum.—Mericarps usually separated, crescent-shaped, from 3 to 7 mm. in length, about 1.5 mm. in diameter; externally dark brown with 5 yellowish filiform ribs; in transverse section nearly equilaterally pentagonal, the commissural surface with two vittæ, the dorsal surface with a vitta between each of the primary ribs; oily endosperm large, enclosing a small embryo; odor and taste agreeably aromatic. Under the microscope transverse sections show an epidermal layer of slightly tangentially elongated cells with thick outer walls; a layer of several rows of tangentially elongated parenchyma cells, frequently more or less collapsed; a single, large, elliptical, brown, vitta or oil-tube between each of the ribs and surrounded by small epithelial or secretion cells; in each of the ribs a single fibro-vascular bundle surrounded by a layer of thick-walled sclerenchymatous fibers; inner epidermis of broadly elongated cells with very thin side-walls being very frequently broken and closely coherent with the more or less brownish, collapsed cells of the seed-coat; commissural surface with 2 large vittæ and at the middle portion 2 large transverse hollow spaces formed by the separation of the tissues of the seed-coat on one side and the pericarp on the other, otherwise the cells resemble those on the dorsal surface; endosperm large, cells polygonal with thick walls and containing a fixed oil and aleurone grains, the latter not infrequently containing a small rosette aggregate or prism of calcium oxalate. Powder: Yellowish-brown, mostly of irregular, angular fragments; cells of endosperm with aleurone grains each usually containing a rosette aggregate of calcium oxalate about 0.001 mm. in diameter; fragments with light yellow vittæ, together with nearly isodiametric or polygonal, yellowish-brown, inner epidermal cells of pericarp; fragments with tracheæ and sclerenchymatous fibers, the latter about 0.010 mm. in width, slightly lignified and with numerous oblique pores. Ash not exceeding 8 percent.

Caryophyllus.—The dried flower-bud of *Eugenia aromatica* (Linné) O. Kuntze, (*Jambosa Caryophyllus*) (Sprengel) Niedenzu, (Fam. Myrtaceæ), with not more than 5 percent. of the peduncles, stems and other foreign matter. From 10 to 17.5 mm. in length, of a dark brown or brownish-black color, consisting of a stem-like, solid, inferior ovary, obscurely four-angled or somewhat compressed, terminated by four calyx teeth, and surmounted by a nearly globular head, consisting of four petals, which enclose numerous curved stamens and one style; odor strongly aromatic; taste pungent and aromatic, followed by slight numbness. On pressure Clove emits a volatile oil. Stems either separate or attached to the flower-buds; sub-cylindrical or four-angled, attaining a length of 25 mm., a diameter of 4 mm.; either simple or branching, distinctly jointed and less aromatic than the flower-buds. Powder: Varying from dark brown to reddish-brown; consisting chiefly of cellular fragments showing the large oil reservoirs, spiral tracheæ and a few, somewhat thick-walled, slightly lignified, spindle-shaped bast-fibers; calcium oxalate in rosette aggregates, from 0.010 to 0.015 mm. in diameter; pollen grains numerous, tetrahedral, somewhat ellipsoidal, from 0.015

to 0.020 mm. in diameter. The presence of stems in the powder is shown by stone cells of irregular, polygonal shape, about 0.070 mm. in diameter, with thick porous walls and large lumina, the latter frequently filled with a yellowish-brown amorphous substance. Volatile ether-extract not less than 10 percent. Total ash not exceeding 8 percent. Ash insoluble in hydrochloric acid not exceeding 0.5 percent.

Chondrus.—The dried plant of *Chondrus crispus* (Linné) Stackhouse and *Gigartina mamillosa* (Goodenough et Woodward) J. Agardh (Fam: Gigartineæ). Entire plants more or less matted together, consisting of a slender stalk from which arises a series of dichotomously branching, more or less flattened segments, emarginate or deeply cleft at the tips; 5 to 15 cm. in length, segments 1 to 10 mm. in width; yellowish-white, translucent, frequently coated with a calareous organic deposit which effervesces with hydrochloric acid; sometimes with fruit bodies or sporangia embedded near the apex of the segments in *C. crispus* or with sporangia borne on short, tuberculated projections or stalks, more or less scattered over the upper portion of the segments in *G. mamillosa*, somewhat cartilaginous; odor slight; taste mucilaginous, saline. Boil one part of *Chondrus* for about ten minutes with 30 parts of water and replace the water lost by evaporation; the solutions should form a thick jelly upon cooling. When softened in cold water *Chondrus* should become gelatinous, and transparent, the thallus remaining nearly smooth and uniform and not swollen except slightly at the tips; a solution made by boiling 0.300 Gm. in 100 Cc. of water and filtering gives no precipitate on the addition of tannic acid T. S. (gelatin), and does not give a blue color when cold, upon the addition of iodine T. S. (starch).

Cimicifuga.—The drug may include not more than 2 percent. of stems and foreign matter. Rhizome horizontal, more or less branching, from 2 to 12 cm. in length, from 1 to 2.5 cm. in thickness; externally dark brown, slightly annulate from circular scars of bud-scale leaves, the upper surface with numerous stout, erect or somewhat curved branches terminated by deep cup-shaped scars each of which usually shows a distinct radiate structure; interior and lateral portions with numerous root-scars and a few short roots; fracture horny; internally whitish and mealy or dark brown and waxy, bark thin, wood distinctly radiate and of about the same thickness as the pith; odor slight; taste bitter and acid. Roots somewhat cylindrical or obtusely quadrangular, 1 to 3 mm. in thickness, externally dark brown, longitudinally wrinkled, fracture short; internally, bark dark brown, wood yellowish, 4- to 6-rayed. Under the microscope sections of the rhizome show a yellowish-brown suberized epidermis, a cortex made up of about 30 layers of starch-bearing parenchyma cells; fibro-vascular bundles, collateral, the xylem consisting of tracheæ, with bordered pores, and resembling tracheids in that the ends are rather acute; wood-fibers numerous, thin-walled, strongly lignified and with simple, oblique pores; the bundles separated by starch-bearing parenchyma strands from 5 to 30 cells wide; pith cells numerous, resembling those of the cortex. Under the microscope sections of the roots show a hairy epidermis, which becomes suberized in older roots; the cortex shows about 12 rows of starch-bearing parenchyma cells; endodermis distinct; fibro-vascular bundles 4 to 6, showing in older roots as separate collateral bundles. Powder: Light to dark brown; starch grains numerous, single or compound, the individual grains spherical or more or less polygonal, each with a somewhat central cleft, from

0.003 to 0.015 mm. in diameter; fragments showing tracheæ with bordered pores and lignified wood-fibers; irregular, yellowish-brown fragments of suberized epidermis made up of more or less tabular cells, sometimes elongated and considerably thickened. Ash not exceeding 10 percent.

Cinchona.—Added to the former description: Externally the bark usually shows patches of foliaceous lichens with their small, brownish-black apothecia. Powder: Reddish-brown; bast-fibers spindle-shaped, yellowish, 0.300 to 1.350 mm. in length, with thick, strongly lignified, lamellated walls having slit-like, oblique pores; starch grains single, 2- to 5-compound, the individual grains spherical or plano-convex and from 0.003 to 0.015 mm. in diameter; sphenoidal micro-crystals of calcium oxalate numerous. Heat 1 Gm. of powdered *Cinchona* in a dry test-tube; a tarry distillate should form, having a purplish-red color and a somewhat granular appearance.

Cinchona Rubra.—In quills or curved pieces of variable length, bark from 2 to 4 mm. in thickness; or in small broken fragments or in transversely curved pieces from 3 to 7 mm. in thickness; externally gray or grayish-brown, more or less rough from corky protuberances, sometimes with transverse fissures, rarely numerous or much intersected, and having their sides sloping and with occasional patches of foliaceous lichens; inner surface reddish- or orange-brown, distinctly striate; fracture short and granular in the outer bark, shortly and rather coarsely splintery in the inner bark; slightly odorous; taste very bitter and astringent. Powder: Light brown; bast-fibers and sphenoidal micro-crystals of calcium oxalate resembling those in *Cinchona*; starch grains resembling those of *Cinchona*, relatively few, from 0.003 to 0.010 mm. in diameter. Heat 1 Gm. of powdered Red *Cinchona* in a dry test-tube; a tarry distillate should form, having a bright red color.

Cinnamomum Saigonicum.—In quills attaining a length of 30 cm. and from 3 to 30 mm. in diameter; the bark from 0.5 to 3 mm. in thickness; outer surface light brown to dark purplish-brown with grayish patches of foliaceous lichens, numerous bud-scars, finely wrinkled, especially the bark of younger twigs, otherwise more or less rough from corky patches surrounding the lenticels; inner surface reddish-brown to dark brown, granular, and slightly striate; fracture short; inner bark porous, owing to the presence of large oil cells; and separated by a continuous layer of stone cells from the outer bark. Odor aromatic; taste sweetish, aromatic and pungent. Under the microscope sections of the older bark show a thin layer of more or less lignified cork cells; a narrow layer of starch-bearing parenchyma with scattered stone cells; a nearly continuous zone, several layers wide, of stone cells, among which should be small groups of bast-fibers with thickened and slightly lignified walls; a wide inner bark with medullary rays 1 to 3 cells in width, isolated bast-fibers, mucilage cells, oil cells and parenchyma, the cells of the latter either filled with starch grains or containing very small raphides of calcium oxalate; the lumina of parenchyma cells, stone cells and bast-fibers frequently filled with an amorphous, reddish-brown substance, which should be for the most part insoluble in the ordinary reagents. In the bark of young twigs there should be an epidermal layer with a thick, yellowish cuticle, fewer stone cells in the zone associated with bast-fibers, and the inner bark should be narrower and with fewer secretion cells than in the older bark. Powder: Yellow-

ish- or reddish-brown; starch grains numerous, single or compound, the individual grains being somewhat ellipsoidal or polygonal and from 0.003 to 0.020 mm. in diameter; fragments, with colorless stone cells rather prominent, the cells being very irregular in shape and the lumina containing either air or a reddish-brown amorphous substance; bast-fibers from 0.300 to 1.500 mm. in length and usually in groups of from 2 to 20, with very thick and scarcely lignified walls; numerous cellular, reddish-brown fragments in which the oil cells are not readily distinguishable. Volatile ether-extract not less than 2 percent. Total ash not exceeding 6 percent. Ash insoluble in diluted hydrochloric acid not exceeding 2 percent.

Cinnamomum Zeylanicum.—The dried bark of cultivated trees of *Cinnamomum zeylanicum* Breyne (Fam. Lauracæ) with not more than 3 percent. of the outer bark. In closely rolled double quills, composed of from 7 to 12 thin layers of separate pieces of bark, from 30 to 50 cm. in length and from 8 to 13 mm. in diameter; the bark attaining a thickness of 1 mm.; outer surface pale yellowish-brown, smooth, longitudinally striate with narrow yellowish groups of bast-fibers, and showing circular or irregular brownish patches, occasionally with perforations marking the nodes; inner surface light brown, with faint, longitudinal striations; fracture short with projecting bast-fibers; odor agreeably aromatic; taste sweetish and warmly aromatic. Under the microscope sections usually show no cork but an almost continuous outer layer of stone cells, among which are small groups of bast-fibers resembling those found in Saigon Cinnamon; in the inner bark occur numerous bast-fibers singly or in small groups, medullary rays 1 to 2 cells in width, usually with raphides of calcium oxalate; parenchyma with either reddish-brown contents or more or less filled with starch grains; scattered throughout the parenchyma occur oil-secretion cells and mucilage cells. Powder: Light brown or yellowish-brown; starch grains numerous, varying from spherical to polygonal, from 0.003 to 0.020 mm. in diameter, frequently in small aggregates; bast-fibers from 0.300 to 0.800 mm. in length, usually single, spindle-shaped with attenuated ends, the walls being very thick and but slightly lignified; colorless stone cells resembling those of Saigon Cinnamon; numerous cellular fragments with yellowish-brown walls or contents; cork cells few or none; calcium oxalate in raphides from 0.005 to 0.008 mm. in length. Volatile ether-extract not less than 0.5 percent. Total ash not exceeding 6 percent. Ash insoluble in diluted hydrochloric acid, not exceeding 2 percent.

Coccus.—The dried female insect enclosing her young larvæ, *Coccus Cacti* Linné (Fam. Coccidæ). Somewhat ovate in outline, convex above, concave beneath, from 3.5 to 5 mm. in length, consisting of from 9 to 12 segments; externally grayish-purple, or grayish; in the shell-like, somewhat horny abdomen lie numerous larvæ less than 1 mm. in size; the mature larvæ with antennæ consisting of eight parts, 3 pairs of legs, the lower being with 6 to 8 segments, and a characteristic beak or rostrum composed of 4 thread-like parts which pair off into two coils. Cochineal is easily pulverizable and yields a dark red powder; with a characteristic odor and slightly bitter taste. When masticated it colors the saliva red, due to the coloring principle, carminic acid, which is soluble in water, alcohol, or alkalies, and slightly soluble in ether, but insoluble in fixed and volatile oils. Alkalies should change the color of solutions of Cochineal to purple, while acids

should change the color to reddish-yellow. When macerated in water no insoluble powder should separate. Ash not exceeding 6 percent.

Colchici Cormus.—Usually in reniform transverse, or in ovate longitudinal slices; from 2 to 5 mm. in thickness; flat surfaces whitish, slightly roughened, and of a crystalline appearance under the hand lens; epidermal surface thin, light brown and finely wrinkled; fracture short and mealy, odor slight; taste bitter and acrid. Powder: Light brown or grayish-brown; starch grains numerous, single or 2- to 6- compound, the individual grains varying from spherical or ovoid to polygonal, and marked with a triangular or star-shaped, central cleft from 0.003 to 0.030 mm. in diameter, tracheæ few and with spiral or scalariform thickenings; occasional fragments of epidermal cells with thin, reddish-brown walls.

Colchici Semen.—The seeds should be dried; ovoid or irregularly globular, more or less pointed at the hilum, from 2 to 3 mm. in diameter; when fresh, several seeds cohering; externally dark brown, finely pitted; tough and of almost bony hardness; internally whitish or light brown; nearly inodorous; taste slightly bitter and somewhat acrid. Under the microscope transverse sections show a seed-coat of a few, more or less collapsed cells with thin reddish-brown walls; the endosperm, making up most of the seed, should consist of cells with rather thick, porous walls; and the lumina containing oil globules and aleurone grains, the latter being from 0.003 to 0.015 mm. in diameter; the embryo is small, the beaked portion, or caruncle, containing numerous, somewhat ovoid, ellipsoidal or polygonal starch grains, from 0.005 to 0.016 mm. in diameter. Ash not exceeding 8 percent.

Colocynthis.—The dried pulp of the fruit of *Citrullus Colocynthis* Schrader (Fam. Cucurbitaceæ), with not more than 5 percent. of seeds, nor more than 2 percent. of epicarp. Nearly globular, whole fruits from 4 to 7 cm. in diameter, usually more or less crushed and in broken pieces, with occasional patches of the nearly smooth epicarp; yellowish-white or brownish; light, spongy; separable longitudinally when entire into three carpels, each containing near the outer surface, the ovoid, compressed, yellowish seeds; odor slight; taste intensely bitter. Powder: In the preparation of the powder the fruit should be deprived of its seeds so that the finished product should contain not more than 5 percent. of seeds; yellowish-white or buff, consisting chiefly of fragments of parenchyma cells and an occasional fragment with tracheæ; very few lignified tissues of the seed-coat, showing the characteristic stone cells which are nearly isodiametric, irregular, with either straight or undulate walls that are strongly lignified and possess simple pores; globules of fixed oil and aleurone grains very few. The petroleum benzin extract from powdered *Colocynthis* should yield not more than 2 percent. of fixed oil. Ash not exceeding 15 percent.

Condurango.—The dried bark of *Marsdenia Condurango* Reichenbach filius, (Fam. Asclepiadaceæ). In single quills or transversely curved pieces, usually from 4 to 13.5 cm. in length, bark from 1 to 6 mm. in thickness; outer surface light grayish-brown to dark brown, nearly smooth and with numerous lenticels, or more or less scaly and considerably roughened, the scales soft, occasionally with brownish-black apothecia of a fungus; inner surface grayish-white or light brown, longitudinally striate; fracture short and granular or short-fibrous; odor slightly aromatic, especially marked in the fresh drug; taste bitter and aromatic. Under

the microscope sections show a corky layer consisting of several rows of thin-walled cells, frequently with yellowish-brown contents; a layer of phelloderm of 8 to 10 rows of cells, containing either starch grains or membrane crystals of calcium oxalate, the latter in prisms from 0.010 to 0.035 mm. in length; a primary cortex of collenchyma containing chloroplasts, starch grains, or rosette aggregates of calcium oxalate from 0.015 to 0.040 mm. in diameter; a pericycle or pericambium of tangentially elongated parenchyma cells, with groups of bast-fibers and laticiferous vessels in an interrupted circle; middle bark with large groups of stone cells, varying from nearly isodiametric to elongated, sometimes very irregular in form; inner bark with medullary rays 1 to 2 cells wide, numerous laticiferous cells accompanied by small groups of sieve cells, parenchyma containing either starch grains or rosette aggregates of calcium oxalate, and an occasional isolated bast-fiber or small groups of stone cells. Powder: Light yellowish-brown; consisting chiefly of fragments of stone cells and parenchyma containing calcium oxalate crystals and starch grains; stone cells chiefly in large groups, the individual cells being more or less irregular in shape with very thick, porous walls, the lumina being usually filled with air; calcium oxalate chiefly in rosette aggregates, occasionally in single prisms, mostly from 0.015 to 0.020 mm. in diameter; starch grains mostly single, frequently 2- to 4-compound, the individual grains being from 0.003 to 0.015 mm. in diameter; bast-fibers non-lignified, very long and from 0.010 to 0.035 mm. in width; fragments of thin-walled latex tubes from 0.015 to 0.025 mm. in diameter and filled with a granular substance; fragments of cork grayish- or light yellowish-brown. Macerate 1 Gm. of the powdered bark in 5 Cc. of cold water, filter and heat the filtrate in a test-tube; it should become very cloudy but on cooling assumes its original transparency. Ash not exceeding 12 percent.

Convallaria.—Rhizome horizontal, elongated, usually branched, cylindrical, variable in length, from 1 to 3 mm. in diameter; externally yellowish-white or pale-brown, with a few circular stem-scars; from the under and side portions at the nodes usually arise from 3 to 5 thin, tortuous, dark brown, branching roots; fracture short or fibrous; internally whitish; odor faint; taste sweetish, becoming bitter and acrid. Under the microscope sections of the rhizome show an epidermal layer with a thick outer layer of cutin; a hypodermal layer of a single row of collenchyma; a cortex made up of about 20 rows of parenchyma cells, some of which contain starch and raphides of calcium oxalate; a prominent endodermis, the radial and inner walls of which are strongly thickened and lignified; inside the endodermis is an interrupted circle of collateral fibro-vascular bundles, the woody portion of which should be in cross section the shape of the letter "V"; inside this circle of bundles is another interrupted circle of fibro-vascular bundles of the concentric type, the sieve tissue being surrounded by the xylem; the parenchyma cells of the pith are separated by large intercellular spaces. Under the microscope transverse sections of the root show a hairy epidermal layer, a hypodermis of a single row of cells; a cortex of about 6 rows of cells, some of which should contain starch, raphides and oil; the cells of the endodermal layer resemble those of the rhizome; fibro-vascular bundles mostly 5. Powder: Dark brown, tending to cake on standing, consisting chiefly of cellular fragments and a few starch grains and raphides of calcium oxalate; cells of endodermis quite long

with slightly oblique ends; the walls being considerably thickened, lignified and porous; fragments of tracheæ with spiral and scalariform thickenings or with porous walls; starch grains single or compound, mostly nearly spherical, and from 0.003 to 0.012 mm. in diameter; raphides of calcium oxalate few, from 0.020 to 0.045 mm. in length.

Coriandrum.—The fruit should contain not more than 5 percent. of other fruits, seeds and other foreign matter. Mericarps usually coherent; cremocarp nearly globular, from 3 to 5 mm. in diameter; externally light brown or rose colored; summit with 5 calyx teeth and a short stylopodium, each mericarp with 5 prominent, straight, longitudinal primary ribs and 4 indistinct, undulate, secondary ribs; mericarps easily separated, deeply concave on the inner or commissural surface and showing in transverse section 2 vittæ (oil-tubes) on the inner surface of each. Under the microscope sections show an epidermis of small cells with thick walls; a layer of several rows of thin-walled, more or less collapsed, parenchyma separated from a broad zone of strongly lignified sclerenchymatous fibers which extend as a continuous ring in the mesocarp of each of the mericarps; 2 or 3 layers of large, tangentially elongated, thin-walled, parenchyma cells, frequently with numerous, large, lysigenous, intercellular spaces; inner epidermis of large, tabular cells, the inner, yellowish walls being considerably thickened and closely coherent to the brownish cells of the seed-coat; commissural surface with 2 large elliptical vittæ, the cells of the pericarp separated from the seed-coat and forming a large elliptical cavity; endosperm distinctly reniform in outline and consisting of tabular or polygonal, thick-walled cells, containing numerous large aleurone grains each with a rosette aggregate or prism of calcium oxalate. Powder: Light brown, consisting chiefly of fragments of endosperm and lignified tissues of the pericarp; calcium oxalate crystals numerous, from 0.003 to 0.010 mm. in diameter, mostly in rosette aggregates, either isolated or in aleurone grains; sclerenchymatous fibers irregularly curved, having thick, yellowish, lignified walls and numerous simple pores; globules of fixed oil numerous; fragments of light-yellow vittæ few, associated with elongated, polygonal, epidermal cells. Volatile ether-extract not less than 0.5 percent. Ash not exceeding 7.5 percent.

Cubeba.—The dried, full grown, unripe fruits of *Piper Cubeba* Linné filius (Fam. Piperacæ), with not more than 5 percent. of stems and other foreign matter. Upper portion globular, 3 to 6 mm. in diameter, with a straight, slender, stem-like portion from 5 to 7 mm. in length; pericarp externally grayish, brownish or bluish-black; coarsely reticulate; about 0.3 mm. in thickness, easily cut, 1-locular, 1-seeded; the immature seed attached at the base of the pericarp; odor aromatic, distinct; taste strongly aromatic and pungent. Under the microscope sections show an epidermal layer of tabular cells with thickened, undulate outer walls, the contents being olive-green; 1 or 2 rows of parenchyma cells, the contents resembling those of the epidermal cells; a continuous layer of radiately elongated, thick-walled stone cells, having numerous pores; a few layers of collapsed cells near which may occur an occasional small group of bast-fibers; a middle layer of 10 rows of cells composed chiefly of parenchyma, scattered among which are numerous secretion cells containing a volatile oil and occasionally crystals in the form of short rods, the contents of the secretion cells being colored a deep crimson upon the addition of sulphuric acid; an endocarp of small, somewhat isodia-

metric or polygonal stone cells with very thick, porous walls; seed-coat of several rows of reddish-brown, tangentially elongated, more or less collapsed cells; perisperm of numerous, thin-walled parenchyma, the cells being more or less polygonal in shape and containing either small, compound starch grains, or globules of a fixed oil or occasionally a crystal of calcium oxalate. Powder: Light brown to blackish-brown, consisting of a more or less even distribution of starch-bearing cells of the perisperm, and fragments of the pericarp with stone cells; starch grains numerous, single or compound, from 0.002 to 0.012 mm. in diameter; stone cells numerous, in palisade-like groups, in surface view rounded or polygonal with rather prominent dark lumina and yellowish porous walls; secretion cells with a yellowish, oily content becoming reddish on the addition of sulphuric acid; fragments of stalk few, with spiral tracheæ and groups of sclerenchymatic fibers from 0.050 to 1.000 mm. in length with blunt, rounded, or very much attenuated ends, the walls strongly lignified and with numerous oblique pores. Volatile ether-extract not less than 10 percent. Total ash not exceeding 8 percent.

Digitalis.—The dried leaves of *Digitalis purpurea* Linné (Fam. Scrophulariaceæ) with not more than 2 percent. of stems, flowers, and other foreign matter; leaves when entire attaining a length of 30 cm. and a breadth of 15 cm., ovate to oval, abruptly contracted into winged petioles, the latter from 5 to 10 cm. in length, or, in the smaller leaves, nearly absent; margin crenate, irregular; the commercial article usually more or less crumpled and broken, thin, dull, pale green or gray and densely pubescent on the lower surfaces; upper surfaces wrinkled, sparsely hairy; the venation conspicuously reticulated; the mid-ribs and principal veins broad and flat, often purplish, the lower veins continued into the wings of the petioles; odor slight, characteristic; taste strongly bitter. Powder: Dark green, with numerous fragments of non-glandular hairs consisting of from 2 to 8 cells (usually 2 to 5 cells), varying in length from 0.145 to 0.435 mm., some of the cells being frequently collapsed; glandular hairs few, small, with a 1- or 2-celled stalk and a 1- or 2-celled glandular head; numerous irregular fragments of lumina showing stomata and occasional water-pores and elongated fragments of veins and petioles showing fibro-vascular tissues. Ash not exceeding 10 percent.

Ergota.—The carefully dried sclerotium of *Claviceps purpurea* (Fries) Tulasne (Fam. Hypocreaceæ), replacing the grain of rye, *Secale cereale* Linné (Fam. Gramineæ), with not more than 5 percent. of harmless seeds, fruits and other foreign matter. Cylindrical, obscurely three-angled, tapering towards both ends, obtuse, somewhat curved, from 1 to 4.5 cm. in length and 3 to 5 mm. in thickness; externally purplish-black, or brownish-black, longitudinally furrowed; fracture short, pinkish or reddish-white, sometimes whitish; odor peculiar, disagreeable; taste disagreeable, bitter. Pour hot water on bruised Ergot; no ammoniacal or rancid odor should be developed. Powder: Grayish-brown, consisting chiefly of whitish fragments composed of false parenchyma of compacted hyphæ and a few purplish colored fragments of the outer layer of the sclerotium; mounts made in hydrated chloral T. S. or in sulphuric acid show the separation of numerous globules of a fixed oil and many of the fragments should be colored yellowish, reddish or rose-purple. Ash not exceeding 5 percent.

Ergot should be dried at a temperature not exceeding 70° C. The drug deteriorates with age if improperly stored. It should be kept in tightly closed containers protected from the light and to which a few drops of chloroform should be added from time to time to prevent attack by insects. The powdered drug should not be kept longer than one year.

Eriodictyon.—The leaves may include not more than 5 percent. of stems or other foreign matter. Usually in fragments; when entire, laminae lanceolate, 5 to 15 cm. in length, 1 to 3 cm. in breadth; summits acute; bases slightly tapering into a short petiole; margins irregularly serrate or crenate-dentate; upper surfaces yellowish-brown, covered with a more or less shiny resin; under surfaces grayish or yellowish-white, conspicuously reticulate with greenish-yellow veins; minutely tomentose between the reticulations; coriaceous, brittle; odor aromatic; taste balsamic, bitter, becoming sweetish. Under the microscope transverse sections of the laminae of *Eriodictyon* show upon the upper surface large epidermal cells, the outer walls being very uneven owing to indentations which appear as striations in surface view; glandular hairs numerous, with short 1-celled stalks and 6- to 8-celled glandular heads; palisade cells very narrow, from 2 to 6 rows deep containing numerous chloroplastids; cells of dorsal-pneumatic tissue (loose mesophyll) very few; fibro-vascular tissues not strongly developed except in the mid-rib and more prominent veins; numerous, 1-celled, much twisted, thick-walled, non-glandular hairs on the lower surface between the veins. Under the microscope sections of the stems show the epidermis usually replaced by strongly lignified cork; cortex of from 10 to 20 rows of more or less rounded cells; bast-fibers deep-seated and with thick, more or less strongly lignified walls, occurring in small groups forming a more or less interrupted circle; sieve tissues in a narrow zone; wood wedges consisting of tracheae with spiral thickenings, simple or bordered pores and numerous, strongly lignified wood-fibers, separated by medullary rays 1-cell in width; pith very large, the walls of the cells being strongly lignified and with numerous simple pores.

Eucalyptus.—The leaves may include not more than 3 percent. of the stems, fruits, and other foreign matter. Laminae lanceolately scythe-shaped, from 8 to 30 cm. in length, from 2 to 7.5 cm. in breadth; summits when present acute or acuminate; bases unequal, obtuse or more or less rounded and connected with twisted petioles from 5 to 35 mm. in length; margins slightly uneven, revolute; coriaceous; both surfaces varying from pale yellowish-green to grayish-green and more or less glaucous, glabrous, glandular-punctate and with numerous, small circular, brown dots of cork; veins of the first order anastomosing with each other and forming a line nearly parallel with the margin; odor slightly aromatic; taste aromatic, bitter, and cooling. Under the microscope sections show the upper and lower surfaces with nearly similar cells, the outer walls being strongly cuticularized; stomata occur on both surfaces; a region of palisade cells made up of from 3 to 4 rows of cells occurring beneath each surface; among the palisade cells occur large oil-secretion reservoirs, with a yellowish or orange colored oily content; calcium oxalate crystals in cells of the loose mesophyll in the form of rosette aggregates or monoclinic prisms varying from 0.015 to 0.025 mm. in diameter. At the periphery of the fibro-vascular

bundles of the mid-rib and petiole occurs a more or less interrupted circle of small groups of slightly lignified bast-fibers.

Euonymus.—The bark may include not more than 3 percent. of wood and other foreign matter. Usually in transversely curved pieces, occasionally in single quills 2 to 7 cm. in length; bark 1 to 2.5 mm. in thickness; very light in weight; outer surface grayish or light brown, somewhat wrinkled, occasionally transversely fissured from the lenticels and with scale-patches of soft cork; inner surface grayish-white, longitudinally striate and somewhat porous; fracture short with silky, projecting, bast-fibers; odor distinct; taste bitter and acrid. Powder: Light brown; starch grains numerous, nearly spherical, 0.003 to 0.012 mm. in diameter; fragments of cork with nearly colorless thin walls; secretion cells with yellowish or brownish amorphous contents; bast-fibers very long, with thin, non-lignified walls possessing numerous small, more or less oblique pores; numerous fragments of starch-bearing parenchyma; calcium oxalate in rosette aggregates from 0.015 to 0.035 mm. in diameter, the amount in different specimens showing some variation.

Feniculum.—The dried ripe fruits of cultivated varieties of *Feniculum vulgare* Miller (Fam. Umbelliferae), with not more than 2 percent. of harmless foreign matter. Mericarps usually separate, each being broadly elliptical, more or less curved, from 4 to 10 mm. in length, from 1 to 3.5 mm. in breadth, some having a slender stalk from 2 to 10 mm. in length; dorsal surface convex, yellowish-green to grayish-brown, with three prominent, longitudinal primary ribs and at the summit a short, conical stylopodium; commissural surface with three narrow, light brown, longitudinal areas separated by two dark brown or brownish-black areas containing the vittæ or oil-tubes; odor and taste aromatic and distinct. Under the microscope transverse sections of Fennel show a pentagonal mericarp, 4 of the edges being nearly equal and slightly concaved, the other or commissural surface being much longer and more or less undulate; cells of the seed-coat closely united with those of the pericarp, giving the section two very distinct areas, the inner and larger portion more or less rounded-pentagonal and somewhat reniform, composed of polygonal cells, filled with aleurone grains containing rosette aggregates of calcium oxalate, and a thin protoplasmic layer enclosing a fixed oil; the outer or pericarp layer distinguished by large elliptical vittæ with thick, brown walls, occurring singly and alternating with the primary ribs, and two vittæ on the dorsal surface, making usually six vittæ in all, there sometimes being, however, one or two vittæ additional; in the central portion of each of the ribs occurs a nearly circular, fibro-vascular bundle with a few tracheæ and numerous, thin-walled, strongly lignified, sclerenchymatous fibers. Powder: Yellowish-brown consisting of irregular, angular fragments; tissues of endosperm, colorless, the cells filled with aleurone grains each containing a rosette aggregate of calcium oxalate, about 0.002 mm. in diameter; fragments containing yellowish-brown vittæ, from 0.100 to 0.200 mm. in width; sclerenchymatous fibers few, strongly lignified and with numerous, oblique, simple pores; parenchyma cells with more or less thick walls and simple pores and occasionally reticulately thickened; tracheæ few and either spiral or annular; in mounts made with hydrated chloral T. S. numerous globules of a fixed oil separate. Ash not exceeding 10 percent.

Frangula.—The dried bark of *Rhamnus Frangula* Linné (Fam. Rhamnaceæ). In quills varying in length, frequently flattened or crushed; from 0.5 to 1 mm. in thickness; outer surface grayish-brown or purplish-black, with numerous, prominent, lighter colored, transverse lenticels and occasional patches of foliaceous lichens bearing small, blackish apothecia; inner surface smooth, dark brown with occasional purplish blotches, longitudinally striate, becoming red when moistened with solutions of the alkalis; fracture short, slightly fibrous in the inner layer; odor distinct; taste slightly bitter. Under the microscope transverse sections show a distinctly undulate, corky layer, composed of about 12 rows of reddish-brown cells; parenchyma cells of the primary cortex with numerous rosette aggregates of calcium oxalate from 0.010 to 0.025 mm. in diameter; inner bark with bast-fibers in narrow, interrupted rows, the groups of fibers being separated radially by the medullary rays; bast-fibers with thick, strongly lignified, yellowish walls and narrow lumina and each group surrounded by a layer of crystal-fibers, the prismatic crystals of calcium oxalate, varying from 0.007 to 0.015 mm. in diameter; medullary rays 1 to 2 cells in width, occasionally 3; cells of the parenchyma and medullary rays with numerous starch grains about 0.003 mm. in diameter. Powder: Yellowish-brown; stone cells absent (distinguishing it from powder of *Rhamnus Purshiana*). Add 0.100 Gm. of powdered *Frangula* to 10 Cc. of hot water, shake the mixture occasionally until cold and filter it. On the addition of a few drops of ammonia water, the filtrate should be colored a deep red. Macerate 0.100 Gm. of powdered *Frangula* with 10 drops of alcohol; add 10 Cc. of water, boil the mixture and filter it when cold. Shake the filtrate with 10 Cc. of ether, separate the yellow, ethereal solution, and shake 3 Cc. of this ethereal liquid with 3 Cc. of ammonia water; the separated ammoniacal solution, on diluting with 20 Cc. of water, should still possess a distinct cherry-red color. Ash not exceeding 6 percent.

Galla.—An excrescence on the young twigs of *Quercus infectoria* Olivier and other allied species of *Quercus* (Fam. Fagaceæ), induced by the punctures on the leaf-buds and by the deposited ova of *Cynips tinctoria* Hartig (Fam. Hymenoptera). Nearly globular, from 0.8 to 2.2 cm. in diameter; externally blackish-olive-green or blackish-gray, more or less tuberculated on the upper portion, the basal portion being nearly smooth and contracted into a short stalk, heavy, sinking in water excepting the smaller galls which should not be present to a greater extent than 5 percent.; fracture short-horny, internally grayish or dark brown, consisting of a central portion slightly radiating and resinous, occasionally hollow and traversed by a narrow radial canal extending to the exterior as shown by the perforation in the whole gall; odor slight; taste strongly astringent. Powder: Numerous fragments of thick-walled, starch-bearing parenchyma; starch grains numerous, more or less free in the powder and varying in shape from spherical or ellipsoidal to polygonal, and from 0.005 to 0.030 mm. in diameter; stone cells few, resembling those found in fruits and seeds, varying considerably in shape and size, from 0.025 to 0.300 mm. in length; occasional fragments with spiral or reticulate tracheæ; fragments mounted in very dilute ferric chloride T. S. should become of a deep blue or greenish-blue color. Macerate 0.5 Gm. of powdered Nutgall with 2 Cc. of alcohol for a few minutes, add 500 Cc. of water, stir the mixture well for five minutes and filter. On adding a drop of ferric chloride

T. S. to 1 Cc. of this filtrate, diluted with 10 Cc. of distilled water, a distinct blue or violet-blue color should develop.

Gambir.—A dried extract prepared from decoctions of the leaves and twigs of *Ouroparia Gambir* (Hunter) Baillon (Fam. Rubiaceæ). Usually in cubical or rectangular pieces; from 20 to 30 mm. in diameter; externally pale grayish-brown to reddish-brown, more or less dull and porous; friable, internally of a light brown or dull earthy color; inodorous; taste bitterish and very astringent. Upon scraping a piece of Gambir and mounting the separated fragments in hydrated chloral T. S. and examining them under the microscope, numerous acicular crystals, from 0.010 to 0.030 mm. in length, should separate at the edges of the fragments which gradually dissolve leaving a few thick-walled, non-glandular hairs which, when entire, may be 0.350 mm. in length; a few fragments of leaves may also be present showing either epidermal cells or small narrow tracheæ with spiral or annular markings; a few starch grains either single or compound, of variable shape and from 0.005 to 0.015 mm. in diameter; a number of bacteria may also be present. Macerate 1 Gm. of Gambir with 50 Cc. of water and filter. Separate portions of this filtrate should give an intense, green color with dilute ferric chloride T. S. and no precipitate with copper sulphate T. S. Not less than 65 percent. of Gambir should be soluble in water and not less than 60 percent. should be soluble in alcohol. Ash changed from "not more than 5 percent." to "not exceeding 9 percent."

Gelsemium.—Rhizome, cylindrical, usually in pieces from 3 to 20 cm. in length, and from 3 to 30 mm. in diameter; externally light yellowish-brown, longitudinally wrinkled, with purplish-brown, longitudinal lines and transverse fissures; the upper surface with a few stem-scars, the under and side portions with numerous roots and root-scars; fracture tough, splintery; internally light brown or pale yellow, bark thin, wood distinctly radiate, excentral, pith disintegrated; odor slight; taste bitter. Roots, light brown; fracture one-half transverse, the other oblique or splintery. Under the microscope sections of the rhizome show a strong development of cork, the walls being grayish or yellowish-brown and more or less lignified; a cortex made up chiefly of parenchyma containing starch and having in the outer portion small scattered groups of stone cells or sclerenchymatous fibers, and in the inner portion, in the region of the medullary ray cells, prisms of calcium oxalate; woody portion made up of broad wedges consisting of large tracheæ and wood-fibers separated by starch-bearing medullary rays, the innermost cells, or those nearer the pith, being strongly lignified, while the outermost layers, or those nearer the cortex, are non-lignified and may contain prisms of calcium oxalate; an internal phloem or sieve, the cells forming distinct, more or less rounded groups, the latter being partly surrounded by a thin-walled, starch-bearing pith. Powder: Dark yellow, tracheæ with bordered pores, numerous and conspicuous, spiral tracheæ few; bast-fibers and tracheids long and narrow, strongly lignified; starch grains spherical, from 0.004 to 0.008 mm. in diameter; calcium oxalate in monoclinic prisms from 0.015 to 0.030 mm. in length; occasional groups of stone cells or sclerenchymatous fibers, the walls being very thick, porous and strongly lignified.

Gentiana.—In nearly cylindrical, sometimes branching pieces, of variable length, from 5 to 35 mm. in thickness; externally yellowish-brown, the rhizome

portion annulate, the roots longitudinally wrinkled; fracture short and uneven when dry, but tough and flexible when damp; internally yellowish-brown, the bark from 0.5 to 2 mm. in thickness, separated from the somewhat spongy, woody portion by a dark brown cambium zone; odor strong, characteristic; taste slightly sweetish, then strongly and persistently bitter. Powder: Light brown or yellowish-brown, consisting chiefly of parenchymatous cells with fragments of scalariform or reticulate tracheæ; starch grains few or none. Stone cells and sclerenchymatous fibers are absent (absence of endocarp of *Olea Europea* Linné). Ash not exceeding 6 percent.

Glycyrrhiza.—Botanical sources now given as *Glycyrrhiza glabra* Linné var. *typica* Regel et Herder, or *Glycyrrhiza glabra* Linné var. *glandulifera* Regel et Herder. Spanish Licorice: (also known as Italian, Levant, Turkish or Arabian Licorice). Nearly cylindrical, upper portion more or less knotty, usually in pieces from 14 to 20 cm. or more in length, and from 5 to 20 mm. in thickness; externally yellowish-brown or dark brown, longitudinally wrinkled, the thinner rhizomes being often with prominent alternate buds, the thicker rhizomes with distinct corky patches; fracture coarsely fibrous; internally lemon-yellow, radiate, bark 1 to 3 mm. in thickness; wood porous, in narrow wedges, rhizome with small pith; odor distinct; taste sweetish and slightly acrid. Under the microscope transverse sections of pieces of the older rhizome of Spanish Licorice show a periderm of numerous layers of yellowish-brown cork cells; a phellogen and one or more rows of cells of the phelloderm, the cells showing a tendency to collenchymatic thickenings and with occasional monoclinic prisms of calcium oxalate; a middle bark of starch-bearing parenchyma, and whitish groups of bast-fibers surrounded with crystal-fibers; inner bark with a very characteristic radial arrangement of phloem and medullary rays, the phloem consisting of wedges of small groups of bast-fibers and parenchyma, separated by an almost continuous, obliterated sieve tissue, the cells of the latter being very irregular in outline and with thick, highly refracting walls, medullary rays 1 to 8 cells wide; wood characterized by broad wedges consisting of large tracheæ with yellowish walls, small compact groups of wood-fibers and starch-bearing parenchyma alternating with the broad medullary rays; pith composed of parenchyma, the cells being large, more or less polygonal in outline and containing numerous starch grains, or prisms of calcium oxalate. In sections of roots the pith is wanting. Russian Licorice: Nearly cylindrical, somewhat tapering, sometimes split longitudinally, from 15 to 30 cm. in length, and from 1 to 5 cm. in diameter, when deprived of the outer corky layer it is externally pale lemon-yellow; fracture coarsely fibrous, internally lemon-yellow; wood radially cleft; odor distinct; taste sweetish. Under the microscope transverse sections of the rhizome and roots of Russian Licorice somewhat resemble those of Spanish Licorice but the cork cells are wanting. Powder: Pale brownish-yellow (Spanish Licorice) or pale yellow (Russian Licorice), starch grains numerous mostly single and elliptical or oval, and from 0.002 to 0.020 mm. in diameter; tracheæ mostly with bordered pores; wood- and bast-fibers numerous, strongly lignified, very long, very attenuated at the ends, and about 0.010 mm. in width; crystal-fibers with monoclinic prisms of calcium oxalate, the latter from 0.010 to 0.020 mm. in diameter; occasional fragments of reddish-brown cork cells occur in Spanish Licorice, but are practically want-

ing in the Russian Licorice. Add 10 Gm. of powdered Glycyrrhiza to 100 Cc. of distilled water, allow the mixture to macerate for 15 minutes with occasional stirring and then heat it for one-half hour on a water-bath and filter the mixture and add enough water to make the filtrate measure 100 Cc.; 10 Cc. of this filtrate when evaporated and dried at 100° C. should leave a residue of not less than 0.200 Gm. Ash not exceeding 7 percent.

Granatum.—The dried bark of the stem and root of *Punica Granatum* Linné (Fam. Punicacæ) with not more than 2 percent. of wood and other foreign matter. Stem Bark: Mostly in somewhat flattened or transversely curved pieces, to some extent in quills, 2 to 8 cm. in length; bark 0.5 to 3.5 mm. in thickness; outer surface yellowish to grayish-brown, with grayish patches of foliaceous lichens with their brownish-black apothecia, longitudinally wrinkled, also marked with small broadly elliptical lenticels and with more or less abraded patches of cork; inner surface light yellow or yellowish-brown, finely striate; fracture short, smooth, inner bark yellowish-green; odor slight; taste astringent, somewhat bitter and nauseous. Root Bark: In transversely curved pieces; externally brownish-yellow to dark brown and with irregular patches of cork; internally dark yellow, the medullary rays extending nearly to the outer surface. Powder: Yellowish-brown to dark brown; calcium oxalate crystals in rosette aggregates, monoclinic prisms or crystal-fibers, the individual crystals 0.010 to 0.018 mm. in diameter; starch grains numerous, spherical, ellipsoidal bi-convex, polygonal or irregular, and single or compound, from 0.002 to 0.010 mm. in diameter; fragments of whitish cork with strongly lignified walls; stone cells mostly single, occasionally in small groups, the individual cells 0.050 to 0.180 mm. in length, the walls being very thick and strongly lamellated; occasional fragments of wood with long wood-fibers from 0.015 to 0.020 mm. in width, the walls being slightly lignified and from 0.003 to 0.008 mm. in thickness, and associated with tracheæ possessing simple and bordered pores. Mix 1 Gm. of powdered *Granatum* with 100 Cc. of distilled water, macerate it with occasional agitation for about one hour and filter; a light yellow filtrate should be obtained. Upon the addition of a drop of ferric chloride T. S. to 10 Cc. of this filtrate a bluish-black precipitate should be produced. Upon the addition of from 40 to 50 Cc. of lime water to another portion of 10 Cc. of the filtrate, an orange-brown flocculent precipitate should be produced. Ash not exceeding 16 percent. *Granatum* should not be kept longer than one year.

Grindelia.—The dried leaves and flowering tops of *Grindelia camporum*, Greene, or *Grindelia cuneifolia* Nuttall, or *Grindelia squarrosa* (Pursh) Dunal (Fam. Compositæ), with not more than 10 percent. of stems and other foreign matter. Stems with attached branches and terminated with resinous flower-heads; stems cylindrical, not exceeding 2 mm. in diameter, light yellow or rose colored, with alternate leaf-scars, occasionally with basal portions of leaves, occasionally more or less irregularly flexuous and coated with resin especially at the nodes; leaves usually separate and more or less broken and varying in shape when entire from oblong and lanceolate to oblanceolate-spatulate and cuneate-spatulate, 1 to 7 cm. in length, mostly sessile or amplexicaule and more or less sharply serrate or even spinosely toothed, pale

yellow to yellowish-green, very resinous, somewhat coriaceous and brittle; bracts of flowering branches almost entire and usually more or less spreading; heads more or less resinous, viscid, many-flowered, either conical-urceolate or depressed-urceolate, involucre 5 to 20 mm. in breadth, composed of numerous imbricated bracts with more or less recurved tips; ray florets yellow, ligulate and pistillate; disk florets yellow, tubular and perfect; pappus of 2 or 3 mostly unequal, linear awns about the length of the disk florets; disk achenes more or less ovoid or oblong, more or less compressed or triquetrous, and either bi-auriculate or broadly unidentate or with a broad truncate, corky-thickened summit; odor balsamic; taste aromatic and bitter, resinous. Powder: Yellowish-brown; consisting of numerous fibrous fragments made up of tissues of the stem, the most prominent being the tracheæ with annular and spiral thickenings or marked with simple or bordered pores, associated with numerous narrow, strongly lignified wood-fibers; pith cells more or less tabular and containing a layer of protoplasm in which are embedded numerous spheroidal granules; fragments of epidermis of leaves very characteristic and showing more or less polygonal areas containing large chloroplastids, and the large colorless, basal cells of the multicellular, glandular hairs; pollen grains spherical 0.035 mm. in diameter, spinose, and in section showing three pores.

Guaiacum.—In irregular, or in large, nearly homogeneous masses, occasionally in more or less rounded or ovoid tears, enclosing fragments of vegetable tissues; externally greenish-gray-brown, the fractured surface having a glassy lustre, the thin pieces being translucent and varying in color from yellowish to reddish-brown; odor balsamic; taste slightly acrid. Guaiac should melt at from 80° to 90° C. It is readily soluble in alcohol, ether, chloroform, creosote, and in solutions of the alkalis or of hydrated chloral T. S. It is sparingly soluble in carbon disulphide or benzene.

Guarana.—Powder: Light pinkish-brown; consisting mostly of irregular masses of parenchyma containing more or less altered starch grains; unaltered starch grains occasional, varying from spherical and polygonal to ellipsoidal and broadly ovoid, from 0.010 to 0.025 mm. in diameter; occasional fragments with narrow elongated sclerenchymatous cells, the walls being thick, yellowish and non-lignified. Add 0.001 Gm. of powdered Guarana to a slide, upon which a drop of hydrochloric acid has previously been placed, add a drop of gold chloride T. S. and allow the mixture to stand for a few minutes. Beginning at the edge of the mount, crystals of caffeine gold chloride should be separate in the form of orthorhombic plates and needles, the latter usually occurring in spheroidal aggregates and finally forming branching groups.

Humulus.—Hops may include not more than 2 percent. of stems, leaves and other foreign matter. Scales "imbricated". Color described as strong and characteristic, becoming disagreeable and valerian-like on aging. Ash not exceeding 8 percent. Hops should be dried at a temperature not exceeding 70° C. and should be kept in air-tight containers protected from the light.

Hydrastis.—The drug may include not more than 2 percent. of stems, leaves and other foreign matter. Rhizome horizontal or oblique, sub-cylindrical

and usually more or less flexuous, 1 to 5 cm. in length and 2 to 7 mm. in diameter, occasionally with stem-bases; externally yellowish or grayish-brown, marked by numerous stem scars and more or less annulate from scars of bud-scales, otherwise deeply longitudinally wrinkled, and on the under and lateral portions arise numerous long, filiform roots which are easily detached; fracture short, waxy; internally of a deep yellow color and consisting mostly of parenchyma enclosing an interrupted circle of small fibro-vascular bundles; odor distinct; taste bitter. Powder: Brownish-yellow; starch grains numerous, from 0.002 to 0.015 mm. in diameter, being mostly single, nearly spherical, and either free or in the parenchyma cells; fragments with the tissues of the fibro-vascular bundles mostly associated with starch-bearing parenchyma; tracheæ, with simple and bordered pores and occasionally spiral thickenings, and associated with short sclerenchymatous fibers possessing thin walls with simple pores; occasional fragments of tabular cork cells with reddish-brown walls.

Hyoscyamus.—The dried leaves and flowering or fruiting tops of *Hyoscyamus niger* Linné (Fam. Solanaceæ). Usually much wrinkled, with numerous stems and with the flowering or fruiting tops intermixed; leaves when entire attaining a length of 25 cm. and a breadth of 10 cm., ovate or ovate-oblong, very inequilateral, the lower with short petioles, the upper sessile, summits acute, margins coarsely and angularly 1- to 4-toothed or lobed, grayish-green, glandular-hairy, particularly on the lower surfaces; flowers nearly sessile with an urn-shaped unequally 5-toothed calyx and a campanulate corolla which in the fresh state is of a yellowish color; fruit a 2-locular pyxis, and enclosed in a large urn-shaped calyx with 5 acute teeth; odor heavy, distinct; taste somewhat bitter and acrid. Stems from 3 to 7 cm. in length and from 2 to 5 mm. in thickness, nearly cylindrical or somewhat compressed, longitudinally wrinkled and hairy. Powder: Grayish-green; calcium oxalate crystals usually in the form of 4- to 6-sided, isolated prisms, sometimes in twins, from 0.015 to 0.025 mm. in length, also occurring in spherical aggregates either isolated or attached to the prismatic crystals, sometimes in rosette aggregates, 0.020 mm. in diameter, and occasionally in sphenoidal micro-crystals; hairs numerous, of two kinds; the non-glandular 2 to 10 cells in length, the glandular with a 1- to many-celled head and a 1- to 4-celled stalk; fragments of epidermis with broadly elliptical stomata, 0.030 to 0.035 mm. in length and with 3 to 4 neighboring cells; fragments of tracheæ with simple or bordered pores and spiral or reticulate thickenings, also associated with libriform sclerenchymatous fibers having thin, porous walls and showing little or no lignification. The presence of the leaves of *Hyoscyamus muticus* Linné in either the crude or powdered drug of *Hyoscyamus* may be determined by the characteristic branching non-glandular hairs occurring on both the stems and leaves of *H. muticus*. Ash not exceeding 30 percent.

Ipecacuanha.—Ipecac may contain not more than 10 percent. of stems. Rio Ipecac: In cylindrical pieces, curved and sharply flexuous, occasionally branched, from 3 to 15 cm. in length, and from 2.4 to 4 mm. in thickness; externally dark brown, closely annulated with thickened, incomplete rings, and usually exhibiting transverse fissures with vertical sides; fracture of bark short,

of wood tough, bark very thick, light brown, easily separable from the yellowish-white wood; odor very slight, peculiar, the dust sternutatory; taste bitter and nauseous, somewhat acid. Stems cylindrical, attaining a length of 10 cm. and a thickness of 2 mm., dark brown, finely longitudinally wrinkled and with a few elliptical scars. *Carthagenia Ipecac*: Cylindrical or slenderly fusiform, more or less tortuous, from 3 to 12 cm. in length, and from 4 to 6.5 mm. in thickness; externally grayish-brown, the annulations usually not so numerous as in *Rio Ipecac*, occasionally transversely fissured and with circular scars of roots; bark 2 mm. in thickness, dark brown, smooth, somewhat horny, and easily separable from the light brown wood. Stems attaining a length of 10 cm. and a thickness of from 2 to 3 mm., cylindrical, somewhat zigzag, due to the prominent nodes with their elliptical stem-scars, grayish or dark brown and longitudinally wrinkled; bark thin. Powder: Light brown; starch grains numerous, 1- to 4- or more compound, the individual grains spherical or polygonal, from 0.003 to 0.017 mm. in diameter; calcium oxalate in raphides from 0.015 to 0.040 mm. in length, few; tracheids with bordered pores and oblique slit-like pores. The stem bark shows a few, slightly elongated stone cells, from 0.030 to 0.045 mm. in length, with thick lignified walls and simple, branching pores. Ash not less than 1.8 percent. nor more than 4.5 percent.

Jalapa.—Fusiform, irregularly ovoid or pyriform, upper end more or less rounded, lower end slightly tapering, the large roots often incised or cut into pieces; from 4 to 15 cm. in length, from 12 to 60 mm. in diameter; externally dark brown, longitudinally wrinkled or furrowed and with numerous lenticels; hard, compact, not fibrous; when broken internally, dark brown, mealy or waxy, bark 1 to 2 mm. in thickness, outer bundles separated from outer cortical layer by a distinct brown cambium zone; odor slight but peculiar, smoky and sweetish; taste sweetish and acid. Powder: Light brown; starch grains numerous, single or 2- to 3-compound and more or less swollen, ellipsoidal or ovoid with concentric or excentral lamellæ and radiating clefts or fissures from 0.003 to 0.035 mm. in diameter, calcium oxalate in rosette aggregates from 0.010 to 0.035 mm. in diameter; tracheæ short, wide, with simple or bordered pores; laticiferous vessels with yellowish-brown, resinous masses. Ash not exceeding 6.5 percent.

Kino.—The spontaneously dried juice. In small, angular fragments, usually considerably less than 15 mm. in diameter, varying in color from a dark reddish-brown to reddish-black, brittle; when crushed upon a slide and examined under the microscope, the angular fragments are more or less translucent with a glass-like, conchoidal surface, the thinner pieces having a yellowish-red or deep brownish-red color, the pieces often being marked by nearly parallel, curved or straight lines; inodorous; taste very astringent, when masticated it colors the saliva pinkish. Powder: Of a dark brick-red or ochre color, upon the addition of water the sharp angular fragments should assume a deep, rich red color and become more or less rounded and separate into innumerable, small, granular particles among which are included a large number of rod-shaped bacteria. Upon mounting powdered *Kino* in alcohol, the fragments at first assume a deep red color, then mostly dissolve, leaving a number of small, colorless granules and indistinguishable, cellular fragments.

Kino is only partly soluble in cold water, and not less than 40 percent. should be soluble in boiling water, the latter upon cooling and filtering should show a faintly acid reaction, give a dark green precipitate with ferric chloride T. S., and a reddish-violet color with alkalis. Alcoholic extractive not less than 45 percent. Moisture content not more than 12 percent. Ash not exceeding 3 percent.

Krameria.—The drug may include not more than 5 percent. of stems. The family name changed from "Krameriaceæ" to Leguminosæ. Peruvian Rhatany: It consists of a knotty, several- to many-headed crown with numerous branching roots; the latter rarely attaining a length of 50 cm. and usually less than 1 cm. in thickness, cylindrical, somewhat tapering, flexuous or wavy and very flexible, externally light reddish-brown or brownish-red, more or less marked with dark, scaly cork, especially in the upper portion, otherwise nearly smooth, somewhat longitudinally wrinkled and devoid of transverse fissures; fracture of bark slightly fibrous, of wood tough and splintery, the pinkish-brown bark less than one-third of the radius, the wood yellowish or pinkish-white and finely radiate; inodorous; wood nearly tasteless, bark astringent. Savanilla Rhatany and Para Rhatany: Roots usually separate, less flexuous and tapering than those of Peruvian Rhatany, and usually not exceeding 12 mm. in thickness; externally purplish-brown or chocolate brown and marked with numerous fissures, fracture less tough than that of Peruvian Rhatany, internally the bark and wood darker, the bark about two-fifths or more of the radius and more astringent than that of Peruvian Rhatany. Powder: Reddish-brown; starch grains, single or 2- to 4-compound, the individual grains spherical, ellipsoidal, or plano-convex and sometimes with a central, radial or star-like cleft, from 0.003 to 0.035 mm. in diameter, bast-fibers more or less wavy in outline with very much attenuated ends and with non-lignified walls; tracheæ with simple or bordered pores associated with numerous wood-fibers which are narrow spindle-shaped and with thick, porous, slightly lignified walls; numerous cellular fragments with yellowish or reddish-brown walls; calcium oxalate in monoclinic prisms, 0.010 to 0.100 mm. in length, few, or frequently absent. Macerate 2 Gm. of powdered Rhatany with 10 Cc. of alcohol, with occasional stirring for one hour and filter it. The deep reddish colored filtrate obtained should yield a dark brownish-red precipitate and a deep orange-red filtrate upon the addition of an excess of alcoholic lead acetate T. S., this latter filtrate should yield no precipitate upon the further addition of a drop or two of alcoholic lead acetate T. S., and should give an olive-brown solution having a purplish fluorescence upon the addition of a drop or two of ferric chloride T. S. Aqueous extractive not less than 9 percent. Ash not exceeding 5 percent.

Lactucarium.—Treat Lactucarium with boiling water and filter; the filtrate should be clear while hot, but on cooling it should become turbid; the filtrate should not be colored blue by iodine T. S. (absence of starch) and should also become clear upon the addition of ammonia water or alcohol. An alcoholic solution of Lactucarium should give not more than a faint green color upon the addition of a drop of ferric chloride T. S. (absence of tannin). Powder: Grayish-brown to dark brown, consisting almost entirely of irregular fragments without any cellular structure; when mounted in hydrated chloral T. S.,

the fragments should become clear, showing a granular ground mass, and from this should separate numerous rod-shaped crystals and broad, monoclinic prisms as well as coarse, rosette-shaped, crystal-like masses, that polarize light. Dry the drug at a temperature not exceeding 70° C. for powdering. Ash not exceeding 10 percent.

Leptandra.—*Leptandra* may include not more than 5 percent. of stems and other foreign matter. Rhizome usually of horizontal growth nearly cylindrical, somewhat branched, from 4 to 10 cm. in length and from 4 to 13 mm. in diameter; externally grayish-brown to dark reddish-brown, annulate from circular scars of bud-scales, upper surface with short stem remnants; occasionally with buds, and numerous circular stem-scars, from the under and lateral portions arise numerous coarse roots; fracture very tough and woody, branches readily separable from the main rhizome; internally bark rather thin, dark brown and resinous, wood about the same thickness as the bark, light brown and porous, pith large, more or less hollow, the color being similar to that of the bark; nearly odorless, taste very bitter and acid. Roots from 1 to 10 cm. in length and from 1 to 2 mm. in diameter; externally dark brown to purplish-brown, smooth and faintly longitudinally wrinkled: fracture short; internally with a thick brownish-black bark and small light brown central cylinder. Powder: Dark brown and yellowish white; odor strong, penetrating; containing numerous irregular fragments of vegetable tissue, many of them being colored pink or violet upon the addition of hydrated chloral T. S., starch grains numerous, to some extent isolated but mostly in the parenchymatous cells, the individual grains being nearly spherical or more or less polygonal and from 0.002 to 0.008 mm. in diameter; fragments of woody tissues with tracheæ and wood-fibers, tracheæ with spiral thickenings, or with simple or bordered pores, wood-fibers with thick lignified walls, with simple pores or with bordered pores, resembling tracheids; fragments of parenchyma containing a light brown or brownish-black resin, the latter frequently closely coherent with the starch grains in the cells thus preventing the separation of the individual starch grains; in hydrated chloral T. S. mounts, occasional elongated cells with a lemon-yellow oily substance may sometimes be seen.

Limonis Cortex.—The outer rind of the fresh ripe fruit of *Citrus medica* Limonum (Risso) Hooker filius (Fam. Rutaceæ). The outer, lemon-yellow or dark yellow layer recently separated by grating or paring and consisting of an epidermal layer, numerous parenchyma cells containing yellow chromoplastids and large oil-reservoirs with globules of the volatile oil; odor highly fragrant, distinct; taste pungently aromatic. Under the microscope sections of the fresh fruit when mounted in fixed oils, show an epidermal layer composed of small tabular cells, a hypodermal layer containing numerous plastids, a mesocarp with colorless, thin-walled parenchyma and large, elliptical oil reservoirs; parenchyma cells containing a layer of granular protoplasm adhering to the walls and occasionally membrane crystals of calcium oxalate, which are irregularly polygonal in shape, polarize light strongly and from 0.015 to 0.025 mm. in diameter.

Linum.—Flaxseed may include not more than 3 percent. of other harmless fruits, seeds and foreign matter. Ovate, or oblong-lanceolate, flattened,

obliquely pointed at one end, 3 to 5 mm. in length; externally chestnut-brown, very smooth and shiny, the raphe extending as a distinct, light yellow ridge along one edge; easily cut with the finger-nail, internally olive-green, oily; odor slight; taste mucilaginous and oily. Under the microscope transverse sections when mounted in hydrated chloral T. S. show an epidermis with a mucilaginous layer from 0.010 to 0.015 mm. in thickness, covered by a very thin layer of cutin which is often more or less broken; two layers of parenchyma which overlie a continuous ring of stone-cells having yellowish, porous walls and rather large lumina; a pigment layer, the cells having a reddish-brown content; an endosperm consisting of from 6 to 10 rows of cells, surrounding the two large plano-convex cotyledons; the cells of both the endosperm and the cotyledons contain a fixed oil and aleurone grains, the latter being from 0.003 to 0.020 mm. in diameter. Powder: Lemon-yellow and light brown, consisting chiefly of large, oily globules and irregular fragments of endosperm and seed-coat; the seed-coat is characterized by the tabular pigment cells filled with a reddish-brown, insoluble content and by the somewhat elongated stone cells with yellowish walls; mounts made from material from which the fixed oil has been removed, show aleurone grains from 0.003 to 0.020 mm. in diameter, both free and in the cells of the endosperm and embryo. Linseed or Flaxseed Meal: Light olive-brown with reddish-brown fragments; fragments very coarse and the cellular tissues are the same as those of the powder. Powdered Linseed or Flaxseed and Linseed Meal or Flaxseed Meal should be recently prepared and free from unpleasant or rancid odor, and should be kept in tightly closed containers, to which a few drops of carbon tetrachloride or chloroform should be added from time to time to prevent the attack by insects. Boil 1 Gm. of the fat-free Linseed or Flaxseed Powder or Meal, with 50 Cc. of water, cool and filter; the filtrate should show, on the addition of iodine T. S., not more than a faint blue color. The ground or powdered drug upon extraction with petroleum benzin should yield not less than 30 percent. of a fixed oil, 98 percent. of which should be saponifiable. Ash not exceeding 6 percent.

Lobelia.—Family name changed from "Campanulaceæ" to "Lobeliaceæ." Stems cylindrical, coarsely and irregularly furrowed, yellowish-green, occasionally purplish and with numerous spreading hairs; leaves alternate, usually more or less broken, when entire, laminae ovate or oblong, 2 to 9 cm. in length, obtusely toothed or irregularly serrate-denticulate, the teeth with a yellowish-brown gland-like apex, pale green and with scattered, bristly hairs; petiole either wanting or 1 mm. in length; flowers in long racemes with short pedicels, calyx tube ovoid, 5-toothed, corolla tubular, 3 to 4 mm. in length, 5-parted, the upper 2-lobed portion cleft nearly to the base; stamens with anthers united above into a curved tube enclosing the bifid stigmas; capsules ovoid or ellipsoidal, 5 to 8 mm. in length, light brown, wholly inferior and enclosing numerous brownish, oblong and coarsely reticulate seeds; odor slight; taste strongly acrid. Powder: Dark green, odor irritating; fragments of seed-coat composed of more or less polygonal cells with thick, yellowish walls; isolated, non-glandular hairs elongated-conical, 0.300 to 0.600 mm. in length; fragments of stem with tracheæ showing annular or spiral thickenings or simple pores associated with narrow wood-fibers, the walls of the latter being rather thin, more or less lignified

and porous; fragments of epidermis of leaf with elliptical stomata, 0.025 mm. in length, and usually with 3 or 4 neighboring cells; pollen grains nearly spherical, 0.015 to 0.030 mm. in diameter. Ash not exceeding 8 percent.

Lupinum.—A granular powder, bright yellowish-brown, having the characteristic odor and taste of hops; becoming darker in color, disagreeable and valerian-like in odor on aging, when it is unfit to use. Under the microscope the glandular trichomes are somewhat globular or ellipsoidal, 0.150 to 0.200 mm. in diameter, consisting of a single layer of secreting cells assuming the form of a shallow cup, from the inner surface of which the cuticle has been separated by the secreted yellowish-brown oleoresin. Ash changed from "not more than 10 percent." to "not exceeding 16 percent."

Lycopodium.—The spores of *Lycopodium clavatum* Linné (Fam. Lycopodiaceæ), with not more than 2 percent. of impurities. Under the microscope the spores are spherical tetrahedrons, 0.025 to 0.040 mm. in diameter; in section they vary from plano-convex to triangular, the outer wall or exosporium being extended in the form of slight, irregular projections, giving the edge a ciliate appearance, and the surface of the spore a reticulate appearance, the reticulations being polygonal and formed of straight sides; when viewed so that the rounded surface of the spore is on the under side, the upper surface is characterized by a distinct, triangular marking, being the edges of the three straight surfaces, extending from the center of the spore to near the outer edge. *Lycopodium* should show very few, if any, pollen grains of species of Pine, the latter being 0.040 to 0.070 mm. in diameter, and consisting of three parts, a central, convex, generative cell separating the two spherical cells or wings which are blackish, due to the inclusion of air. Ash changed from "not exceeding 5 percent." to "not exceeding 3 percent."

Matricaria.—The dried flower-heads of *Matricaria Chamomilla* Linné (Fam. Compositæ), with not more than 5 percent. of stems and foreign matter. Flower-heads composed of a few white ray florets and numerous yellow disk florets on a conical, more or less hollow receptacle, the latter being 3 to 10 mm. in breadth; disk flowers tubular, perfect, and without a pappus; ray flowers 10 to 20, pistillate, corolla white, 3-toothed, and 4-veined, usually reflexed, involucre hemispherical, composed of 20 to 30 imbricated, oblanceolate, and pubescent scales; peduncles light green to brownish-green, longitudinally furrowed, more or less twisted and attaining a length of 2.5 cm.; achenes somewhat obovoid and faintly 3- to 5-ribbed, pappus none or only a slight membranous crown; odor pleasant, aromatic; taste aromatic and bitter. Ash not exceeding 13 percent.

Mentha Piperita.—Leaves more or less crumpled and frequently detached from the stems; stems quadrangular, 1 to 2 mm. in diameter, nearly glabrous except for a few scattered deflexed hairs; leaves when entire ovate-oblong to oblong-lanceolate, petioles 4 to 15 mm. in length, slightly pubescent, laminæ 1 to 9 cm. in length, acute and sharply serrate, light green to purplish-brown, upper surfaces nearly glabrous, lower surfaces glandular-hairy especially on the veins; flower-whorls in oblong or oval spikes which are usually compact, or somewhat interrupted at the base, 1 to 1.5 cm. in breadth, rounded at the summit, and in fruit attaining a length of 3 to 7 cm.; bracts oblong-lanceolate, very acuminate,

7 mm. in length; calyx tubular, equally 5-toothed, pubescent and glandular-punctate, often dark purplish in color; corolla tubular-campanulate, 4-cleft, 3 mm. in length and often light purple; stamens 4, short and equal; nutlets ellipsoidal, 0.5 mm. in diameter, blackish-brown; odor pungent, characteristic; taste aromatic, pungent, followed by a cooling sensation.

Mentha Viridis.—Leaves more or less crumpled and mixed with a large proportion of the light brown or purplish-colored stems occasionally with their characteristic opposite branches; stems distinctly quadrangular 1 to 3 mm. in width, nearly glabrous; leaves when entire oblong- or ovate-lanceolate, unequally serrate, nearly sessile or with a petiole less than 5 mm. in length, of a bright green color and somewhat glandular-hairy on the under surfaces; flowers in clusters arranged oppositely and in more or less interrupted or crowded, lanceolate, acute or acutish spikes; bracts subtending the flower clusters linear-lanceolate, subulate, 7 to 10 mm. in length; calyx tubular, 5-toothed, glandular-punctate and somewhat pubescent near the teeth; corolla whitish or light brown; stamens extending beyond the corolla tube; odor slightly pungent, characteristic; taste aromatic, characteristic but not followed by a cooling sensation.

Moschus.—Known in commerce as Tonquin or Tibetan Musk. Usually in small irregular granules, not more than 2 mm. in thickness, blackish, with a few light brown fragments and becoming somewhat grayish on aging; shiny and somewhat oily; odor peculiar, penetrating, powerful and persistent; taste aromatic and bitterish. Add a few granules of Musk to 2 Cc. of water in a watch crystal and stir with a glass rod, a light brown solution should be obtained. The undissolved portion should consist of irregular fragments containing a finely granular substance, numerous rod-like bacteria and occasionally the hyphæ of a fungus. Add a drop of iodine T. S. to a slide containing a few granules of Musk and examine under the microscope; none of the particles should be colored blue or bluish-black (absence of starch). Add a few granules of Musk to 2 Cc. of alcohol contained in a watch crystal; the grains should sink to the bottom, and upon stirring with a glass rod, a pale brown, slightly cloudy solution should be obtained, leaving a somewhat oily stain upon the upper portion of the watch crystal as the alcohol evaporates; the undissolved portion or residue should resemble that obtained with the aqueous mixture, except in that the particles should be less disintegrated. Add a few granules of Musk to 2 Cc. of chloroform in a watch crystal; the grains should float on the surface and upon stirring with a glass rod, the solution should remain nearly colorless, and as it evaporates there should separate around the particles a small quantity of a whitish oily or fatty substance. Not less than 50 percent. of Musk should be soluble in water, the solution being of a dark brown color with a strong, aromatic odor and a slightly acid reaction. Not less than 10 percent. of Musk should be soluble in alcohol, the solution being of a light yellowish-brown color becoming slightly turbid upon the addition of water. Musk, when dried to constant weight in a desiccator over sulphuric acid, should not lose more than 15 percent. of moisture.

Myristica.—Ovoid or ellipsoidal, 20 to 30 mm. in length and about 20 mm. in thickness; externally light brown to dark brown, consisting of the reticulately furrowed perisperm; the broad end with a large, circular, upraised scar from

which arises a furrow extending to the chalaza; easily cut, the surface having a waxy lustre and mottled by reason of the light brown perisperm penetrating into the yellowish-brown endosperm; a longitudinal section through the middle of the large scar shows a small irregular cavity with the more or less shrunk remains of the embryo, and usually containing a growth of mold; odor slightly aromatic, taste agreeably aromatic. Powder: Dark reddish-brown; consisting of irregular, yellowish-brown or brownish-black fragments; fragments of perisperm yellowish-brown with large, circular or elliptical oil reservoirs containing a volatile oil, small, thin-walled parenchyma cells and occasional spiral tracheæ; parenchyma cells of the endosperm more or less polygonal and filled with starch grains and aleurone grains; starch grains single or compound, the individual grains being spherical, plano-convex or polygonal, from 0.003 to 0.020 mm. in diameter and colored blue with iodine T. S. (distinction from starch grains in mace, which are colored yellowish-red; mounts in hydrated chloral T. S. show numerous globules of a fixed oil which later may separate in the form of rod-like crystals; mounts in any of the fixed oils show the separation of spheroidal aggregates of crystals of the fixed oil which polarize light strongly. The powder made from "lined" Nutmeg shows, under the microscope, upon the addition of water containing 25 percent. of sulphuric acid, the immediate separation of crystals of calcium sulphate in the form of small needles or short rods which do not polarize light. Ash not exceeding 5 percent. Broken and wormy kernels should be rejected.

Myrrha.—A gum-resin obtained from one or more species of *Commiphora* (Fam. Burseraceæ). Powder: Yellowish-brown; 0.001 Gm. of the powder, when added to a slide containing a drop of one of the fixed oils and examined under the microscope, shows numerous angular fragments varying in color from pale yellow to yellowish-brown; hydrated chloral T. S. produces an intensification in the color of the yellowish fragments; the addition of iodine T. S. to the powder previously mounted in hydrated chloral T. S. may show the presence of a few starch grains varying in shape from spherical, polygonal, and narrowly ellipsoidal to somewhat pear-shaped, from 0.010 to 0.035 mm. in diameter; when mounted in phloroglucinol T. S. and hydrochloric acid the powder may show a few fragments of lignified tissues consisting of either sclerenchymatous fibers, or of small groups of stone cells, the individual cells of the latter with very thick, porous walls and from 0.015 to 0.050 mm. in length. Statements about emulsion with water, its insolubility and non-swelling in water, and the nitric acid test on an alcoholic solution omitted. Not less than 35 percent. of Myrrh should be soluble in alcohol. Ash not exceeding 8.5 percent.

* *Nux Vomica*.—Orbicular, nearly flat, occasionally irregularly bent, 10 to 30 mm. in diameter, 4 to 5 mm. in thickness; externally grayish or greenish-gray, covered with appressed hairs giving it a silky lustre, hilum indicated by a circular scar at the center of one of the flattened sides, and connected with the micropyle by a ridge; the micropyle very hard when dry; internally showing a thin and hairy seed-coat and a large grayish-white endosperm at one end of which is embedded a small embryo, with 2 broadly ovate 5- to 7-nerved cotyledons; inodorous; taste persistently bitter. Powder: Light gray; consisting chiefly of thick-walled, endosperm cells containing globules of a fixed oil and

a few small aleurone grains, and fragments of strongly lignified, non-glandular hairs, the walls of the latter possessing large, circular, or long, slit-like pores. In the tissues of the adhering pulp occur a few small, nearly spherical starch grains. The color test with potassium dichromate and sulphuric acid omitted. Ash not exceeding 3.5 percent.

Opii Pulvis.—Temperature for drying changed from “not exceeding 85° C.” to “not exceeding 70° C.” Light brown, consisting chiefly of yellowish-brown to brownish-red, more or less irregular and granular fragments varying from 0.015 to 0.150 mm. in diameter; a few fragments of strongly lignified thick-walled, 4- to 5-sided or narrowly elongated, epidermal cells of the poppy capsule; and very few fragments of tissues of poppy leaves, poppy capsules, and *Rumex* fruits.

Opium.—Obtained from *Papaver somniferum* Linné and its variety *album* De Candolle (Fam. *Papaveraceæ*) with not more than 5 percent. of the capsules and leaves of the poppy plant, *Rumex* fruits, and other foreign matter. In more or less rounded, mostly somewhat flattened masses of variable size, but usually about 8 to 15 cm. in diameter; externally grayish-brown, covered with fragments of poppy leaves and with some fruits of a species of *Rumex*, adhering from packing; more or less plastic when fresh, becoming hard and brittle on keeping; internally dark brown interspersed with lighter areas, somewhat lustrous; odor characteristic, narcotic; taste bitter, characteristic.

Pepo.—Defined as the “dried” seeds of cultivated varieties of *Cucurbita Pepo* Linné (Fam. *Cucurbitaceæ*), with not more than 5 percent. of other harmless seeds. Broadly elliptical or ovate, 15 to 23 mm. in length and 2 to 3 mm. in thickness; externally yellowish-white, very smooth, occasionally with thin, transparent fragments of adhering pulp, and with a shallow groove parallel to and within 1 mm. of the margin; fracture short, seed coat consisting of a white coriaceous outer layer and a membranous inner layer occasionally of a dark green color; embryo whitish, straight, with a small conical hypocotyl and two plano-convex cotyledons; slightly odorous when contused; taste bland and oily. Under the microscope sections show an outer epidermal layer consisting of palisade-like cells, the radial walls attaining a length of 1 mm.; the outer walls usually being torn off so that it appears as though the seeds were covered with very long hairs; a sub-epidermal layer consisting of 5 to 12 rows of cells with slightly thickened, lignified and porous walls; a layer of strongly lignified stone cells, elliptical in outline and about 0.075 mm. in length; a single layer of small cells resembling those of the sub-epidermal layer; several rows of spongy parenchyma cells with characteristic reticulate markings and separated from each other by large intercellular spaces; several layers of parenchyma cells, the inner layer being more or less collapsed and bounded on the inside by a single epidermal layer, the cells having rather thick walls; the perisperm cells are usually more or less collapsed and the endosperm consists of a single layer of cells filled with small aleurone grains; the cotyledons consist of thin-walled, isodiametric, elongated or palisade-like cells containing a fixed oil and numerous small aleurone grains.

Petroselinii Fructus.—The dried ripe fruits of *Petroselinum sativum* Hoffmann (Fam. *Umbelliferae*), with not more than 5 percent. of foreign seeds and other

vegetable matter. Mericarps usually separated, ovoid crescent shaped, 2 to 3 mm. in length, 1 mm. in diameter; externally grayish-brown becoming grayish or brownish on aging, having 5 yellowish, filiform, prominent ribs, alternating with the coarsely roughened furrows; in transverse section nearly hemispherical, the commissural surface with 2 vittæ, or oil-tubes, the dorsal surface usually with a single vitta, occasionally 2 vittæ, in the grooves between the primary ribs; endosperm large, oily, enclosing a small embryo; odor and taste characteristic and distinctly aromatic, especially when bruised. Under the microscope sections show an epidermal layer with thick, cuticularized walls having numerous small centrifugal projections; several layers of small, thin-walled parenchyma cells, being usually considerably collapsed; a single large brown elliptical vittæ or oil-tube between each of the primary ribs and surrounded by a layer of comparatively large, yellowish-brown, tangentially elongated cells; a single fibro-vascular bundle more or less surrounded by a few or occasionally numerous, sclerenchymatous fibers; inner epidermis of narrow, thin-walled, elongated cells closely cohering with the brownish tabular cells of the seed-coat; commissural surface usually with 2 large vittæ, a very few stone cells and showing a slight separation of pericarp and seed-coat; endosperm of polygonal, thick-walled, parenchyma cells containing fixed oil and numerous small aleurone grains usually containing a small rosette aggregate of calcium oxalate. The vittæ usually contain yellowish oil globules or a resin-like mass adhering to the walls, and occasionally are divided by a radial wall. Powder: Grayish-brown, mostly of large, irregular fragments; cells of endosperm with aleurone grains, each usually containing a rosette aggregate of calcium oxalate, 0.003 to 0.007 mm. in diameter; fragments with light yellow vittæ and the yellowish-brown cells of the pericarp; fragments with narrow tracheæ and more or less lignified sclerenchymatous fibers.

Physostigma.—Defined as the "dried" seeds. Oblong or ellipsoidal, somewhat compressed reniform, 15 to 30 cm. in length, 10 to 15 mm. in thickness; externally reddish or chocolate brown, smooth, somewhat wrinkled near the brownish-black groove, the latter being 2 mm. in width and extending almost the entire length of the convex edge and in which is found frequently the remains of the white membranous funiculus, the margins of the seed coat on both sides of the groove somewhat elevated, of a yellowish-red or brownish-red color and somewhat thickened; embryo large, white, with short hypocotyl and two concave-convex cotyledons; taste at first starchy, afterwards acid. Powder: Grayish-white; starch grains numerous, from 0.005 to 0.150 mm. in diameter, ellipsoidal or somewhat reniform, and usually with a distinct cleft and frequently with radiating or irregular fissures; fragments of seed coat with very thick, reddish-brown cells being either palisade-like shaped, or very irregular and resembling stone cells, but the walls are not lignified; an occasional fragment with tracheæ showing reticulate thickenings. Ash not exceeding 3 percent.

Pilocarpus.—The dried leaflets of *Pilocarpus Jaborandi* Holmes, in commerce known as *Pernambuco Jaborandi*, or of *Pilocarpus microphyllus*, Stapf, known in commerce as *Maranham Jaborandi*, (Fam. Rutaceæ), with not more than 5 percent. of the rachis (stalks) bearing the leaflets and stems of the same plant. *Pernambuco Jaborandi*: Leaflets when entire, oval, oblong, or elliptical, 4

to 10.5 cm. in length and 2 to 4 cm. in breadth and with short, stout petiolules; summits more or less rounded or acute and emarginate; bases rounded or acute and mostly unequal; margins, entire and narrowly revolute; very smooth, shiny, coriaceous and glandular-punctate; upper surface grayish to brownish-green, mid-ribs mostly depressed, under surfaces yellowish- or greenish-brown and slightly pubescent on the prominent midvein; peculiarly aromatic when crushed; taste bitterish, becoming somewhat pungent and having a sialagogue effect. *Maranham Jaborandi*.—Leaflets rhomboidally oval to obovate or elliptical, 1.5 to 5 cm. in length and 1 to 3 cm. in breadth, the lateral ones nearly sessile, the terminal ones on margined petiolules, 0.5 to 1.5 cm. in length; of a nearly uniform grayish or yellowish-green color, rather thin but otherwise resembling *Pernambuco Jaborandi*. Under the microscope transverse sections show the upper epidermal cells with a yellowish layer of cutin, from 0.005 to 0.010 mm. in thickness; palisade cells, 1 to 3 rows deep, being filled with chloroplastids; among the palisade cells occur large, nearly circular, oil secretion reservoirs 0.080 to 0.150 mm. in diameter; the dorsal pneumatic layer, 10 to 20 rows in depth, the cells occasionally containing rosette aggregates of calcium oxalate from 0.010 to 0.025 mm. in diameter; distributed in the center of the leaf, are the collateral fibro-vascular bundles each surrounded by a more or less interrupted circle of several rows of thick-walled, slightly lignified bast-fibers; tracheæ associated with strongly lignified wood-fibers; among the cells of the lower epidermis occur numerous stomata. On surface view the stomata are broadly elliptical, 0.025 to 0.040 mm. in length, being uniformly smaller in *Maranham Jaborandi*. Upon both surfaces of *Pernambuco Jaborandi* occur a number of non-glandular, one-celled hairs, more or less bent or curved, from 0.080 to 0.500 mm. in length, thick-walled and with numerous, slight, centrifugal projections. Powder: Dark green or greenish-brown, epidermal cells on surface view 5- to 6-sided, stomata broadly elliptical, from 0.020 to 0.040 mm. in length, usually with four neighboring cells; fragments of fibro-vascular bundles showing tracheæ with simple or bordered pores or spiral thickenings, associated with thick-walled and strongly lignified wood-fibers; bast-fibers few, walls thick and only slightly lignified; calcium oxalate in rosette aggregates, 0.010 to 0.025 mm. in diameter; fragments of laminae showing large, oil secretion reservoirs and usually containing one or more globules of an oily substance; non-glandular hairs, having thick walls usually more or less broken, are occasionally found. Ash not exceeding 7 percent.

Piper.—It may include not more than 2 percent. of stems and foreign matter. Nearly globular, 3.5 to 6 mm. in diameter, epicarp very thin, easily separable from the sarcocarp; externally blackish-brown or grayish-black, coarsely reticulate; 1-locular, 1-seeded; seed whitish, hollow, adhering to the pericarp; odor aromatic, slightly empyreumatic; taste aromatic and very pungent. Powder: A mixture of blackish-brown fragments of the pericarp and whitish fragments of the endosperm and embryo; starch grains spherical or somewhat angular; 0.001 to 0.003 mm. in diameter, mostly in the polygonal cells of the endosperm; stone cells of the epicarp varying from nearly isodiametric or palisade-like, to long tapering or somewhat shoe-shaped, with thick, porous walls and large lumina frequently containing a reddish-brown pigment; stone cells of the endocarp

unevenly thickened, the outer walls being usually rather thin, and the lumina usually filled with a reddish-brown substance; oil cells with suberized walls and containing a yellowish oil, in which occasionally separate monoclinic prisms of piperine. Non-volatile ether extract, not less than 6 percent; starch, not less than 25 percent. Ash not exceeding 7 percent. Ash insoluble in diluted hydrochloric acid, not exceeding 2 percent.

Podophyllum.—Defined as the "dried rhizome and roots." *Podophyllum* should yield, by the method given under *Resina Podophylli*, not less than 3 percent. of resin which should conform to the requirements and tests for Resin of *Podophyllum*. Horizontal, nearly cylindrical, jointed, compressed on the upper and lower surfaces, sometimes branched; in pieces from 3 to 20 cm. in length, the internodes 2 to 9 mm. in diameter; externally dark brown, longitudinally wrinkled or nearly smooth with irregular, somewhat V-shaped scars of scale leaves, nodes annulate, upper portion marked with large, circular, depressed stem-scars and sometimes with buds or stem-bases; at or near the nodes on the lower portion, occur numerous root-scars or roots from 2 to 7 cm. in length and about 2 mm. in thickness; fracture short; internally, bark light brown, wood with small, yellowish, vascular bundles, pith large and white; odor slight; taste sweetish, disagreeably bitter and acid. Under the microscope a transverse section shows an outer layer of one or two rows of reddish-brown cells; parenchyma of cortex and pith with numerous, single, spherical, polygonal, or 2- to 6-compound starch grains, or rosette aggregates of calcium oxalate; vascular bundles 24 to 34 arranged in a circle between cortex and pith. Powder: Light brown and with a pronounced and characteristic odor; starch grains numerous, spherical, polygonal or 2- to 6-compound, the individual grains from 0.003 to 0.015 mm. in diameter, calcium oxalate crystals few, in rosette aggregates from 0.050 to 0.080 mm. in diameter, and occasionally in raphides 0.030 to 0.090 mm. in length; tracheæ with simple pores or reticulate thickenings; fragments of starch-bearing parenchyma and reddish-brown cork cells. Ash not exceeding 3 percent.

Prunus Virginiana.—To consist of the "stem-bark." Usually in transversely curved pieces from 2.5 to 8 cm. in length and 0.5 to 4 mm. in thickness; outer surfaces light brown or greenish-brown, smooth, except for numerous lenticels from 3 to 4 mm. in length; inner surfaces light brown, longitudinally striate and occasionally fissured; fracture short, granular; odor distinct, bitter-almond-like, when macerated in water; taste astringent, aromatic, and agreeably bitter. Under the microscope sections show a tendency for the separation in radial segments or bands of the phloem tissues from the rather broad medullary rays; periderm usually of a few layers of cells; outer bark from young twigs with 1 or 2 nearly continuous layers of stone cells, the latter being of very irregular shape, often branching and with thick, lamellated, porous walls, medullary rays extending as more or less scythe-shaped groups from the cambium to the outer bark, from 1- to 10-cells in width, some of the cells occasionally being modified to stone cells; in between the medullary rays occur numerous small groups of stone cells, resembling those of the outer bark and occasionally modified to sclerenchymatous fibers; calcium oxalate mostly in crystal-fibers consisting of monoclinic prisms, 0.015 to 0.040 mm. in diameter, also in rosette aggregates,

0.010 to 0.020 mm. in diameter; starch grains numerous, occurring in the medullary rays and parenchyma. Powder: Light brown; bast-fibers and stone cells with thick, strongly lignified walls; crystal-fibers with monoclinic prisms and rosette aggregates of calcium oxalate, from 0.020 to 0.040 mm. in diameter; starch grains nearly spherical, from 0.003 to 0.004 mm. in diameter.

Pyrethrum.—Defined as the "dried" root. Nearly cylindrical, slightly tapering, usually in pieces, 2.5 to 10 cm. in length, 5 to 20 mm. in diameter; externally dark brown, deeply longitudinally furrowed and somewhat wrinkled, occasionally bearing short, tough, hair-like rootlets, crown more or less annulate and occasionally tufted with coarse fibers or with long, soft-woolly nearly straight, 1-celled hairs; fracture short; bark dark brown with 1 or 2 circular rows of resin ducts, closely adhering to the light yellow, radiate, porous wood; in the medullary rays of which occur 1 to 3 rows of resin ducts; odor distinct; taste sweetish, pungent, very acrid, tingling and producing a strong sialagogue effect. Powder: Light to dark brown; consisting of numerous spherical or irregular masses of inulin, the nature of which is especially seen with polarized light, and lignified fragments of the woody tissues and stone cells associated with cork; inulin in spherical granules or irregular masses, 0.010 to 0.100 mm. in diameter; which is not affected upon the addition of iodine T. S., tracheæ with simple pores and reticulate or scalariform thickenings, usually associated with wood parenchyma and with few or no wood-fibers; stone cells in groups resembling those of fruits and seeds, the cells more or less tabular in outline, and with thick, yellowish, porous walls; cork in yellowish-brown or dark brown fragments. Ash not exceeding 5 percent.

Quassia.—Jamaica Quassia: Usually in chips, raspings or shavings, occasionally in billets; yellowish-white or bright yellow, with a few light gray pieces somewhat coarsely grained; fracture tough, fibrous; odor slight; taste bitter. Under the microscope sections of Jamaica Quassia show large tracheæ either single or in groups of 2 to 5, the walls being marked by numerous, small bordered pores, and the contents being often of a yellowish color; medullary rays mostly 1 to 5 cells wide and from 10 to 20 rows deep; calcium oxalate in crystal-fibers near the medullary rays, in 4- to 6-sided prisms, from 0.006 to 0.030 mm. in length; wood-fibers with thin walls and oblique pores; starch grains few, spherical or ellipsoidal, 0.010 to 0.015 mm. in diameter. Surinam Quassia: The crude drug and microscopic sections closely resemble the Jamaica variety; tracheæ usually single or in pairs, sometimes in groups of 3 or 4; medullary rays in narrower and larger groups than in the Jamaica variety, from 1 to 4 cells wide and from 10 to 30 rows deep; calcium oxalate crystals few or entirely wanting and distinguishing this variety from Jamaica Quassia.

Rhamnus Purshiana.—The dried bark of the trunk and branches of *Rhamnus Purshiana* De Candolle (Fam. Rhamnaceæ). Usually in flattened or transversely curved pieces, occasionally in quills, bark 1 to 5 mm. in thickness; outer surface dark brown or brownish-red, longitudinally ridged, often nearly covered with grayish or whitish lichens, bearing small blackish apothecia, sometimes with numerous lenticels; and occasionally with mosses; inner surface light yellow, light brown, or reddish-brown, longitudinally striate, turning red when moistened with solutions of the alkalies; fracture short, with projections of bast-

fibers in the inner bark; in cross section inner bark shows diagonal or curved medullary rays, forming converging groups, the outer bark showing yellowish groups of stone cells which are especially apparent on moistening the freshly cut surface with phloroglucinol T. S. and hydrochloric acid; odor distinct; taste disagreeable, bitter, slightly acid. Under the microscope a transverse section shows an outer yellowish-brown or reddish-brown corky layer consisting of 10 to 15 or more rows of cells; stone cells in outer bark in tangentially elongated groups of 20 to 50 cells, the walls being very thick and finely lamellated; medullary rays 1 to 4 cells wide, 15 to 25 cells deep, the contents being colored red upon the addition of solutions of the alkalies to the sections; bast-fibers in tangentially elongated groups in the inner bark, the walls being* thick and strongly lignified; crystal-fibers around the bast-fibers with individual crystals from 0.008 to 0.015 mm. in length, parenchyma with spheroidal starch grains about 0.003 to 0.008 mm. in diameter, or with calcium oxalate either in rosette aggregates or prisms from 0.010 to 0.020 mm. in diameter. Add 0.100 Gm. of powdered Cascara Sagrada to 10 Cc. of hot water, shake the mixture occasionally until cold, filter it, and add sufficient water to make 10 Cc.; on the addition of 10 Cc. of ammonia water to this liquid it should be colored an orange yellow. Macerate 0.100 Gm. of powdered Cascara Sagrada with 10 drops of alcohol, boil the mixture with 10 Cc. of water, when cold filter it and shake the filtrate with 10 Cc. of ether; a yellow ethereal solution should separate. Shake 3 Cc. of this ethereal solution with 3 Cc. of ammonia water; the separated ammoniacal solution still should possess, on diluting with 20 Cc. of water, a distinct, yellowish-red color. Powder: Light brown to olive brown, showing the characteristic elongated groups of bast-fibers associated with crystal-fibers, the crystals in the latter being in the form of monoclinic prisms, from 0.008 to 0.015 mm. in length; stone cells in large groups, the cells having thick and finely porous walls; fragments of parenchyma and medullary ray cells colored red upon the addition of solutions of the alkalies; starch grains either free or in parenchyma cells, the individual grains being somewhat spheroidal, from 0.003 to 0.008 mm. in diameter; calcium oxalate in monoclinic prisms or rosette aggregates from 0.010 to 0.020 mm. in diameter; occasional fragments of reddish-brown cork. Ash not exceeding 8 percent.

Rheum.—In subcylindrical, barrel-shaped, conical pieces known in commerce as "rounds," or in plano-convex pieces known in commerce as "flats" or irregular pieces, frequently with a perforation; hard and moderately heavy; attaining a length of 17 cm. and a diameter of 10 cm., or cut in pieces of variable form and size; outer surface yellowish-brown, mottled, with alternating, longitudinal striæ of grayish-white parenchyma and reddish or brownish medullary rays, small stellate groups of fibro-vascular tissue and occasionally reddish-brown cork patches, smooth and sometimes covered with a bright, brownish-yellow powder; fracture uneven and granular, presenting a characteristic, mottled appearance; odor aromatic, characteristic; taste slightly bitter, astringent; gritty when chewed, tingeing the saliva yellow. Under the microscope sections of Rhubarb show numerous thin-walled parenchymatous cells containing either a large number of starch grains or a single rosette aggregate of calcium oxalate; scattered among the parenchyma are stellate groups of compound

fibro-vascular bundles, the latter composed of narrow medullary rays separating the wedges, having large tracheæ in the outer part and separated by a prominent cambium from an internal phloem or sieve; among the grayish-white parenchyma of the inner bark occur narrow, yellowish-brown, irregular medullary rays. Not more than 15 percent. of Rhubarb should have a hollow or dark central area. Powder: Bright orange-yellow to yellowish-brown; becoming red with alkalis; calcium oxalate in rosette aggregates, mostly 0.050 to 0.100 mm. in diameter, occasionally attaining a diameter of 0.150 mm.; starch grains numerous, somewhat spherical, single or 2- to 4-compound, each with a single cleft, from 0.002 to 0.020 mm. in diameter; tracheal fragments few, mostly reticulate, occasionally spiral. Boil 0.100 Gm. of powdered Rhubarb with 10 Cc. of an aqueous solution of potassium hydroxide, (1 in 100) allow it to cool, filter, acidulate the filtrate with hydrochloric acid and shake it with 10 Cc. of ether; on standing, the ethereal layer should be colored yellow. On shaking this ethereal solution with 5 Cc. of ammonia water, the latter should be colored cherry-red (presence of emodin) and the ethereal layer should remain yellow (presence of chrysophanic acid). Diluted alcohol extractive, not less than 30 percent. Ash not exceeding 13 percent.

Sabal.—The partially dried, ripe fruits of *Serenoa serrulata* (Roemer and Shultes) Hooker filius (Fam. Palmæ). Ellipsoidal or ovoid, occasionally compressed, 1.5 to 3 cm. in length, 1 to 1.5 cm. in diameter; externally brownish-black to bluish-black, smooth and somewhat oily, with a few large, somewhat angular depressions due to the contraction of the inner layer on drying, summit marked by scar of style, and base either with a short stalk or stem-scar; epicarp and sarcocarp together forming a thin coriaceous shell enclosing a hard but thin endocarp which is externally reddish-brown and somewhat fibrous as is also the inner layer of the sarcocarp; inner layer of endocarp smooth, enclosing a hard ellipsoidal or ovoid, somewhat flattened, reddish-brown seed; odor pronounced, aromatic; taste sweetish, aromatic, slightly acid. Powder: Yellowish-brown, consisting of large, irregular fragments; parenchyma cells of sarcocarp containing a yellowish-brown or brownish-red, amorphous substance; whitish fragments of endosperm, the walls being considerably thickened and with large pores; stone cells occasional, nearly colorless, more or less tabular or irregular in shape, 0.125 mm. in length, walls 0.015 mm. in thickness and with numerous simple or branching pores.

Sanguinaria.—The dried rhizome "and roots" of *Sanguinaria canadensis* "collected after the death of the foliage" is omitted. Of horizontal growth, occasionally branching, more or less cylindrical, somewhat flattened, from 2 to 7 cm. in length, and from 5 to 15 mm. in diameter; externally dark brown, slightly annulate, with a few stem scars on the upper surface and numerous more or less broken filiform roots and root-scars on the lower surface; fracture short and somewhat waxy, brownish-red, occasionally yellowish-white, with numerous, small, circular, yellowish fibro-vascular bundles within about 1 mm. of the epidermis, pith very large; odor slight; taste persistently acrid and bitter. Under the microscope transverse sections of the rhizome show an outer layer of a single row of thin-walled epidermal cells, a cortex of 10 to 15 rows of thin-walled parenchyma cells containing numerous starch grains, or a small amount

of fixed oil; a zone of cambium, most of which is interfascicular; a narrow circular zone of small collateral fibro-vascular bundles, separated from each other by parenchyma; pith large, consisting of starch-bearing parenchyma cells; latex cells containing a red or orange colored secretion, either isolated or connected into irregular chains and distributed among the parenchymatous cells of the middle bark and pith; sections treated with glycerin show in the secretion cells, after 24 hours, spheroidal aggregates of crystals which strongly polarize light. Powder: Brownish-red, sternutatory; starch grains numerous, 0.003 to 0.020 mm. in diameter, being mostly single, seldom 2- to 3-compound, the individual grains nearly spherical or ovoid, sometimes more or less plano-convex, somewhat resembling those of wheat starch in outline but which polarize light more strongly; numerous fragments of short latex cells with reddish-brown resinous masses; tracheal fragments few, having numerous transverse slit-like pores.

Santalum Rubrum.—Usually in the form of a coarse powder, of a brownish-red or dark saffron color and nearly inodorous and tasteless. Under the microscope it shows numerous wood-fibers which are mostly irregular in outline, with sharply pointed and occasionally forked ends, the individual fibers from 0.300 to 0.750 mm. in length, the walls being very thick, porous, yellowish, unevenly thickened and strongly lignified, and the lumina being filled with a fine, granular, protoplasmic content; occasional tracheæ with simple or bordered pores and filled with light lemon-yellow, resinous masses; occasionally fragments showing medullary ray cells in narrow elliptical groups 1 cell wide and 3 to 6 cells deep; also occasional groups of crystal-fibers with calcium oxalate in the form of monoclinic prisms, from 0.010 to 0.020 mm. in diameter. Mounts in hydrated chloral T. S. are of a deep, rich, red color. Add 0.500 Gm. of Red Saunders to 10 Cc. of Alcohol; the solution should become distinctly red. Add 0.500 Gm. of Red Saunders to 10 Cc. of ether; the solution should assume an orange-yellow color and when held in a bright light should show a distinct, greenish fluorescence. Add 0.005 Gm. of Red Saunders to 10 Cc. of water; the solution should remain clear and colorless. Ash not exceeding 3 percent.

Sarsaparilla.—The dried root of *Smilax medica* Chamisso and Schlechtendal, known in commerce as Mexican Sarsaparilla; or *Smilax officinalis* Kunth, or an undetermined species of *Smilax*, known in commerce as Honduras Sarsaparilla; or *Smilax papyracea* Duhamel, known in commerce as Para Sarsaparilla; or *Smilax ornata* Hooker filius known in commerce as Jamaica Sarsaparilla (Fam. Liliaceæ). Mexican Sarsaparilla: In loose bundles, or pressed into bales, single bundles attaining a length of 60 cm. and composed of 20 to 35 folded roots attached to a crown with one or more stout stems; roots 3.5 to 6 mm. in diameter; externally grayish-brown to dark brown, minutely hairy, longitudinally furrowed, the furrows containing more or less of a blackish earth; fracture tough, fibrous; internally light brown with a more or less shrunken, mealy or sometimes horny cortex surrounding the porous central cylinder, pith distinct; nearly inodorous; taste mucilaginous, somewhat sweetish and acrid. The woody, knotty crown with portions of the overground stems should be removed. Honduras Sarsaparilla: In more or less compact, cylindrical bundles, attaining a length of 55 cm. and a diameter from 8 to 15 cm., consisting of the long, folded roots bound together by roots of the same plant; roots 2 to 6

mm. in diameter; externally dark or reddish-brown, longitudinally furrowed, the furrows usually free from soil; fracture fibrous; internally consisting of a grayish-white or dark brown cortex, a light yellow and porous central cylinder and a whitish pith; taste mucilaginous and slightly acid. *Para Sarsaparilla*: In very compact, cylindrical bundles, attaining a length of 1 M. and a diameter of 20 cm., closely bound with the stem of a vine and with the ends evenly trimmed; the roots otherwise resembling those of *Honduras Sarsaparilla*. *Jamaica Sarsaparilla*: In more or less compact and somewhat flattened bundles, 30 to 45 cm. in length, 10 to 15 cm. in width, consisting of the folded roots loosely bound with roots of the same plant; roots 2 to 5 mm. in diameter; externally grayish-brown to reddish-brown, longitudinally wrinkled, more or less furrowed and bearing numerous coarse fibrous rootlets; taste slightly sweetish and bitterish. Under the microscope transverse sections of all of the commercial varieties of *Sarsaparilla* show an epidermal layer with basal portions of root hairs; a hypodermis composed of several layers of strongly lignified cells, the walls being uniformly thickened except in Mexican *Sarsaparilla* in which the inner walls are only slightly thickened; a cortex composed of numerous parenchyma cells mostly containing starch, some containing resin or raphides of calcium oxalate; and endodermis of a single layer of strongly lignified cells, the walls being uniformly thickened except in Mexican *Sarsaparilla* in which the outer walls are only slightly thickened; a central cylinder composed of radial bundles connected with sclerenchymatous fibers, the tracheæ being large and oval and the phloem in small groups at the periphery of the bundle; and a pith composed of starch-bearing parenchyma. Powder: Light grayish-brown to dark grayish-brown; starch grains numerous 0.003 to 0.023 mm. in diameter, spherical, or biconvex or spherical-tetrahedral, single, or 2- to 4-compound, and frequently with a central elliptical cleft; calcium oxalate in raphides, 0.006 to 0.035 mm. in diameter, occurring singly or in groups; cells of the hypodermis and endodermis with lemon-yellow or reddish-yellow porous walls and in the case of Mexican *Sarsaparilla* showing an uneven or irregular thickening, the individual cells, 0.080 to 0.500 mm. in length; fragments of tracheæ with simple and bordered pores or scalariform or reticulate thickenings associated with sclerenchymatous fibers having rather thin, very slightly lignified and porous walls. Ash not exceeding 10 percent.

Sassafras.—The drug may include not more than 2 percent. of adhering wood. In irregularly transversely curved or quilled pieces, 1 to 15 cm. in length, 1 to 4 mm. in thickness; outer surface orange-brown, nearly smooth and marked with more or less irregular ridges; inner surface light to dark reddish-brown, obscurely short-striate; fracture short with a thin reddish-brown corky layer and a yellowish-white inner bark; odor aromatic; taste slightly mucilaginous, astringent, aromatic and somewhat pungent. Powder: Light reddish-brown, containing numerous starch grains and prominent, characteristic bast-fibers; starch grains either single or 2- to 4-compound, the individual grains being more or less spherical or polygonal and frequently with a distinct cleft, 0.003 to 0.020 mm. in diameter, some of the swollen or altered grains attaining a diameter of 0.030 mm.; bast-fibers spindle-shaped, occasionally very irregular in outline, with sharply pointed ends, from 0.150 to 0.400 mm. in length, 0.025 mm. in

diameter, and with very thick, strongly lignified walls, the lumina being frequently nearly obliterated; parenchyma cells containing either starch grains or irregular yellowish-red masses of tannin and becoming bluish-black upon the addition of ferric chloride T. S., fragments of wood few, with large, thin-walled tracheæ marked by simple pores and associated with rather thin-walled wood-fibers. Ash not exceeding 30 percent.

Scammonia Radix.—The dried root of *Convolvulus Scammonia*, Linné (Fam. Convolvulaceæ), yielding when assayed by the process given below, not less than 8 percent. of total resins of Scammony Root. Cylindrical or somewhat tapering, from 10 to 25 cm. in length, 1 to 4.5 cm. in thickness; externally grayish to reddish-brown; usually distinctly twisted, deeply longitudinally furrowed, marked by distinct root scars, otherwise nearly smooth except for the lenticels and abraded cork, the upper portion terminated usually by a number of short stem branches; hard and heavy; fracture tough, irregular with projecting wood-fibers; internally somewhat mottled showing yellowish, porous wood-wedges separated by whitish parenchyma containing starch and resin; bark thin; odor slight, resembling that of jalap; taste very slightly sweet becoming slightly acrid. Under the microscope sections of Scammony Root show a corky layer consisting of 2 to 10 rows of cells with thin, yellowish-brown lignified walls; an outer cortex with numerous stone cells occurring singly or in small groups, the walls being moderately thick, porous and not strongly lignified; parenchyma with numerous starch grains and monoclinic prisms of calcium oxalate; fibro-vascular bundles numerous, circular or elliptical with a well developed wood consisting of large tracheæ surrounded with slightly lignified wood-fibers; phloem and sieve prominent and in which are included large resin ducts; the parenchyma both in and surrounding the bundles more or less collapsed and containing either starch or calcium oxalate crystals. Powder: Light grayish-brown; starch grains from 0.003 to 0.018 mm. in diameter, mostly single, occasionally 2- to 4-compound, the grains showing occasionally a central cleft; calcium oxalate crystals numerous, in monoclinic prisms from 0.010 to 0.045 mm. in length, fragments of leptome or sieve with yellowish-brown resin cells; tracheæ mostly with reticulate thickenings and simple or bordered pores and associated with short wood-fibers with prominent oblique pores; stone cells of variable shape and varying from 0.040 to 0.110 mm. in length, the walls being from 0.006 to 0.012 mm. in thickness, slightly lignified and traversed with prominent often branching pores; lignified cork cells relatively few.

Scilla.—The fleshy, inner scales of the bulb of the white variety of *Urginea maritima* Linné Baker (Fam. Lilaceæ) cut into pieces and carefully dried. In irregular, more or less curved, somewhat flattened and translucent pieces, 0.5 to 5 cm. in length, yellowish-white, nearly smooth and shiny with slight projections of fibro-vascular bundles, brittle when dry and somewhat flexible when damp; odor slight; taste bitter and acrid. Under the microscope sections of the scales show on the upper and lower surfaces a thin-walled, epidermal layer, a mesophyll of nearly isodiametric or slightly elongated thin-walled cells, and occasionally showing in alcoholic or glycerin mounts spheroidal aggregates of a carbohydrate; numerous more or less rectangular cells containing mucilage and bundles of raphides of calcium oxalate, the latter from 0.075 to 1.0 mm. in

length; fibro-vascular bundles few and isolated, with spiral or reticulate tracheæ. Occasionally some of the parenchyma cells contain a few, somewhat spherical starch grains. Powder: Light yellow, with a tendency to cake in moist atmosphere, consisting of very irregular fragments; single crystals and bundles of long raphides of calcium oxalate numerous; fragments of thin-walled, colorless parenchyma, frequently with dark intercellular spaces due to the inclusion of air; fragments with spiral or reticulate tracheæ occasional. Ash not exceeding 8 percent.

Senega.—The roots may include not more than 5 percent. of stems and other foreign matter. Usually in broken pieces, when entire, slenderly conical, more or less tortuous, somewhat branched, 3 to 15 cm. in length and 2 to 10 mm. in thickness and bearing a few rootlets; crown knotty with numerous buds and short stem-bases; externally brownish-yellow, the crown rose-tinted, longitudinally wrinkled, frequently marked by a keel; fracture short, wood pale yellow, usually eccentrically developed, odor peculiar, penetrating, taste sweetish, afterwards acid. Under the microscope transverse sections usually show a characteristic eccentric development of wood, the central cylinder varying in outline from elliptical or ovate to irregularly fan-shaped, and being surrounded by an unevenly developed cortex being thickest outside the broadest strands of wood, and where the wood wedges are narrow and the medullary rays very broad, the cortical parenchyma occupies a very narrow zone of the cross-section; in older roots a corky layer of 4 or 5 rows of tangentially elongated, light yellowish or yellowish-brown cells; outer bark of about 20 rows of cells on one side of the root and only 10 or less on the other, the cells having slightly thickened walls and containing a colorless or pale yellowish amorphous substance, which is liberated in the form of large globules on the addition of a drop of potassium hydroxide T. S.; inner bark, the cells in radial rows, consisting of parenchyma, small groups of sieve tissue, and medullary rays, the latter 1 to 3 cells wide, all the cells in this zone show a collenchymatous thickening of the walls and contain an amorphous substance similar to that found in cells of the outer bark; woody layer of tracheæ with bordered pores, wood-fibers with oblique, simple pores, tracheids, and medullary rays, the latter being rather indistinct and resembling the wood-fibers; tissues of the central layer of wood colored yellowish or reddish-brown on the addition of a drop of potassium hydroxide T. S. Powder: Yellowish-gray to light yellowish-brown, odor penetrating, slightly sternutatory; consisting of a mixture of fragments of parenchyma containing oily globules and wood-fibers with tracheæ; wood-fibers, non-lignified and with oblique, simple pores, from 0.175 to 0.250 mm. in length; tracheæ with simple and bordered pores and about 0.175 mm. in length; medullary ray cells somewhat lignified and with large simple pores. Extract 10 Gm. of powdered Senega by means of a Soxhlet apparatus, using 50 Cc. of ether to which 2 drops of hydrochloric acid have previously been added. Continue the extraction for 4 or 5 hours and then add sufficient ether to make the liquid measure 50 Cc. Take 25 Cc. of this solution and evaporate it on a water-bath to dryness, the residue should not weigh less than 0.300 Gm. and upon dissolving the residue with 10 Cc. of chloroform, transferring it to a test-tube and pouring 5 Cc. of sulphuric acid beneath the solution, a reddish-brown color should be produced

at the zone of contact and the sulphuric acid should show a slightly green fluorescence after the mixture has stood for twenty-four hours. If 10 Cc. of the original ethereal solution be poured in a beaker in which previously has been placed 10 Cc. of water and the mixture warmed on a water-bath until the ether has been evaporated, the aqueous solution, upon filtering and adding a few drops of ferric chloride T. S., should become a bright pink-purple. Ash not exceeding 5 percent.

Senna.—The drug may include not more than 10 percent. of stem tissues, pods, seeds, and other impurities. Alexandria Senna: Usually entire, sometimes more or less broken, leaflets inequilaterally lanceolate or lance-ovate, from 2 to 3.5 cm. in length, from 6 to 10 mm. in breadth, having extremely short, stout petiolules; acutely cuspidate, entire, subcoriaceous brittle, pale green or grayish-green, sparsely and obscurely hairy, especially beneath, the hairs appressed; odor characteristic; taste somewhat mucilaginous and bitterish. Pods few, broadly elliptical, somewhat reniform, dark green, thin and membranous. India Senna: Leaflets usually entire, from 2 to 5 cm. in length, and from 6 to 14 mm. in breadth, usually more abruptly pointed than those of Alexandria Senna, yellowish-green and smooth above, paler beneath; in odor and taste closely resembling Alexandria Senna. Pods few, elliptical, more or less reniform and from 4 to 5 cm. in length. Powder: Alexandria Senna; light green; non-glandular hairs, 1-celled, conical, often curved, from 0.100 to 0.350 mm. in length, walls thick and papillose; calcium oxalate in rosette aggregates, from 0.009 to 0.010 mm. in diameter, and in 4- to 6-sided prisms, about 0.015 mm. in length, usually in crystal-fibers; stomata broadly elliptical, about 0.020 mm. in long diameter. In India Senna the powder is slightly darker green than that of Alexandria Senna and the hairs are relatively fewer. Mix 0.5 Gm. of powdered Senna with 10 Cc. of a solution of potassium hydroxide in alcohol (1 in 10), boil the mixture for about 2 minutes, dilute it with 10 Cc. of water and filter. Then acidify the filtrate with hydrochloric acid, shake it with ether; remove the ethereal layer and shake it with 5 Cc. of ammonia water; the latter should be colored yellowish-red. Ash not exceeding 12 percent. Ash insoluble in hydrochloric acid not exceeding 3 percent.

Serpentaria.—The drug may include not more than 10 percent. of the stems. Rhizome oblique, subcylindrical, more or less curved, from 10 to 30 mm. in length and from 1 to 2 mm. in diameter; externally dark brown, upper portion with short stem-bases, from lower and lateral portions, and numerous, long, thin, nearly straight, yellowish-brown roots; fracture short; internally yellowish-white, wood with broad, eccentric wedges; odor terebinthinate; taste bitter, aromatic. Under the microscope transverse sections of the rhizome show an outer layer of cork cells; a cortex of 10 to 15 rows of parenchyma, inner bark with strongly lignified bast-fibers either single or distributed in a more or less interrupted circle; a xylem of broad wood wedges separated by broad medullary rays about 8 cells wide, the walls being strongly lignified and with numerous simple pores; pith eccentric, composed of polygonal cells, the walls being lignified and porous. Starch in the cells of cortical parenchyma, medullary rays and pith. The root in transverse section shows a compact, 4- to 6-rayed stele, and a large starch-bearing cortical area. The stem in transverse section

shows an interrupted circle of 6 to 10 fibro-vascular bundles; a cortex with a prominent, continuous ring of strongly lignified cells, and a few non-glandular hairs. Powder: Grayish-brown; starch grains numerous, single and 2- to 4-compound, the individual grains being more or less spherical or plano-convex, and frequently with a central cleft; from 0.003 to 0.014 mm. in diameter; lignified elements numerous, consisting of tracheæ, wood-fibers, medullary ray cells and pith cells; a few non-glandular hairs of the stem are occasionally present.

Sinapis Alba.—The drug may include not more than 5 percent. of other harmless seeds and other foreign matter. Subglobular, from 1.5 to 2.5 mm. in diameter; testa yellowish, nearly smooth; embryo yellowish, oily, with 2 large cotyledons; inodorous, taste mildly pungent, acrid. Powder: Light yellowish or pale brownish-yellow, developing a slight odor when moistened; consisting mostly of tissues of the embryo, containing small aleurone grains and a fixed oil, the latter forming in large globules on the addition of hydrated chloral T. S.; fragments of seed-coat comparatively few, nearly colorless with small, characteristic stone cells and large epidermal cells, the outer walls being mucilaginous. White Mustard does not yield allyl isothiocyanate upon distillation with steam (distinction from Black Mustard). Starch not exceeding 2.5 percent. Starch test of U. S. P. VIII omitted. Ash not exceeding 9 percent.

Sinapis Nigra.—The drug may include not more than 5 percent. of other harmless seeds and other foreign matter. Ellipsoidal or irregularly spheroidal, from 1 to 1.6 mm. in diameter; testa deep reddish-brown, sometimes yellowish-brown and with a grayish tinge, minutely pitted or reticulate; embryo greenish-yellow or dark yellow, oily, with 2 large cotyledons; odor when dry, slight, on moistening very irritating; taste strongly pungent, acrid. Powder: Light brown or greenish-brown; on moistening developing a strong, pungent, irritating, characteristic odor; consisting mostly of tissues of the embryo, the cells containing small aleurone grains and a fixed oil, the latter forming in large globules on the addition of hydrated chloral T. S.; fragments of seed-coat conspicuous, with large polyhedral, dark yellow areas, enclosing small yellowish stone cells each of the latter with a dark lumen. The powder should contain few or no starch grains. Black mustard upon distillation with steam yields allyl isothiocyanate (distinction from White Mustard). Starch not more than 2.5 percent. Starch test of U. S. P. VIII omitted. Ash not exceeding 9 percent.

Spigelia.—The rhizome and roots may include not more than 10 percent. of stems and other foreign matter. Rhizome horizontal or slightly oblique, more or less flexuous, somewhat branched, from 1.5 to 5 cm. in length, from 2 to 5 mm. in diameter; externally dark brown, slightly annulate with scars of bud scales, the upper surface knotty from approximate stem-bases, bearing cup-shaped scars; from the lower and lateral portions arise numerous long, rather coarse, sparingly branched, brittle roots; fracture short, internally differentiated into three nearly equal zones of pith, wood and bark; odor slightly aromatic; taste bitter, pungent. Few, if any, of the roots should exhibit thin, terminal portions with the bark stripped from the slender strands of wood; stems usually attached to the upper portions of the rhizome nearly cylindrical, attaining a length of 6 cm. and a diameter of 3 mm., light grayish-brown to purplish-brown, nodes

annulate, marked by opposite leaf-scars. Under the microscope transverse sections of the rhizome show a dark brown, more or less exfoliated epidermal layer; a cortex composed of 10 to 15 rows of starch-bearing parenchyma; a distinct zone of sieve tissue from 0.075 to 0.150 mm. in width; a compact woody area composed of tracheæ and tracheids which are hardly distinguishable from each other, both kinds of vessels being marked with bordered pores; an internal sieve closely resembling the sieve in the bark; and a pith composed of fairly uniform, nearly polygonal, thin-walled cells, more or less filled with small starch grains. Cystoliths and stone cells are both absent (distinction from *Ruellia ciliosa* Pursh. [Fam. Acanthaceæ]). Transverse sections of the root show a rather large cortex, the cells of which are more or less filled with small starch grains and a central stele of 6 or 8 radial fibro-vascular bundles which in the older roots are united by a strong development of lignified cells. The stem in transverse section is distinguished from the rhizome by a narrower woody zone, the tracheæ having spiral thickenings, and by a nearly uninterrupted circle of non-lignified bast-fibers in the bark. Powder: Grayish-brown; starch grains relatively numerous, frequently relatively few, spherical or slightly angular, from 0.002 to 0.006 mm. in diameter; fragments containing lignified tracheæ and tracheids conspicuous; fragments of tracheæ with spiral thickenings relatively few; bast-fibers few, very long, non-lignified, occasional fragments of the reddish-brown epidermal cells. Ash not exceeding 10 percent.

Staphisagria.—The drug may include not more than 2 percent. of foreign vegetable matter. Irregularly triangular, flattened, or somewhat tetrahedral, one side being convex, from 4 to 7 mm. in length, from 3 to 6 mm. in breadth; externally dark brown, becoming lighter with age, and coarsely reticulate; easily cut, showing a somewhat light brown oily endosperm, enclosing a small embryo at the pointed end; odor slight, disagreeable; taste intensely bitter and acrid. Under the microscope transverse sections show an outer layer of nearly tabular, thick-walled, non-lignified cells, some being extended centrifugally, and forming the reticulations of the seed-coat; 2 or 3 rows of parenchyma cells with more or less irregular thin walls; a thin layer of very small, thick-walled cells with numerous, lattice-like or reticulate pores; endosperm large, composed of polygonal cells enclosing small aleurone grains and fixed oil, the latter forming in large globules on the addition of hydrated chloral T. S.

Stillingia.—When entire, terete, unequally tapering, rarely branched, attaining a length of 40 cm., from 0.5 to 3 cm. in diameter, usually in pieces; externally reddish-brown, longitudinally wrinkled; fracture very fibrous, externally, the bark light reddish-brown, thick, spongy, finely fibrous, with numerous resin cells and easily separable from the porous, radiate wood; odor distinct; taste bitter, acrid and pungent. Powder: Pinkish-brown or light reddish-brown; starch grains numerous, from 0.005 to 0.035 mm. in diameter, mostly single, very variable shape, and usually with a central cleft, numerous fragments, with more or less tabular secretion cells, containing a reddish-brown, amorphous, resinous substance; fragments of tracheæ mostly with simple pores and associated with wood-fibers, the walls being very thin, lignified and possessing numerous, transverse slit-like, simple pores; bast-fibers long, narrow, the walls thick and slightly lignified; fragments of reddish-brown cork cells; occasionally a crystal of cal-

cium oxalate in rosette aggregates about 0.035 mm. in diameter. Ash not exceeding 5 percent.

Stramonium.—The dried leaves of *Datura Stramonium* Linné, or of *Datura Tatula* Linné, (Fam. Solanaceæ), with not more than 10 percent. of stems and other foreign matter. Usually much wrinkled and either loose or more or less matted together; laminæ when entire from 2 to 30 cm. in length, having petioles from 0.5 to 8 cm. in length; inequilaterally ovate, summits acute or acuminate, bases unequal, one side extending from 3 to 12 mm. below the other, margins sinuate, toothed or angled, the teeth being few, acute or acuminate and with rounded sinuses, frequently with numerous circular perforations which may have become filled with cork; upper surfaces dark green, sparsely hairy, especially upon the veins, lower surfaces light green; odor distinct, heavy and narcotic, taste unpleasant, nauseous; stems cylindrical, usually flattened, attaining a length of 30 cm. and a diameter of 7 mm.; longitudinally wrinkled, occasionally with 1 or more deep furrows, light greenish-brown to purplish-brown. Powder: Brownish-green; upon clearing the fragments with hydrated chloral T. S., numerous elliptical stomata are observed, about 0.025 mm. in length, and surrounded usually with 3 neighboring cells; cells of the mesophyll containing numerous small chloroplastids; calcium oxalate either in rosette aggregates, from 0.010 to 0.020 mm. in diameter, or in rod-like crystals, or in the form of sphenoidal micro-crystals; non-glandular hairs few, characteristic, 2- to 4-celled, attaining a length of 0.500 mm., the basal cell about 0.040 mm. in width, some of the cells more or less collapsed, the outer walls with numerous, slight, centrifugal projections; glandular hairs few, with 1- to 2-celled stalks and usually 2- to 4-celled, glandular heads; tracheæ annular or spiral, fragments of the tracheal wall frequently detached. Stem fragments show large annular or spiral tracheæ which occasionally are thickened, with simple or bordered pores and associated with wood parenchyma; fragments with long, narrow, unequally thickened colenchymatous cells; parenchyma with sphenoidal micro-crystals; wood-fibers occasional; bast-fibers absent. Ash not exceeding 20 percent.

Strophanthus.—The dried, ripe seeds of *Strophanthus Kombé* Oliver, or of *Strophanthus hispidus* De Candolle (Fam. Apocynaceæ), deprived of the long awn. Lance-ovoid, flattened and obtusely edged; from 7 to 20 mm. in length, about 4 mm. in breadth and about 2 mm. in thickness; externally of a light fawn color with a distinct greenish tinge, silky lustrous from a dense coating of closely appressed hairs, (*S. Kombé*), or light to dark brown, nearly smooth and sparingly hairy (*S. hispidus*), bearing on one side a ridge running from about the center to the summit; fracture short and somewhat soft, the fractured surface whitish and oily; odor heavy when the seeds are crushed and moistened; taste very bitter. Under the microscope sections of *Strophanthus Kombé* show a seed-coat composed of several layers of more or less collapsed, thin-walled cells and from the epidermal layer arise numerous non-glandular hairs, which are from 0.200 to 0.800 mm. in length, usually more or less bent, thin-walled, and slightly lignified at the base; in the raphe occurs a tangentially elongated fibro-vascular bundle having numerous spiral tracheæ; endosperm of from 9 to 30 rows of more or less polygonal cells with slightly thickened walls and containing small aleurone grains, a fixed oil and strophanthin, the latter being colored bright green

upon the addition of sulphuric acid; in the center occur two large plano-convex cotyledons having a distinct epidermal layer, a few fibro-vascular bundles and numerous parenchyma cells containing aleurone grains, a fixed oil and occasionally a small amount of strophanthin. Sections of *Strophanthus hispidus* resemble those of *S. Kombé*, the hairs being fewer, the bases of which are more strongly lignified. Powder: Grayish-brown to dark brown; odor distinct; consisting chiefly of thin-walled parenchyma cells and fragments of long, thin-walled hairs, the latter relatively few in *S. hispidus*; mounts made with hydrated chloral T. S. show oil globules; many of the fragments of the endosperm may be colored greenish upon the addition of sulphuric acid. The tests with iodine T. S., ferric chloride T. S. and mercuric potassium iodide T. S., omitted. Ash not exceeding 5 percent.

Sumbul.—The roots of *Ferula Sumbul* (Käuffmann) Hooker filius (Fam. Umbelliferæ). In transverse segments, attaining a length of 10 cm. and a diameter of 7 cm.; externally light brown to dark brown, longitudinally wrinkled and showing in the upper portions a smooth, grayish, epidermal layer, occasionally with the short stem-bases attached; fracture short, fibrous, spongy; internally light yellow or brownish-yellow, arrangement of wood irregular and with yellowish-brown or blackish resinous patches frequently extending over the entire ends of the segments; odor peculiar, musk-like; taste bitter and somewhat aromatic. Powder: Grayish-brown; consisting of numerous, irregular, brownish-black fragments and well defined isolated tracheæ, the latter with distinct end-walls, and mostly with reticulate thickenings and from 0.030 to 0.100 mm. in width, occasional fragments of polygonal epidermal cells with yellowish-brown walls; numerous, nearly colorless, yellowish-brown and reddish-brown fragments consisting of a granular substance in which the cellular structure is not well-defined; long, narrow fragments consisting of more or less collapsed leptome or sieve tissue; occasional fragments of well defined parenchyma with a few nearly spherical starch grains from 0.003 to 0.012 mm. in diameter.

Taraxacum.—The dried rhizome and roots of *Taraxacum officinale* Weber (Fam. Compositæ). Directions for collecting omitted. Cylindrical or somewhat flattened, gradually tapering, usually broken in pieces, from 6 to 15 cm. in length, from 5 to 15 mm. in thickness; externally brown or blackish-brown, longitudinally wrinkled, having numerous root and rootlet-scars; crown simple or branched with numerous leaf-bases showing annulate markings; odor slight or inodorous; taste bitter. Under the microscope sections of the root show a porous, pale yellow wood from 1 to 4 mm. in diameter, surrounded by a light brown bark from 2 to 6 mm. in thickness, the latter composed of concentric layers of laticiferous vessels and sieve tissues, alternating with whitish inulin-bearing parenchyma. The rhizome portions show a small pith. Powder: Light brown; parenchyma cells large, thin-walled and containing irregular masses of inulin; fragments with yellowish-brown laticiferous vessels; tracheæ reticulate; intermediate fibers non-lignified, with irregular, simple and oblique pores. Ash not exceeding 10 percent.

Tragacantha.—The spontaneously dried gummy exudation from the stems of *Astragalus gummifer* Labillardière, or from other Asiatic species of *Astragalus* (Fam. Leguminosæ). In flattened, lamellated fragments varying from ribbon-

shaped bands to long and linear pieces, which may be either straight or spirally twisted, and from 0.5 to 2.5 mm. in thickness; whitish to light brown in color, translucent and horny; fracture short, rendered more easily pulverizable by heating to 50° C.; inodorous; taste insipid, mucilaginous. Under the microscope sections made from *Tragacanth* previously softened in water and mounted in glycerin should show the lamellæ of mucilaginous walls and a few starch grains, the latter being mostly spherical and single, occasionally 2- to 3-compound, the individual grains from 0.003 to 0.017 mm. in diameter and colored blue with iodine. Indian Gum, derived from plants of uncertain origin, upon similar treatment and examination, shows numerous threads of a granular substance, sometimes the hyphæ of a fungus and chains of bacteria, and occasional fragments of a yellowish-brown or reddish-brown color, containing lignified wood-fibers, a few rosette aggregates of calcium oxalate from 0.020 to 0.030 mm. in diameter, and a few spherical starch grains from 0.003 to 0.007 mm. in diameter. Add 1 Gm. of *Tragacanth* to 50 Cc. of distilled water; it should swell and form a smooth, nearly uniform, stiff, opalescent mucilage and should be free from cellular fragments. Indian Gum upon similar treatment forms an uneven mucilage containing a few reddish-brown fragments which are more apparent and on stirring separate in the form of coarse, uneven strings. Shake 2 Gm. of *Tragacanth* with 100 Cc. of water until fully swollen and free from lumps, then add 2 Gm. of powdered sodium borate, and shake the mixture thoroughly until the salt is dissolved; the mucilage should not lose its transparency, nor exhibit any change in consistence, and on pouring should not be slimy or stringy, even after standing 24 hours (absence of foreign gums). Boil 1 Gm. of *Tragacanth* with 20 Cc. of water until a mucilage is formed, then add 5 Cc. of hydrochloric acid and again boil the mixture for five minutes; no pink nor red color should develop (absence of Indian Gum). Powder: Whitish; forming with water a translucent mucilage and exhibiting numerous starch grains from 0.003 to 0.025 mm. in diameter, varying from spherical to elliptical, with occasional 2- to 4-compound grains, many of the grains being swollen and more or less altered, due to the drying of the *Tragacanth* before powdering. Powdered Indian Gum shows numerous fragments of lignified vegetable tissue. Ash not exceeding 3.5 percent.

Triticum.—Usually cut in pieces from 4 to 12 mm. in length and from 1 to 2.5 mm. in diameter; externally light yellow or yellowish-brown, longitudinally furrowed, smooth, shiny, nodes with circular leaf-scars, a few root-scars and occasional slender roots; fracture tough, fibrous; internally lemon-yellow and with a large, hollow pith; odor slight, aromatic; taste sweetish. Roots filiform, irregularly branching, attaining a length of 5 cm. and not more than 0.5 mm. in thickness, light brown or yellowish brown, frequently covered with long root-hairs. Under the microscope, transverse sections show a single layer of strongly lignified epidermal cells; a hypodermis of 3 to 6 rows of more or less polygonal cells with strongly lignified walls; a cortex of 10 to 16 rows of thin-walled parenchyma cells, occasionally with nearly spherical starch grains about 0.005 mm. in diameter, or with irregular masses of a more or less soluble carbohydrate; among the parenchyma cells and near the hypodermis occur small, widely separated fibro-vascular bundles each with a closed sheath of sclerenchymatous fibers;

an endodermis, the lateral and inner walls of the cells being moderately thickened, strongly lignified and somewhat porous; several layers of sclerenchymatous fibers immediately inside the endodermal ring, in which are embedded an interrupted circle of collateral fibro-vascular bundles having large tracheæ; adjoining these are usually 8 to 10 rows of parenchyma cells with a few fibro-vascular bundles and a pith in which the parenchyma cells are more or less broken or absent. Powder: Light yellowish; consisting of irregular, lignified fragments, numerous fragments showing tracheæ with annular or spiral thickenings or marked with simple pores and associated with long, narrow, rather thin-walled, strongly lignified, sclerenchymatous fibers; fragments of epidermis made up of cells rectangular in outline, the longer walls considerably thickened, strongly lignified and marked with numerous transverse pores; ends of epidermal cells usually separated from each other by a very narrow cell with thin walls and few pores; numerous fragments of parenchyma rectangular in outline and with thin, porous walls. Ash not exceeding 3 percent.

Ulmus.—Usually in bundles consisting of flat, oblong pieces 30 cm. in length, from 10 to 15 cm. in width; outer surface of a light brown or buff color with occasional dark brown patches of adhering cork, longitudinally striate and with detached bundles of bast-fibers, and colored blackish upon the addition of a very diluted iodine T. S.; inner surface light yellowish-brown nearly smooth and finely striate, only slightly darkened upon the addition of a very diluted iodine T. S.; fracture fibrous with projecting bast-fibers, the broken surface porous, due to the large mucilage cells; odor distinct; taste mucilaginous. Powder: Very light brown; consisting mostly of fibrous fragments, and a finely granular portion made up of small starch grains, the latter being immediately colored bluish-black upon the addition of iodine T. S.; starch grains mostly spherical or more or less polygonal, usually about 0.003 mm. in diameter, but also attaining a diameter of 0.025 mm.; bast-fibers very long, about 0.020 mm. in diameter, with rather thin, slightly lignified walls; calcium oxalate in monoclinic prisms, mostly in crystal-fibers, the individual crystals from 0.010 to 0.025 mm. in diameter; fragments of large mucilage cells with adhering starch grains. Macerate 1 part of powdered *Ulmus* with 40 Cc. of distilled water for an hour and filter; the filtrate should be of a rather thick, mucilaginous consistence.

Uva Ursi.—The drug may include not more than 5 percent, of stems and other foreign matter. Usually more or less entire, laminae obovate or oblong, spatulate, from 12 to 30 mm. in length, 5 to 13 mm. in breadth; summits obtuse or rounded; margins entire, slightly revolute; bases cuneate, tapering into short, stout petioles; upper surfaces dark green, glabrous and shiny, finely reticulate; under surfaces yellowish-green and slightly pubescent, especially on the midribs; coriaceous; fracture short; odor aromatic, tea-like; taste astringent and somewhat bitter. Powder: Olive green; consisting of irregular fragments; epidermal cells polygonal, those of the lower surface showing broadly elliptical stomata about 0.035 mm. in length, surrounded by 5 to 8 neighboring cells; cells of mesophyll with chloroplastids and frequently irregular masses of a carbohydrate; fragments of fibro-vascular bundles with spiral tracheæ associated with narrow, strongly lignified sclerenchymatous fibers and frequently also with crystal-fibers

showing monoclinic prisms, from 0.006 to 0.015 mm. in diameter; numerous fragments made up of cells having a yellowish-brown content which are colored a bluish-black upon the addition of ferric chloride T. S. Add 0.100 Gm. of powdered Uva Ursi to a watch crystal, cover with another watch crystal and gently heat the powder; a crystalline sublimate should be formed consisting of long rods and feather-like aggregates which polarize light with a brilliant play of colors. Macerate 1 Gm. of powdered Uva Ursi with 10 Cc. of boiling water, shake the mixture occasionally until cold and then filter it; the filtrate should yield a grayish-purple precipitate upon the addition of a few drops of ferrous sulphate T. S.

Valeriana.—Rhizome upright, from 2 to 4 cm. in length, and from 1 to 2 cm. in diameter, usually cut longitudinally into 2 to 4 pieces; externally yellowish-brown or dark-brown, upper portion with stem-bases and frequently with a short horizontal branch or stolon, and from the outer surface arise numerous, slender, brittle roots; fracture of rhizome short and horny, internally light brown, with a thick bark and narrow central cylinder; odor pronounced, of valeric acid, becoming stronger upon aging; taste sweetish, camphoraceous and somewhat bitter. Under the microscope transverse sections of the root show a single epidermal layer of papillose cells, some being modified to root hairs; a hypodermal layer containing some secretion cells with suberized walls and in which are usually numerous small, oily globules and occasionally small prismatic crystals; cortical parenchyma, the cells filled with starch, some of the cells near the hypodermis containing a few oil globules; an endodermis of thin-walled cells surrounding a pericambium; a central cylinder with usually 3 to 5 fibro-vascular bundles; tracheæ with simple and bordered pores. Older roots show a large pith of starch-bearing parenchyma, a secondary thickening in the fibro-vascular bundles and a periderm of a few layers of cells. Sections of the rhizome show a thin periderm, a cortical parenchyma with scattered fibro-vascular bundles, a layer of altered cells of the endodermis, numerous, more or less twisted, collateral, fibro-vascular bundles and a large pith. Powder: Light brown to grayish-brown; starch grains numerous, from 0.003 to 0.020 mm. in diameter, spherical, plano-convex, polygonal, 2- to 4-compound and each usually with a central cleft; tracheal fragments, the walls having simple and bordered pores or scalariform and reticulate thickenings, accompanied by narrow sclerenchymatous fibers, the walls being thin, porous, and strongly lignified; occasional fragments of epidermis with root hairs, and fragments of cork. Ash not exceeding 20 percent.

Vanilla.—Yielding not less than — percent of vanillin. Pods linear, flattened, from 15 to 35 cm. in length and from 5 to 9 mm. in breadth; summits terminating in flat circular scars; gradually tapering, more or less bent and curved or hooked at the bases, or in the Tahiti variety, broad in the middle and tapering towards either end, the base closely resembling the summit; externally blackish-brown, longitudinally wrinkled, moist-glossy, and occasionally with an efflorescence of vanillin in the form of acicular crystals or monoclinic prisms; frequently with narrow, elliptical or irregular, more or less wrinkled, dark-brown patches of cork; occasionally split into three parts near the tip; flexible and tough, 1-locular, containing a blackish-brown pulp and numerous blackish-brown seeds; the latter being flattened, irregularly triangulate or nearly

circular in outline, reticulate and varying from 0.250 to 0.300 mm. in diameter; odor and taste characteristic and very agreeable. Under the microscope transverse sections of the pods show an epidermis with a somewhat thickened outer cuticularized layer having occasionally rounded or conical masses of the excretion of a gum-like substance; a layer of collenchyma of 1 or 2 rows of cells; a thick sarcocarp composed of parenchyma cells in which are embedded an interrupted circle of fibro-vascular bundles; the parenchyma cells are deeply undulate in outline, and usually contain a thin protoplasmic layer enclosing numerous oily globules or may possess bundles of raphides of calcium oxalate, the individual crystals varying from 0.200 to 0.400 mm. in length; some of the parenchyma cells are specially modified and distinguished by their somewhat thickened walls with long, oblique, slit-like pores or the thickening may extend in the form of broad, spiral bands; in the fibro-vascular bundles the phloem is central, being more or less surrounded by a few tracheæ, the walls possessing slit-like pores or spiral thickenings, and at the outside of the bundle is a closed circle of sclerenchymatous fibers, the walls being rather thin, strongly lignified, provided with numerous, transverse, simple pores, the outer wall of the outer row of fibers being irregular or sinuate; from the inner walls of the endocarp arise the placenta bearing numerous brownish-red or blackish seeds, otherwise from the cells of the endocarp arise numerous long, nearly straight hairs, the ends being rounded, the hairs being more or less matted together by a gummy or resinous mass in which some of the seeds are held; in mounts made in hydrated chloral T. S. or potassium hydroxide T. S., the immature, brownish-red seeds show a deeply reticulate seed-coat, the cells being of an oblong-polygonal form in surface view. Place a few of the crystals, occurring as an efflorescence on the fruit, on a microscopic slide or watch crystal and add a drop of phloroglucinol T. S. and hydrochloric acid; the solution should immediately acquire a carmine-red color (distinction from benzoic acid). Diluted alcohol extractive, not less than 12 percent. Ash not exceeding 6 percent.

Veratrum Viride.—The dried rhizome and roots of *Veratrum viride* Aiton, (Fam. Lilacæ), known in commerce as American Hellebore, with not more than 5 percent. of stems and other foreign matter. Rhizome upright, obconical, usually cut longitudinally into 2 to 4 pieces, from 2 to 7 cm. in length, from 1.5 to 3 cm. in diameter, externally light brown to dark brown or brownish-black, frequently bearing at the summit numerous, closely arranged, thin leaf-bases, otherwise rough and wrinkled; somewhat annulate from scars of bud-scales and bearing in the outer portion numerous roots, the lower part more or less decayed; fracture hard and horny; internally yellowish or grayish-white, marked with numerous, irregular fibro-vascular bundles; inodorous but sternutatory; taste bitter and acrid. Roots: Nearly cylindrical, from 3 to 8 cm. in length, 1 to 3 mm. in diameter, externally light brown to yellowish-brown, deeply transversely wrinkled; fracture short, bark whitish, very thick, enclosing a porous central cylinder. Powder: Grayish-brown to dark brown, strongly sternutatory; starch grains numerous, from 0.003 to 0.020 mm. in diameter, spherical or ellipsoidal, single or 2- to 3-compound, the individual grains being often swollen or otherwise more or less altered; calcium oxalate in raphides, from 0.015 to 0.150 mm. in length; fragments with tracheæ, the walls being more or

less strongly lignified and marked with scalariform or reticulate thickenings, frequently containing a lemon-yellow substance and associated with narrow, slightly lignified, porous, sclerenchymatous fibers; reddish-brown or brownish-black cork fragments occasional.

Viburnum Opulus.—The dried bark of *Viburnum Opulus* Linné (Fam. Caprifoliaceæ), with not more than 5 percent. of wood and other foreign matter. In strips, or occasionally in quills or chip-like fragments, the bark attaining a thickness of 3 mm.; outer surface of the thinner pieces of a light gray color with crooked, longitudinal, purplish-brown stripes and very small brown lentils, the thicker pieces purplish-red or occasionally blackish, except when very young, and more or less finely fissured or thinly scaly; inner surface varying in color from yellowish to rusty-brown, with very short oblique striæ, except where the outer wood layer adheres; fracture short and weak, the fractured surface mostly whitish, varying to pale brown in the inner layer, rusty-brown in the outer layer covering green, tangential, phelloderm plates; odor strong and characteristic; taste mildly astringent and decidedly bitter. Under the microscope sections show an outer corky layer, of 5 to 25 rows of cells, the walls nearly colorless, frequently thickened on the inner surface, individual cork cells from 0.015 to 0.045 mm. in radial diameter and from 0.030 to 0.075 mm. in tangential diameter; outer bark of about 10 rows of cells containing a brownish-yellow, amorphous substance, small starch grains or chloroplastids, medullary rays 1 to 2 cells in width, usually not more than 1 cell wide, inner bark with occasional groups of bast-fibers composed of 1 to 10 cells, the walls being very thick, non-lignified, lamellated and finely porous; adhering wood with large tracheæ having scalariform or reticulate thickenings, and being surrounded by wood-fibers with thick lignified walls; starch grains, mostly in cells of parenchyma and medullary rays, either single or compound, the individual grains not exceeding 0.006 mm. in diameter; calcium oxalate in rosette aggregates, from 0.015 to 0.040 mm. in diameter; numerous fragments of parenchyma cells, the lumina filled with a reddish-brown amorphous substance. The bark of *Acer spicatum* Lamarck (Fam. Aceraceæ), is distinguished by the smaller cork cells with very thick walls, the individual cells from 0.006 to 0.008 mm. in radial diameter and about 0.020 mm. in tangential diameter, medullary rays from 1 to 3 cells in width, mostly 2 to 3 cells wide; bast-fibers numerous, in tangential groups, calcium oxalate in monoclinic prisms, chiefly in the outer cortex, the individual crystals being from 0.010 to 0.040 mm. in length, smaller crystals being associated with the bast-fibers in the inner bark. Powder: Light grayish-brown, consisting of irregular fragments; cork cells polygonal, with thin, colorless walls; parenchyma with rosette aggregates of calcium oxalate, from 0.010 to 0.040 mm. in diameter; starch grains very small and mostly in parenchyma cells; fragments of parenchyma containing a brownish-yellow amorphous substance; occasional tracheal fragments associated with lignified wood-fibers. The powder of the bark of *Acer spicatum* shows numerous prismatic crystals of calcium oxalate, from 0.010 to 0.040 mm. in length, and groups of bast-fibers with adjoining crystal-fibers.

Viburnum Prunifolium.—The bark may include not more than 5 percent. of wood and other foreign matter. In irregular, transversely curved or quilled

pieces, from 1.5 to 6 cm. in length, from 0.5 to 1.5 mm. in thickness; outer surface grayish-brown, or where the outer cork has scaled off, brownish-red, longitudinally wrinkled; inner surface reddish-brown, longitudinally striated; fracture short but uneven, showing in bark which is young or of medium thickness a dark brown cork, a brownish-red outer cortex, and a whitish inner cortex in which are numerous light yellow groups of sclerenchymatous tissues; odor slight; taste distinctly bitter and somewhat astringent. Powder: Dark brown; stone cells numerous, large, often elongated, thick-walled and strongly lignified; bast-fibers few; crystals of calcium oxalate from 0.015 to 0.035 mm. in diameter, occurring mostly in rosette aggregates, occasionally in crystal-fibers; monoclinic prisms of calcium oxalate few.

Zanthoxylum.—The dried bark of *Zanthoxylum americanum* Miller, known in commerce as Northern Prickly Ash Bark, of *Zanthoxylum Clava-Herculis* Linné, known in commerce as Southern Prickly Ash Bark (Fam. Rutaceæ). Northern Prickly Ash Bark: In transversely curved fragments or quills, from 2 to 15 cm. in length; bark from 0.5 to 2 mm. in thickness; outer surface light gray to brownish-gray with grayish patches of foliaceous lichens bearing numerous small black apothecia; longitudinally wrinkled and with numerous whitish lenticels, the cork occasionally abraded showing the yellowish or orange colored inner bark; inner surface yellowish-white, finely longitudinally striate and usually with numerous, bright, shining crystals; fracture short, uneven; odor slight, taste bitter, acrid, becoming pungent. Under the microscope transverse sections of Northern Prickly Ash Bark show an outer corky layer consisting of 4 to 20 rows of cells, the tangential walls being strongly thickened and lignified, a layer of collenchyma composed of 8 to 10 rows of tangentially elongated cells, with very thick walls and containing plastids; a more or less indistinct row of endodermal cells beneath which is an interrupted circle of small groups of primary bast-fibers; the inner bark consists of numerous parenchyma cells among which are included large oil secretion reservoirs, separated by medullary rays which are mostly one-cell in width; the parenchyma cells as well as the oil secretion reservoirs contain numerous colorless oily globules. Scrapings from the inner surface show numerous rod-shaped crystals and flat prisms from 0.015 to 0.250 mm. in length, which polarize light with a display of bright colors. Southern Prickly Ash Bark: In transversely curved or irregular, oblong flattened pieces, or in quills, from 2 to 40 cm. in length, bark from 1 to 4 mm. in thickness; outer surface light gray to brownish-gray marked by numerous large barnacle-shaped projections of cork from 0.5 to 3.5 cm. in thickness, otherwise with numerous grayish patches of foliaceous lichens, bearing numerous blackish apothecia, and numerous, elliptical lenticels; inner surface light yellowish-brown to olive brown, obscurely longitudinally striate and free from crystals, odor and taste as in Northern Prickly Ash Bark. Under the microscope transverse sections of Southern Prickly Ash show a strong development of lignified cork occurring in the form of rings, the successive layers being separated by several rows of narrow tabular cells strongly thickened on the tangential walls; a thin layer of collenchyma followed by the other tissues of the primary cortex and consisting of small groups of rather large stone cells and occasional, scattered groups of bast-fibers and parenchyma; the inner bark consists of parenchyma,

a more or less indistinct leptome or sieve tissue and among which are numerous large, light yellowish oil secretion reservoirs, medullary rays from 1 to 2 cells in width; and occasional groups of stone cells and bast-fibers; starch grains numerous, nearly spherical, from 0.002 to 0.010 mm. in diameter, and occurring in the parenchyma cells and medullary rays; calcium oxalate chiefly in monoclinic prisms from 0.010 to 0.025 mm. in diameter, occurring in crystal-fibers and in parenchyma cells of the primary cortex. Powder of *Zanthoxylum*: Light grayish-brown, consisting mostly of irregular fragments; cork cells nearly colorless and strongly lignified fragments of parenchyma containing either small starch grains, oily globules or monoclinic prisms of calcium oxalate; stone cells in small groups with thick, colorless walls contain frequently a reddish-brown content, bast-fibers few and non-lignified. In the Northern Prickly Ash, the stone cells and calcium oxalate crystals are usually absent and the fragments of cork relatively less numerous.

Zingiber.—The outer cortical layer may be either partially or completely removed. Jamaica Ginger: Rhizomes free from the outer corky layers, in horizontal, laterally compressed, irregularly branched pieces, 4 to 16 cm. in length, and from 4 to 20 mm. in thickness; externally light brown, longitudinally striate, ends of the branches with depressed stem scars; fracture short-fibrous, mealy and resinous; internally yellowish to light brown, cortex thin, endodermis, a thin yellow layer enclosing a large central cylinder with numerous groups of fibro-vascular bundles and yellowish oil cells; odor agreeably aromatic; taste aromatic and pungent. African Ginger: Rhizomes with cork partly removed on the flattened sides, the patches without cork smooth and of a light brown color. the portions with cork longitudinally or reticulately wrinkled and grayish-brown; fracture short or short-fibrous; internally lemon-yellow or dark bluish with yellowish oil secretion cells and light yellow to reddish-brown resin cells; odor strongly aromatic, taste intensely pungent. Calcutta Ginger: Rhizomes resembling the African Ginger, the branches or "fingers" being somewhat larger, and with a considerable proportion of shriveled pieces; externally grayish-brown or grayish-blue; fracture short and mealy, or horny; internally light yellow or light brownish-yellow with numerous yellowish oil cells and yellowish-brown resin cells; odor aromatic; taste starchy and strongly pungent. Calicut Ginger: Rhizomes resembling African Ginger, more of the periderm being usually removed; externally more or less uniformly light brown; fracture short or short-fibrous and mealy; internally light or brownish-yellow with numerous yellowish oil and resin cells; odor aromatic; taste very pungent. Cochin Ginger: Rhizomes with most of the corky layer removed on the flattened sides; externally light brown to grayish-yellow; fracture short and mealy; internally yellowish-white with numerous yellowish oil cells and brownish-red or blackish resin cells; odor aromatic; taste pungent but not so persistent as in the African variety. Japanese Ginger: Rhizome somewhat resembling Cochin Ginger but usually with a thin coating of lime; externally nearly smooth or slightly wrinkled and of a whitish color; fracture short and very mealy; internally varying from a yellowish-white to light brown and with numerous brownish-red resin cells; odor aromatic; taste pungent. Powder: Light yellow, or light brown to dark brown; starch grains numerous and varying greatly in the different varieties, in form

and size being nearly spherical, ovoid, ellipsoidal or pear-shaped and frequently with a characteristic beak, usually from 0.005 to 0.040 mm., occasionally from 0.045 to 0.060 mm., in long diameter; sclerenchymatous fibers long, thin-walled, non-lignified, with oblique pores, and distinctly undulate on one side; oil secretion cells with suberized walls and containing a light yellowish or yellowish-brown, oily substance; cork cells absent in the Jamaica variety. Non-volatile ether extract not less than 2 percent. Alcoholic extract not less than 4 percent. Ash not exceeding 8 percent.

SOME REFORM MEASURES FOR THE A. PH. A.

The Association Has Grown So Fast That Reorganization is an Imperative Necessity—
Particularly is This True of the Annual Conventions, Which are in
Need of More System and Method.

HARRY B. MASON, DETROIT.

The time has come for the American Pharmaceutical Association to undergo a more or less radical reorganization. This statement does not imply that the A. Ph. A. has lost its vitality and is in need of fresh energy. Not at all. On the contrary, indeed, the trouble arises from too much energy instead of too little, and what is needed is that this energy, in its manifold manifestations, shall be harnessed up and co-ordinated in a more intelligent manner. This is particularly true of the annual meetings.

The fact of it is, the A. Ph. A. has undergone a great development during the last ten years. It has spread out in many directions. It is like a growing boy whose original suit of clothes has been lengthened in the legs, extended in the arms, widened in the seat, and enlarged here and there until the result is somewhat grotesque. What is required is a new suit of clothes, cut to fit the A. Ph. A. in its present proportions.

The Confusion at Nashville. The situation at Nashville last August was one of confusion worse confounded. There were the seven regular sections of the Association, each holding two or three sessions. There was the annual meeting of the National Association of Boards of Pharmacy with four or five sessions. There was the annual meeting of the Conference of Pharmaceutical Faculties. There was the joint conference of the latter two bodies and the section on education and legislation of the A. Ph. A. The Revision Committee of the U. S. P. seized upon the occasion to hold two or three meetings. The Revision Committee of the N. F. did precisely the same thing. The Pharmaceutical Syllabus Committee met every night from 9:30 until 12 or 1 in an effort to complete the second edition of the book. The new House of Delegates of the A. Ph. A., organized the year before, held three sessions, and its Committee on Resolutions one or two in addition. The new Section on Pharmacopœias and Formularies held two

sessions, and the new Women's Section three. The Council met every morning at 9, and the groups of alumni of the various pharmacy schools and colleges grasped the opportunity to have meetings, luncheons and dinners in behalf of their alma maters. Besides all of which there were meetings galore of an indefinite number of committees of one kind and another.

As if all this were not enough, a proposition was advanced to create still another section of the A. Ph. A.—a section on materia medica and pharmacognosy. With it all there was no let-up in the work from 9 o'clock in the morning until 1 or 2 o'clock the next morning. Everybody was tired out. Everybody was more or less befuddled by the multiplicity of business.

The Need for a Pruning Knife. Now what ought to be done?

There are several things to do by way of simplifying and improving the annual conventions, and what I shall have to say will touch upon this phase of the subject alone. The first thing is to get a sharp pruning knife and cut out a lot of things from the meetings that do not belong there. Some of these things can well be dispensed with entirely. Others may be taken care of by the *Journal of the A. Ph. A.* and by the Council.

First, as to those things which we can eliminate. What has often been referred to in chaste and elegant language as the "hot air" of the opening session should be tabooed. The day has passed when conventions were such novelties that they had to be called to the attention of state and city officials, and when the members of associations delighted to have welcoming speeches from these notables. Oratory is all well enough, but it bores people to death who go to a convention to transact business and to get something accomplished. Cut it out! Also cut out, or greatly condense, the formal installation of officers at the last session.

Then the standing committees of the A. Ph. A. need some culling. The Committee on the Revision of the Pharmacopœia is useless. The Committee on the Drug Market is obsolete. The Report on the Progress of Pharmacy is a feature of great value and importance, but it ought not to be considered at the annual meeting at all. Print it in a separate volume, or in the *Journal of the A. Ph. A.*, and let it go at that. What can be said about it at the meeting itself is so incomplete that it is of very little value anyway.

There are several committees which are appointed by the Council and which make their reports in the *Journal*. They ought not to take up the time of the Association at the annual convention. If any other report is needed than the one printed in the official organ, let it be rendered to the Council itself. The time of the annual meeting is valuable and precious. It should be husbanded. It should be devoted to business that cannot be attended to by the Council or in the official publication.

Still more in the way of elimination may possibly be done. Some members of the Association think we have gone too far in the creation of separate sections. They would have us return to the days of two or three sections. I do not agree with them. I do think, however, that the proposed Section on Materia Medica and Pharmacognosy should not be established. I think further that the Section on Pharmacopœias and Formularies, created three or four years ago, should be abandoned. Its work can be taken care of elsewhere.

All the other sections, unless it be the one given up to history, should be retained. They are devoted, respectively, to commercial papers, scientific interests, education and legislation, and practical pharmacy and dispensing.

These are all needed. To go any further in the direction of specialization, however, would be folly. The Association isn't big enough, even if there are enough subjects. If we have too many sections, there won't be audiences enough to go around.

Still continuing the subject of elimination, so far as the annual gatherings are concerned, it is at least an open question whether the meetings of the two auxiliary bodies, the National Association of Boards of Pharmacy and the Conference of Pharmaceutical Faculties, should not be held either late the week before, or early the week following, the convention of the A. Ph. A. These bodies add somewhat to the confusion of A. Ph. A. week, and to a certain extent take away from the attendance upon the various sections.

A Rational Program. So much, then, on the subject of elimination. Now for what is left. After all possible eliminations have been made, there inevitably remains a great mass and variety of work. There is no objection to this, *but there is a vital need of classifying and co-ordinating the work intelligently.* It is perfect folly to have a hit-and-miss program that nobody knows anything about, and that keeps people on the jump pretty nearly twenty-four hours every day for six working days.

The first thing to do is to keep the evenings free for rest, recreation, and social intercourse. Condense the work into the morning and afternoon periods. Start the section meetings in the morning at 9 o'clock, or not later than 9:30. In order to do this it will be necessary to have *the Council meet in the evening.* This august body, by prolonging its meetings so far toward noon every morning, delays and postpones the regular work of the sections, and nothing seems to me more important than that this evil should be eliminated. By starting the sections at 9 or 9:30 in the morning, a lot of good work can be done during the hours when people are fresh, unwearied and interested. This would make powerfully for added zest and profit.

But if you permit no section work in the evening, and if you restrict it to the morning and afternoon periods, you practically limit the number of work periods to eight. With five or six sections, each holding two or three sessions, making a total of twelve or fifteen sessions altogether, the present scheme of concurrent meetings will of course have to be retained. To this there is no possible objection. Indeed, the concurrent session idea can perhaps be developed more in the future than it has been in the past. Perhaps it can be extended so far as to condense the period of the annual meeting from six days into three or four, as is done by the American Medical Association. Many people are in favor of such a change.

Co-ordinating the Sections. What is needed, though, is a far better and more perfect co-ordination among the sections. As a man sits in one room, listening to the business of one section, he should know precisely what is going on across the hall or upstairs in other rooms at the same time. This will enable him to hear all that he wants to hear. It will likewise prevent him from being bored

to death in one section when something is going on in another that would hit his particular taste.

There are two ways of accomplishing this co-ordination. In the first place we have never worked out a printed program of the right sort. It ought to be possible to print one united program containing the detailed programs of all the different sections. It ought also to be possible to assign a paper arbitrarily to a definite session, and to its proper place in the program of that session, so that members can know approximately when certain subjects are coming up for attention. To supplement this, however, there should be established a system of blackboards, with two or three hotel "pages," so that the members in any one room would be notified what is simultaneously going on in the other rooms, and kept in touch perfectly with the multifarious work of the association. I am glad that Leonard A. Seltzer, local secretary this year, is going to systematize this blackboard scheme and see what can be done with it at the Detroit meeting in August.

Leave Time for Discussions! With the section work co-ordinated in this way, and with the members kept in touch with what is going on everywhere, it would easily be possible to give each section more sessions and thus provide time for the proper discussion of papers—a thing which has not been practicable now for many years. The discussions are often more important than the papers themselves. If a man only goes to a meeting to hear papers read, he might as well stay home and read them in the drug journals, with pipe and slippers, and with his feet on the mantel.

To recapitulate: If we eliminate from the annual convention what can easily be dispensed with, as suggested in the first portion of this paper, and if we work out a better co-ordination of the work of the different sections, we shall make an enormous improvement in the annual meetings. We shall get rid of what is unessential; we shall enable a member to hear everything that he really wants to hear; and we shall provide time for debate and interchange of opinion.

A Censor Required. At least one other thing is necessary. There should be some censorship exercised over the papers accepted for the different sections. One great objection to increasing the multiplicity of sections is that the different chairmen promptly begin a competition with one another to secure as many papers as possible. It becomes a matter of pride to see how long a list can be secured. The inevitable result is that a large majority of the material is poor and ought never to be prepared at all. Another result is that papers frequently get into the wrong section.

There ought to be some individual or some committee with authority over the different sections. Who can better serve in this capacity than the general secretary? He is really the general manager of the association, and he knows more about its activities than anybody else. I believe that the chairmen of the different sections should report to the general secretary; that he should have the authority of a censor; that he should eliminate papers if he thinks best; that he should re-assign papers if he deems such action necessary; and that he should get up, or have someone else to do so under his supervision, a co-ordinated program of the meeting. He should be general manager of the association in

name and in effect, and he should have all the functions of a general manager of a private corporation.

A Great Past—A Greater Future. Now I do not want to be misunderstood in making these criticisms. I do not want any reader to get the notion that I think the A. Ph. A. is all wrong. On the contrary, the A. Ph. A. is the one great catholic organization in American pharmacy—the one organization acting like a parent to all the others—representing every phase and branch of the calling, and doing foundational work of an indispensable character. It is an association with a great past. It is an association with a still greater future. My only point is that it has outgrown the clothes of a growing youth and now needs the equipment of the adult it has come to be. Particularly are the annual meetings in need of reform if they are successfully, intelligently, and efficiently to handle the vast amount of work undertaken by the association.—*The Bulletin of Pharmacy.*

SYRUP OF FERROUS IODIDE.

W. C. ALPERS, SC. D., CLEVELAND.

There are few preparations in the Pharmacopœia that have given more annoyance and caused more difficulties to the pharmacist than the syrup of iodide of iron. The literature on this syrup, from the first day of its appearance, is very voluminous and hundreds of writers on pharmaceutical subjects in all civilized countries have recommended various methods for its preparation and given direction for its preservation. The history of this syrup, as shown in the various editions of our own Pharmacopœia, demonstrates the gradual development of its understanding.

A liquid preparation of ferrous iodide appears first in the second edition of the U. S. P. (1840) under the name of *Liquor Ferri Iodidi*. It was made of iron wire and iodine and contained 5 fluidounces of honey in a finished product of 20 fluidounces. In the following edition, the third (1850), the honey was replaced by 12 ounces of sugar, but the preparation was still called a solution. The name syrup appears for the first time in the fourth edition (1860). The formula directs the addition of two troy ounces of iodine to a mixture of 300 grains of iron wire and water, and filtration of the resulting green liquid into simple syrup heated to 212° F. The syrup is to be preserved in well-stoppered two-ounce bottles. Here we see that the value of applying heat is recognized. No change in the formula was made in the fifth edition (1870). In the sixth revision (1880), of the Pharmacopœia, which shows throughout many marked improvements over the preceding ones, weights were replaced by parts and the finished product brought to 1000 parts, which designation afterwards gave way to cubic centimeters. Syrup of ferrous iodide is here described as a syrupy liquid containing 10 percent of ferrous iodide. It is made from 25 parts of iron and 82 parts of iodine. The liquor is filtered into 600 parts of sugar and the

syrup heated to the boiling point, before putting it into small, completely filled and well-stoppered bottles. It is to be kept exposed to daylight. In the seventh revision the iodine is increased to 83 parts and the liquor filtered through a funnel, the lower end of which dips below the surface of the sugar in order to prevent contact with the air. The instructions as to daylight were omitted. Here, too, we find for the first time directions for testing the syrup. In the eighth edition more changes were made. The percentage of ferrous iodide was reduced from ten to five, and two percent of hypophosphorous acid added as a preservative. Fifty grams of sugar are at once added to the aqueous boiling solution of ferrous iodide, before filtering it into the remainder of the sugar, which is to be dissolved by heat. No directions are given as to keeping the finished product.

The history of this syrup in the United States Pharmacopœia, as well as that of all other pharmacopœias, reveals the difficulties that are encountered in its preparation and the various methods employed to overcome them.

No matter how carefully the original ingredients—iron, iodine, water—are selected and tested as to their purity, the reaction between them will not always proceed alike. The pharmacopœias of all nations take notice of this peculiarity. They direct the addition of cold water to check the reaction, and gentle heating to promote the reaction, if necessary. It has never been explained why this different behavior in so simple a preparation should exist. In similar chemical processes a remedy for too violent reaction is sometimes found in the use of a catalyzer and some experiments made in this direction with the solution of ferrous iodide seem to indicate that it could be used here to advantage. I have tried a coil of clear, bright iron wire put in a porcelain dish with the chemicals to be of great service, the reaction proceeding gently and steadily so that neither heat nor cold water were needed. Dr. P. Bohrisch, of Dresden, in a recent article on this subject, recommends the use of a bright iron spatula to be held in the solution during the reaction.

That the stability of the syrup is increased by heating, was soon recognized. Hager, in his handbook, recommended it long before the pharmacopœias adopted it. Hager's idea was that the heat would invert some of the sugar, and that invert sugar was more stable than ordinary sugar. Following this suggestion O. Linde recommended the use of invert sugar, and Scheling claimed that glucose was still better. This last claim was explained by others as owing to the small amount of sulphurous acid always present in glucose. This again led to the addition of sulphurous acid in the form of sodium bisulphite. A number of other preservatives were also tried. Constatin-Tamasici, a noted French pharmacist, recommended the addition of six drops of lactic acid to one litre, while others preferred tartaric acid. Hausmann recommended hypophosphorous acid, a suggestion that had been made before by J. F. Judge in the American Journal of Pharmacy in 1876. The addition of 5 percent of pure alcohol is also mentioned in French journals as a good means of preserving the syrup. The latest chemical to be recommended is citric acid. Extensive experiments were made with it and at present three pharmacopœias, the Swiss, the Austrian and the Belgian, direct citric acid to be added in quantities of 0.5 to 1 percent.

Besides the preservatives the mode of keeping the finished syrup was carefully examined. Here also the investigators arrived at different results. Some recommended dark bottles, others light ones; some kept their product in dark closets, others exposed it to direct sunlight, and again others to diffused light. The directions in successive editions of nearly every pharmacopœia sufficiently show the tendency of the respective time and the changes that took place in the minds of the revisors.

In all these efforts to find the proper preservative for the syrup of iodide of iron the object in view was the preservation of color and taste of the syrup when kept on the shelves of the shops. But this is not sufficient, as has often been pointed out. If a physician orders two ounces of the syrup to be taken three times a day in doses of ten drops, there are about 100 doses in the bottle and the medicine will last longer than a month, during which time the color will often change. Every dispenser has had the experience that a customer will return with a bottle containing this syrup and ask if the changed color is an indication of deterioration. Our efforts should therefore be directed to prepare a syrup of iodide of iron that will keep not only on the shelves of the shop, but also in the hands of the patient when the bottle is opened several times a day.

Recognizing the difficulties of preparing and preserving this syrup the manufacturers of pharmaceuticals have tried to relieve the pharmacists of this care (!) by preparing a concentrated solution of the iodide of iron, from which the syrup of ferrous iodide is made by admixture with simple syrup. The remedy would be a good one provided a solution can be made that will keep. Experience, however, shows that these solutions, after opening the containers a few times, are subject to the same discoloration as the syrup.

When I was entrusted with the chairmanship of the sub-committee on syrups and elixirs for the 9th revision of our Pharmacopœia I commenced a series of experiments with a number of syrups, among others the syrup of ferrous iodide. More than sixty samples of the latter were examined. Some were bought from reputable druggists, some from manufacturers, some were made from solutions, but the majority were prepared according to the formulæ of various pharmacopœias. Every method known was employed. Granulated sugar, lump sugar, invert sugar and glucose were tried; also filtering the solution cold and hot into sugar or syrup. Heating the solution and heating the finished product was resorted to. All the recommended preservatives were tried. Some bottles were opened 3 times a day for a month and 5 to 10 drops taken out. Tests were made for free iodine, at the beginning of the work, after 3 months and after 6 months. The amount of ferrous iodide present was determined by the silver nitrate method of the Pharmacopœia. All observations were carefully noted.

. The results of this long series of observations are as follows:

The presence of a catalyzer during the preparation of the solution is desirable. A coil of bright iron wire or a bright iron spatula may be used.

The solution should be brought to the boiling point and the sugar dissolved in it at once by the aid of heat.

It is immaterial whether the finished syrup is again boiled or not.

The finished syrup should be kept in small, well stoppered, completely filled bottles in ordinary daylight. The color of the glass is immaterial.

Neither invert sugar nor glucose are preferable to granulated sugar.

Syrup of iodide of iron made from the best ingredients does not need any preservative to remain perfect on the shelves of the shop. The samples with hypophosphorous acid kept equally well as those without it; but its addition is neither an advantage nor a necessity.

After dispensing, or when the bottles are opened several times a day, citric acid is the best preservative; but its power seems to be restricted to a limited time, after which discoloration takes place very rapidly.

When the pale green color of the syrup has changed to lemon yellow or light brown, the loss of ferrous iodide is very small, ranging from one-fourth to three-fourths of one percent of the required quantity.

On the strength of these results the conclusion may be drawn that syrup of iodide of iron, when prepared from pure chemicals, does not need any preservative. When dispensed in bottles that will be opened several times a day, the addition of one-half of one percent of citric acid is advisable, provided the prescribed quantity will be consumed within thirty days. A slight change of the color during the prescribed time of taking it is negligible.

ASH CONTENT OF CRUDE DRUGS.

E. L. MAINES, PHAR. D.

Ash standards of crude drugs have been given more consideration of late years than formerly and are now included in the United States Pharmacopœia and the more widely known foreign pharmacopœias. Ash limitations were first introduced in the second edition of the German Pharmacopœia, published in 1882 and in the United States Pharmacopœia of 1880.

On account of the difficulty in securing reliable data on these ash standards, an investigation was begun in our laboratory with the object of securing suitable standards and ascertaining the actual variation in ash content of the various drugs.

These determinations were made upon the commercial air dried drugs after having been reduced to a fine powder (No. 60 if possible) and the sample incinerated until the residue was free from carbon, employing such means as to insure perfect combustion. The sample was placed in a tared porcelain crucible and at first, heated gently in a Bunsen flame, the temperature being gradually increased, or a blast lamp employed, until the residue ash contained no unconsumed carbon.

The ash standards as set by the various pharmacopœias are not all that could be desired. Most striking variations may be seen in ash standards for the same drug in different pharmacopœias as was clearly shown in a paper by M. I. Wilbert (Jour. A. Ph. A., May, 1912) and in which he gives a table of ash limitations for the recently published pharmacopœias.

The importance of ash examinations in determining the quality of crude drugs should not be overlooked as they form one of the best tests as to quality, uniformity, etc.

The Report of the Committee on Drug Market for 1913 contains ash determinations for nearly all of the crude drugs reported.

The ash standards of the various pharmacopœias and other authorities, are given as a means of comparison with the results reported.

TABLE SHOWING ASH CONTENT OF CRUDE DRUGS.

<i>Drug.</i>	<i>Physical Condition.</i>	<i>Ash %.</i>	<i>Remarks.*</i>
Acacia No. 1.....	powdered	1.73 to 2.53	Ph. G., Ph. Hung., Ph. Svec., Ph. Belg., 5%; Ph. Ital., Ph. Helv., Ph. Ndl., U. S. P., 4% ash.
Acacia No. 2.....	powdered	2.19 to 2.82	
Acacia No. 2.....	granular	2.36	
Aconite Root (German).....		3.80 to 5.98	
Aconite Root.....	powdered	3.52	
Althea Root.....	powdered	8.18 to 10.35	K., 5%; Ph. Belg., 7½%; Ph. Aust., Ph. Helv., 6%; Ph. Ndl., 7%.
Aloes, Socotrine.....	powdered	4.63 to 8.95	K., 4%; Ph. G., Ph. Aust., 1%; Ph. Fr., Ph. Helv., Ph. Ndl., 1.5%; Ph. Ital., 2% ash.
Agaric, White.....	granular	1.29	
Angelica Seed (European)....	granular	7.16 to 7.35	
Asafoetida	powdered	8.73 to 16.79	U. S. P., Ph. G., 15%; Ph. Ital., Ph. Fr., Ph. Svec., Ph. Aust., Ph., Belg., Ph. Ndl., 10%; Ph. Helv., 20%.
Avena Sativa.....	granular	0.4	U. S. D., 2.15% ash.
Balm Gilead Suds.....	granular	1.84 to 2.41	
Belladonna Leaves.....	granular	6.25 to 13.30	Ph. G., Ph. Helv., Ph. Aust., 15% ash.
Berberis Aquifolium.....	ground	2.85 to 3.20	
Berberis Aquifolium.....	granular	2.64 to 2.78	
Berberis Aquifolium.....	powdered	2.07 to 2.54	
Black Haw, Bark of Root.....	granular	11.54 to 12.64	
Black Haw, Bark of Root.....	ground	12.38 to 13.41	
Black Haw, Bark of Root.....		12.81	K., 10% ash. Sample very dirty, containing much silicious matter.
Blood Root.....	granular	5.27 to 7.42	
Blood Root.....	ground	7.23	
Blue Cohosh.....	granular	6.78 to 7.84	
Blue Flag Root.....	granular	3.14	
Broom Corn Seed.....	whole sd.	2.58	
Buchu, Long.....		3.84 to 4.60	
Buchu, Short.....	ground	4.75	
Buchu, with Stems.....	granular	5.24	U. S. D., 4.40% to 4.69% ash.
Buckthorn Bark.....	granular	5.15 to 5.84	K., 5 to 6% ash.
Burdock Root (Foreign).....	granular	4.20 to 10.45	
Calamus Root.....	granular	2.75 to 3.81	
Cannabis (African).....	granular	18.80	
Cannabis Indica.....	powdered	14.00 to 20.89	
Cantharides, Russian.....	powdered	6.61	U. S. P., Ph. G., Ph. Helv., Ph. Aust., 8%; Ph. Ndl., 9%; Ph. Ital., 7% ash.
Capsicum	powdered	6.86 to 6.96	
Capsicum	granular	5.10 to 6.19	Ph. B., Ph. G., Ph. Helv., Ph. Aust., 6½%; Ph. Hung., 5% ash; K., 4 to 6% ash.
Caraway Seed (Dutch).....	granular	5.93 to 6.82	U. S. P., Ph. Helv., Ph. G., 8%; Ph. Aust., 7% ash.
Cardamom	granular	4.92 to 5.47	Ph. Aust., Ph. Ndl., 8%; Ph. Helv., 10% ash.
Cardamom	powdered	5.04 to 7.49	U. S. P., 4% ash.
Cascara Sagrada.....	powdered	4.70	K., ash 7%; Ph. G., 6%; Ph. Ndl., 10% ash.
Catnip Herb.....	granular	11.09	
Celery Seed.....	granular	7.25 to 10.22	
Chamomile Flowers (Hung.)..	granular	2.00 to 2.64	
Charcoal (Willow).....	powdered	6.21	Ph. G., 5%; Ph. Ital., Ph. Helv., Ph. Ndl., 2% ash.
Cinchona Bark, Red.....	granular	9.30 to 15.07	
Cinnamon, Saigon Quills.....	powdered	3.06 to 5.03	

<i>Drug.</i>	<i>Physical Condition.</i>	<i>Ash %.</i>	<i>Remarks.*</i>
Cinnamon, Saigon Quills.....	granular	3.12 to 4.53	
Cinnamon Bark (China).....	granular	1.83	
Cinnamon Bark (China).....	powdered	2.73	
Clover Tops, Red.....	granular	8.45 to 12.60	
Cloves	powdered	5.25 to 5.54	U. S. P., Ph. Aust., Ph. G., 8%; Ph. Helv., 7%; Ph. Ndl., 6% ash.
Coca Leaves (Truxillo).....	granular	6.22 to 12.07	
Cochineal	powdered	3.69 to 13.15	Labeled—For technical use only.
Cochineal, Silvered.....	whole bug	6.86	U. S. P., Ph. Helv., 6% ash.
Cochineal, Black.....	whole bug	7.01	
Colchicum Seed.....	granular	2.23 to 2.51	K., 2½% ash.
Colombo Root.....	granular	7.87 to 10.87	K., 6%; Ph. Helv., 8%; Ph. Aust., 6% ash.
Corn Silk, Dried.....	granular	5.38 to 7.61	K., 12% ash.
Cramp Bark.....	granular	1.45 to 3.50	Cramp Bark so-called.
Cubeb, Berries (Stemless).....	powdered	6.03 to 7.87	K., 6%; Ph. G., Ph. Helv., 8%; Ph. Ital., Ph. Aust., 9%; Ph. Ndl., 10% ash.
Cubeb Berries (with Stems)...		6.64 to 6.80	
Cubeb Berries.....	powdered	6.61	
Cudbear	powdered	7.83	Label stated—8 to 10% ash.
Damiana	granular	10.41	
Dandelion Root.....	granular	3.03 to 15.30	K., 5% ash.
Digitalis Leaves.....	granular	6.90 to 7.75	
Digitalis Leaves.....	powdered	11.55 to 11.90	K., 10 to 16%; Ph. Belg., Ph. Helv., Ph. Aust., 10% ash.
Doggrass, German.....	granular	4.65 to 5.48	
Doggrass	ground	3.94	
Dogwood, Jamaica.....	granular	9.99 to 11.47	Some samples were very dirty, containing many small pebbles.
Echinacea Root.....	granular	4.87 to 5.22	
Echinacea Root.....	powdered	5.86 to 6.05	
Ergot	granular	3.40 to 4.16	K., 4½%; Ph. Ital., Ph. Helv., Ph. Aust., Ph. Ndl., 5% ash.
Euphorbia	granular	8.33 to 21.66	One sample the ash consisted principally of sand.
Fennel Seed (Moravian	granular	7.85 to 8.40	K., 7%; Ph. Helv., Ph. G., Ph. Aust., 10%; Ph. Belg., 12% ash.
Gamboge	powdered	0.82 to 1.21	K., 1 to 3% ash.
Gelsemium Root.....	granular	2.24 to 2.59	
Gentian Root.....	granular	2.99 to 2.42	Ph. Aust., 5%; Ph. Helv., Ph. Ndl., 6%; Ph. Belg., 7% ash.
Gentian Root.....	powdered	4.07	
Ginger, Jamaica.....	powdered	2.81 to 4.24	N. S. D., 4 to 5% ash.
Ginger, Jamaica.....	granular	3.31 to 4.01	
Golden Seal Root.....	granular		Ph. Ital., Ph. Aust., Ph. Helv., Ph. Ndl., 6% ash.
Golden Seal Root.....	powdered	9.93 to 14.33	
Guarana	powdered	0.89 to 1.18	K., 2% ash.
Guaiac Gum.....	powdered	3.20 to 4.95	K., not more than 4% ash.
Henbane Leaves.....	granular	20.45 to *35.32	Ash principally sand. Ph. G., 24% ash.
Hydrangea Root.....	granular	2.91 to 5.18	
Ipecac, Carthagera.....		6.21 to 8.05	
Ipecac, Carthagera.....	powdered	5.44 to 7.83	Ph. Helv., Ph. Ital., 4%; Ph. Aust., 5%; Ph. Ndl., 6% ash.
Ipecac Root.....	powdered	3.28 to 5.06	
Irish Moss, Bleached.....	whole	16.61 to 17.64	U. S. D., not more than 17%; K., 10 to 15% ash.
Juniper Berries.....		3.82	K., 2 to 4% ash.
Juniper Berries.....	granular	3.17 to 3.19	
Larkspur Seed.....	powdered	5.00 to 6.42	
Licorice	cuttings	5.18 to 5.62	
Licorice, Spanish.....	cuttings	2.61 to 6.61	Ph. Helv., Ph. Aust., Ph. Ndl., 6%; Ph. Belg., 7% ash.
Life Root Plant.....	granular	8.26 to 9.61	
Liverwort Leaves.....	granular	10.25	

<i>Drug.</i>	<i>Physical Condition.</i>	<i>Ash %.</i>	<i>Remarks.*</i>
Lobelia Herb.....	granular	8.04	
Lycopodium		0.27 to 1.44	U. S. P., Ph. Ndl., 5%; Ph. Belg., Ph. Ital., 4%; Ph. Aust., Ph. Helv., Ph. G., 3% ash.
Manaca	granular	1.34 to 1.82	
Mandrake	granular	5.42	
Manna	sm. flakes	0.62	K., 1.3 to 4%; Ph. G., Ph. Helv., 3%; Ph. Ital., 3½%; Ph. Svec., Ph. Aust., 4% ash.
Musk Root.....	granular	6.01 to 8.27	K., about 8% ash.
Myrrh Gum.....	powdered	4.08 to 5.45	K., 5 to 10%; Ph. Ndl., 5%; Ph. Belg., Ph. Aust., Ph. Svec., Ph. Ital., Ph. Helv., 6%; Ph. G., 7% ash.
Nutmeg	powdered	1.83 to 2.63	
Nux Vomica.....	powdered	1.69 to 2.25	K., 1 to 4%; Ph. Aust., Ph. G., 3%; Ph. Helv., 3½% ash.
Nux Vomica.....	granular	1.57 to 2.39	
Nux Vomica.....		2.07	
Opium	powdered	5.84 to 7.37	K., 4 to 8%; Ph. Aust., Ph. Helv., Ph. Ital., 6% ash.
Orange Peel, Dried (Bitter)...		3.80	K., ash about 5%.
Orange Peel, Dried (Sweet)...		3.72	
Orange Peel, Dried (Bitter)...	granular	3.28 to 4.74	
Orris Root.....	powdered	2.69	
Passion Flower Herb.....		9.12 to 9.22	
Passion Flower Herb.....	granular	11.95	Ash consisted principally of sand.
Pepper, Black.....		3.53 to 4.99	K., ash about 5%.
Peppermint Herb.....	crushed	12.24	Contained an excess of stems.
Peppermint Herb.....	granular	12.75	Ash consisted chiefly of silicious matter.
Peppermint Herb.....		13.07	Ash consisted chiefly of silicious matter.
Pichi Leaves.....		8.30	
Poke Root.....	granular	8.74 to 9.89	N. S. D., 8 to 10%; K., 13% ash.
Prickly Ash Bark.....	granular	6.78 to 7.34	
Pulsatilla Herb.....	granular	6.60 to 7.83	K., ash about 12%.
Pulsatilla Herb.....		8.15 to 9.93	
Quassia Chips.....	granular	2.00 to 2.49	
Red Rose Leaves.....	powdered	3.27 to 4.06	
Red Saunders.....	powdered	1.04 to 1.15	
Rhubarb Root.....	granular	5.93 to 9.21	K., ash about 15%; Ph. Aust., Ph. G., Ph. Ital., Ph. Ndl., 12%; Ph. Helv., 13% ash.
Rhubarb Root.....	ground	8.44	
Rhubarb Root.....	powdered	8.66 to 9.74	
Saffron, American.....	granular	4.52 to 6.98	
Sandalwood	granular	4.20 to 5.76	
Sassafras Bark.....	ground	43.93	Ash consisted principally of sand.
Sassafras Bark.....	granular	11.93	
Saw Palmetto Berries (Dried)...	granular	1.81 to 2.62	
Saw Palmetto Berries (Dried)...	powdered	2.42 to 3.07	
Senega Root.....	granular	5.04 to 6.97	U. S. P., 7% ash.
Senega Root.....	ground	6.85	
Senega Root (North Western)...		5.04	
Senna, Half Leaf (Alex.).....		9.06 to 9.85	K., 10 to 12% ash.
Senna, Half Leaf (Alex.).....	granular	10.93 to 12.62	
Senna, Half Leaf (Alex.).....	powdered	9.86 to 12.20	Ph. Belg., Ph. G., Ph. Helv., 12%; Ph. Aust., 10%; Ph. Ndl., 8% ash.
Senna, Broken.....		9.21 to 11.04	
Senna, Broken.....	powdered	8.96	
Senna siftings.....		16.82	
Snakewood Bark (Cascara amarga)	granular	7.72	
Spikenard Root.....	granular	5.93 to 7.78	
Squaw Vine.....	granular	6.77 to *14.21	One sample the ash consisted principally of sand.

<i>Drug.</i>	<i>Physical Condition.</i>	<i>Ash %.</i>	<i>Remarks.*</i>
Squills	granular	3.64 to 6.98	
Squills	powdered	2.29 to 3.23	Sq., 3% ash; Ph. G., 5%; Ph. Aust., 8%; Ph. Helv., 5% ash.
Stillingia Root.....	ground	5.81	K., 5% ash.
Stillingia Root.....	granular	4.47 to 5.39	
Stone Root.....	granular	4.43	
Stramonium Leaves.....		21.04 to *27.80	Drug adulterated. K., 17%; Ph. G., 20% ash.
Stramonium Herb.....	granular	14.76 to 18.64	
Tragacanth Gum.....		2.93	
Tragacanth Gum.....	powdered	2.85	Sq., ash 2 to 3% rarely exceeds 4%; K., about 3% ash.
Unicorn Root, False.....	granular	4.54 to 12.20	
Uva Ursi Leaves.....		3.29	Label stated about 3% ash.
Uva Ursi Leaves.....	granular	1.44 to 3.13	K., not more than 3% ash.
Valerian Root (Belgian).....	powdered	22.04 to 24.14	Ph. Belg., 15%; Ph. Helv., 12%; Ph. Aust., 10% ash.
Valerian Root (Belgian).....		18.61	
Vanilla Beans (Mex. Cuts)...		0.40	K., ash about 5%.
White Pine Bark.....	granular	1.09 to 2.04	
Wild Cherry Bark.....	granular	2.48 to 4.62	
Yellow Dock Root.....	granular	11.67	
Yerba Santa.....	granular	5.13	

*Abbreviations:

- K.—Kraemer's Botany and Pharmacognosy.
 U. S. D.—United States Dispensatory.
 N. S. D.—National Standard Dispensatory.
 Sq.—Squires Companion of the British Pharmacopœia.
 Ph. B.—British Pharmacopœia.
 Ph. G.—German Pharmacopœia.
 Ph. Belg.—Belgian Pharmacopœia.
 Ph. Fr.—French Pharmacopœia.
 Ph. Ital.—Italian Pharmacopœia.
 Ph. Helv.—Helvetica Pharmacopœia (Swiss).
 Ph. Svec.—Swedish Pharmacopœia.
 Ph. Ndl.—Netherlands Pharmacopœia.
 Ph. Aust.—Austrian Pharmacopœia.
 Ph. Hung.—Hungarian Pharmacopœia.

ANALYTICAL LABORATORIES, BRISTOL-MYERS COMPANY, January 30th, 1914.

PHYSICIANS AND CLEANLINESS.

"In an article in the *Southern Medical Journal*, an abstract of which appears in this issue, Dr. Charles Wardell Stiles severely criticises certain physicians with whom he has come in contact for a want of cleanliness in their offices, and for lack of careful observance of the rules of general hygiene. He says that inasmuch as physicians constantly advocate health legislation, they should be prepared to set a proper example of cleanliness for the laity. His contention is supported by numerous instances, which he cites, of the shortcomings of physicians in this respect in connection with their offices, their homes and their conduct in public meetings. Stiles' experience is no doubt unusual and his criticism is probably applicable only to the careless few. It is true, however, that physicians should set an example for the public in hygienic matters, and that they should be almost over-scrupulously clean for

the added reason of safety to their patients. This severe castigation of physicians is valuable therefore in calling again to the attention of physicians the importance of strict personal and practical cleanliness as an aid and example for the public.—*Jour. Am. Med. Assn.*

The abstract referred to above is as follows:

"Experience forces Stiles to the conclusion that there is not an inconsiderable number of physicians in practice who have exceedingly elementary ideas on the subject of cleanliness. He says that an entire book could be written on the condition of the privy one finds at the home of the average physician in small towns and in rural districts. In by far the majority of instances Stiles has seen, these guardians of the life of human beings have the common surface privy, open in the back, scattering soil pollution, breeding flies, and thus providing human excreta as a condiment to the food consumed by themselves, their families and their neighbors. The moral to the tale is, he continues, that resolutions adopted by these gentlemen as to the necessity for any given plan of public health legislation are somewhat lacking in weight of professional authority. Some of them seem to think that the only way to bring about a public health reform—much needed as it is—in this country is to put a physician in the president's cabinet. Without taking any stand as to the advisability of the existence of such a cabinet official, Stiles suggests that a full time county health officer who will, among other things, compel these gentlemen to clean up their offices, operating rooms, and privies, and force them to stop spitting on the floor, might contribute somewhat to a reduction of the death rate. Stiles cites some forceful personal observations."—*Jour. Am. Med. Assn.*

THE LOOK AHEAD.

It is the druggist who can see ahead who gets the bulk of the business. He gets it not merely because he can see ahead, but because he takes proper advantage of that foresight. The man who looks ahead is the man who sees what goods will be in demand two or three months from now and prepares his stock in advance. It takes no particular shrewdness to make a note from day to day of the articles that are called for and to order in accordance with the immediate demand. Anybody can run a store on the basis of present day demands. But not everybody can run a store successfully on that basis. It is the look into the future that enables a man to meet the coming demand when it first appears. It is not difficult to anticipate the demands of the coming spring by studying the market and referring to the details of the business done last spring. It is not because it is difficult that comparatively few druggists look ahead far enough and often enough. It is because they do not think of it or because they do not think it worth while. Nothing is better worth while in all the realm of store-keeping than looking ahead and studying the probable needs of tomorrow. It may almost be said that today will take care of itself with the present stock. The successful druggist must learn to live in the future a part of his time. One of the best glasses through which to see the business future is the trade paper.—*American Druggist.*

Papers Presented to Local Branches

PROGRESS OF PHARMACOPŒIAL REVISION.*

JOSEPH P. REMINGTON, CHAIRMAN.

Professor Gathercoal is responsible for my presence in Chicago at this time and I appear before you with pleasure. The making of a Pharmacopœia is constructive work by a large and representative committee and it is not *my* Pharmacopœia.

As the final work of the Revision of the Pharmacopœia approaches, it must be understood that several questions are in abeyance. At the beginning of the work of revision, it was realized that the Ninth Revision would be for several reasons the most important in the history of the work. The passage of the National Food and Drugs Act and State legislation have enlarged greatly the scope and usefulness of the Pharmacopœia and of course the responsibilities of revision are much greater.

At the Pharmacopœial Convention held in Washington it will be remembered that a recommendation was made that publicity should be given to all changes in standards and descriptions before the issue of the work. The principle of this recommendation was mainly to give to manufacturers, dealers, pharmacists, and physicians a full opportunity to comment and criticise. This principle of publicity has been in force in the United States for a number of years. When a law is proposed in Congress, or even after it has passed one or two branches of the Government, it has become the custom to invite parties interested to attend what is called a "hearing" before a congressional committee, the object of which is to obtain information from all sides as to the practical enforcement of the law. In this way important amendments may be made to the law and this may now be termed one of the principles of the American form of government, and it is most essentially different from acts passed in a parliament, a reichstag, or the mandate of an emperor. In republican forms of government throughout the world, hearings and consultations with experts and interested parties are being recognized as essential to good government.

In the Revision of the United States Pharmacopœia, hearings have been already held; in fact, the present Pharmacopœia is being thoroughly revised in public. When Dr. Charles Rice published the Digest of Comments on the two previous Pharmacopœias, he foresaw the advantage of gathering criticisms and comments from all sides. This he published in book form and anyone interested could procure a copy by applying to him. The Eighth Revision has had the advantage of a Digest of Comments published by the Public Health Department of the Government by which the principle of publicity was greatly extended.

*Read before the Chicago Branch, Feb. 16, 1914.

Of course, it will be impossible to embody every bit of advice which is now in the hands of the Chairman of the Committee of Revision. Many of these show great variance of opinion; individual likes and dislikes abound. Many of the comments and criticisms are founded on insufficient knowledge and experience, as anyone could easily suppose would be the case—an increase in one or the other ingredients, a different mode of filtering, the elimination of a tendency to precipitate, the preference for a different flavoring, and other changes of minor importance.

The present Committee of Revision were confronted with an enormous task and now the work of making a selection, which, in their opinion, is the best, is occupying much attention and an embarrassment of riches confronts the Committee. In former years, when the Pharmacopœia was once issued it was the habit to wait five years before making any material change through the publication of a supplement. Of course, any errors were corrected immediately, but very few additions or changes in admissions or deletions were ever made; but ten years is entirely too long to wait for a new Pharmacopœia and it is proposed to make changes in the future more frequently in order to keep the Pharmacopœia abreast of the times. This will undoubtedly be done in the future, but we must attend first to the issue of the new Pharmacopœia as promptly as possible before a definite decision is made as to this part of the work.

The most important questions now pending are the tests for volatile oils, for whisky, and a few additions and deletions. The scope of the Pharmacopœia has occupied a great deal of time and there are a few subjects still awaiting final decision. The inclusion of Mercuric Chloride Tablets with a selection of the most desirable form for their administration to prevent possible accidents is the question of the hour. A decision has been reached to admit these tablets, but the best way to prevent the disastrous accidents which have been so industriously set forth in the public press has stimulated the inventive faculties of manufacturers to such an extent that the Committee is confronted with a great mass of detail. Manufacturers have vied with each other in putting upon the market many forms of tablets and a great variety of containers. The subject is exceedingly important.

One of the latest duties referred to the Committee of Revision has been the formulating of an official declaration of what constitutes a poison. Undoubtedly this question has been before the world for centuries.

A poison, in the common acceptance of the word, is a substance that produces a deleterious action upon life; but this definition is too broad and general to be serviceable in food and drug legislation—a lawyer would like to have a more specific definition. The Pennsylvania Pharmacy Law defines a poison under Section 10 as follows: "A poison in the meaning of this act shall be any drug, chemical or preparation, which, according to standard works on medicine or materia medica, is liable to be destructive to adult human life in quantities of sixty grains or less." The danger in specifying sixty grains or any definite figure lies in the fact that the limit cannot be justly or accurately fixed. Why not make it sixty-five grains or a hundred? Would a substance not be a poison if it were proved that cases were recorded in standard works on medicine or materia medica if sixty-five grains or one hundred grains have been safely administered? And

again there comes the question of idiosyncrasy; some patients will tolerate enormous doses of a substance which would prove fatal to others even if administered in one-half the quantity. Would it be just to prosecute anyone under such circumstances? If a definite figure is adopted, injustice will be sure to follow, and yet it must be admitted that there is great necessity in having a definite figure. The Revision Committee must thrash out this question and reach a decision. This illustration furnishes a type of some of the problems which require settlement and, which ever way the question is settled, criticism is sure to follow.

The admission to the Pharmacopœia of substances known as protected, proprietary, or patented, has caused considerable discussion. It is universally admitted that a pharmacopœia should not advertise the products of one person, firm or corporation. Unjust discrimination would be charged and a precedent would be established and other persons, firms or corporations would demand recognition. How could a pharmacopœia provide tests for an article over which they have no control? The manufacturer would change at any time his tests or even the color of his product as often as he wished and make the pharmacopœial tests obsolete. But suppose the manufacturer of a protected substance consents to its introduction into a pharmacopœia under tests which he approves; he is virtually abandoning his control. The obstacle here is an insurmountable one, for no manufacturer yet has consented to forego the profits which he is enjoying from his protection for the sake of encouraging his competitors. The sole object of patenting or copyrighting the name is to gain profit by excluding competition. In our present Pharmacopœia, acetphenetidin was introduced as a coined word to avoid the use of the protected name "phenacetin." The manufacturer made no objection officially because his patent had a very short time to run and the question was met by marketing it under both names. This case was exceptional, but if a manufacturer had fourteen years protection ahead of him, it would seem to him a foolish piece of business to surrender his profits for the questionable honor of having his product admitted to the Pharmacopœia and losing the complete control of the tests for proving the identity and purity which would follow the surrender and opening the door for unlimited competition.

I will be glad to answer any questions which I can and receive whatever suggestions you may offer and they will be sent to the appropriate sub-committee for consideration. In work of this character an individual member of the Committee cannot hope to have his ideas always adopted. The combined judgment expressed by a majority vote must prevail. This method of revision, while both Republican and Democratic, is also Progressive.

Systematic methods of procedure in working out the detail are used, and, as the final days of revision are here, definite decisions must be reached. Let us hope that errors of judgment will be absent when the book appears. While discussion has been free and very earnest and impressive arguments have been used by individuals, the Chairman is glad to report that an excellent spirit and feeling exists in the Committee as expressed through the official circulars, letters and bulletins.

"THE PHARMACOPŒIA: ITS LIMITATIONS."*

MRS. ST. CLAIRE M. RANSFORD-GAY.

That the present outlook for the drug business is a serious one, is not denied by even the most optimistic, and the great decrease in prescription work, as well as general drug sales, has been laid to everything, from the tariff down to the dispensing doctor and the patent medicine man, but as the condition has gradually grown worse, and looks as if it was receiving sufficient nourishment from somewhere to make possible its continued decline, it is only fair to assume that as yet the crux of the situation has not been reached, or at least some of the causes for which pharmacy itself is directly responsible would be corrected and a few of the errors removed.

In holding others guilty in even a measure, for pharmacy as it exists today (and exists is used advisedly), has pharmacy placed the blame where it really belongs? To me it appears that it has not. It seems that none who could aid in the regulation has had the courage of his convictions in placing a few responsibilities where reformation is sorely needed, or the U. S. P. would not be ten years behind the times, and the N. F. a book of poor duplicates of proprietary preparations, instead of each being a living testimonial to the professions both of pharmacy and of medicine.

The dispensing doctor is responsible in a large degree for the decrease in prescription work, and until the medical schools wake up, and really teach their men that drugs intelligently used do give results today as well as years ago, just so long shall we have the 20-drug doctor, who does not even write prescriptions for these but is a most ardent follower of the label and literature supplied by the detail-man, and while we feel that the doctor who allows the detail-man to prescribe for his patient is not entitled to respect, still he is no worse than the pharmacist who buys rather than makes his own pharmaceuticals.

That we know such conditions exist in both professions is substantiated by the fact that a certain large manufacturing house finds it profitable to run a post-graduate course for its employees in order to keep them abreast with the newest in medicaments, and equally alive to the best methods of employing the older drugs. These salesmen go out, primed with the newest ideas, canvass the medical field, and supply to medical men information which they utilize, all of which relates to that particular firm's application of the newest experiments in medicine and surgery.

Does the U. S. P. do likewise for the retail pharmacist? Can we confidently turn to the U. S. P. and learn the best way to dispense, the origin, and use of the newer drugs, or even the older ones? No we cannot, but we could if the U. S. P. had a national laboratory where pharmacy might work hand in hand with medicine and surgery, and so be able to supply the best drugs, in suitable form and elegantly dispensed, as the standard and official preparation of its class.

* Read before the New York Branch, Jan. 12, 1914.

Then would the pharmacist be able to fill with confidence any prescription that is called for, he would know that it was the concerted product of many scientific minds, regardless of overhead expenses, rather than the formula of one man, no matter how clever, who must consider the great item—expense—perhaps to the detriment of the preparation. Were it not for the drug journals and their willingness to help pharmacy, we should have no book to which to refer, when information concerning newer remedies is requested and necessary, but even these publications are at the mercy of the manufacturer, and can tell only what the originator of the preparation cares to make public,—so, that even these sources are not really adequate, and as events have proved, these are times when the manufacturer has exploited most carefully all the good points of the preparation but entirely neglected to mention the precautions to be observed in its use, which are equally as important.

At the present time pharmacy is entirely dependent upon medicine, but if pharmacy is a profession, why look to medicine for sustenance. At best, in the present, pharmacy acts merely as a vehicle for the ideas of others, it does not originate nor create of its own accord. Consequently it is the servant of those who do create. The opportunities for us to know absolute facts exceed by a million those of the doctor—for we can start with the knowledge of definiteness, and step by step as the process elaborates quantitatively determine our results.

Why then should the pharmacist allow the opportunity to prove his ability slip by? If through lack of education, then improve the course; if because of the non-existence of a national laboratory that can furnish monthly digests which will keep pharmacy abreast with the progress of medicine and surgery, then it is time that the pharmacists of the United States get into action and demand that some of the national money wasted on other things be directed to the establishment of such a laboratory, in order that pharmacy may retrieve itself, and be as it was originally intended to be,—a help to mankind.

That doctors want elegant preparations, has been demonstrated beyond a doubt, and their liberal prescribing of preparations other than those of the U. S. P. proves their complete disregard for the book. They consider it obsolete, which is emphasized by many facts, among which may be mentioned—fluid-extract of ergot—it is only of late years that any except that of one manufacture has ever been used, and even now does the average doctor ever think of using any except the ether and chloroform of the same manufacturer? No, because ether and chloroform to be acceptable for anæsthesia, must be highly purified, and in spite of this fact, the U. S. P. allows an appreciable amount of water and alcohol, and as this appears to be of great moment, it is not lost sight of by the firm's detail-man, and physicians, after his learned explanation, are afraid to use any but his particular product. So true is this that books on medical jurisprudence fail to recognize any other brand.

It may have been true in earlier days that there was only one brand of ether or chloroform, suitable for use, or even but one fluidextract of ergot, but it is just as reasonable to suppose, that today this is a fact, as it is to suggest that only one pharmacist can make a quinine pill.

If the guarantee of the U. S. P. amounts to anything, then any product turned

out by any reputable manufacturer and labelled U. S. P. should be acceptable. Also why the necessity of going to court to prove that hexamethylenamine is the same as the proprietary preparation? If on the other hand the proprietaries are advertised as being identical with the U. S. P. the results obtained should be the same, and clinicians should not be disappointed, as they frequently are.

What requirements are necessary in a preparation to make it official in the U. S. P. instead of the N. F.? Why is Elix. Aromatic in the U. S. P., and the complete line of similar preparations, equally as important, in the N. F.?

The value of the coal tar products is an established fact, but there is no effort on the part of the U. S. P. to introduce or do research work on these, and with the exception of the introduction into the book of a few products upon which the patent rights have expired, there has been, not even a feeble attempt to offset the manufacturer in this direction and help the retail man so that he does not have to pay a most exorbitant price for something, of doubtful as well as known value, whose popularity is obtained primarily through good advertising.

It is time the U. S. P. became modernized, and since it has duplicated so many preparations of the manufacturers, it might be well to take a few hints as to their methods of creating a demand for the products by letting the physician know that the book contains all that is up to date and that the preparations are thus standardized and officially guaranteed.

Also, that the tests, methods of preparation, and general dispensing notes be made so explicit, that all pharmacists can with ease produce a uniform product. Then will the legitimate work of the true pharmacist be restored, and the manufacturing man no longer usurp it, nor destroy the ethical relations of pharmacy and medicine.

Our stores will resume their proper position in the mercantile world and many of the sidelines now indispensable through lack of real pharmaceutical business, will be discontinued not only to the advantage, but with the hearty approval of pharmacy.

THE CULTURE OF THE EDIBLE MUSHROOM (AGARICUS CAMPESTRIS) AS A HOBBY FOR THE RETAIL PHARMACIST.*

A. J. KLINE, MINNEAPOLIS.

Before relating my own experience in connection with the study and culture of the mushroom, it may be well to briefly refer to the subject in a general way.

When one asks the question as to which wild mushrooms are safe to eat and which are poisonous, a very common answer is that they may be divided into two classes, first those which are "Deadly Poisonous!" and second those which will "Kill Sure!" The average person is not inclined to test the edibility of the numerous wild sorts, and those who are possessed of some knowledge concerning those suitable for the table will usually shun inquiries or answer "yes" or "no."

* Read before the January meeting of the Northwestern Branch, A. Ph. A.

These quite general conditions are undoubtedly the prime cause for the limited use of this fine food. Most people do not realize the great annual loss of food from the non-consumption of the edible fungi. The fact that the average person is not able to distinguish between the different varieties and hence eats none at all is without question a very fortunate restriction.

As a matter of fact there are very few, *very poisonous* mushrooms and these belong to the genera known as *Amanita*. Those of this group which are most toxic are *Amanita phalloides*, *Amanita verna* (said to be a form of *A. phalloides*), *Amanita muscaria* and *Amanita solitaria*. The last named species is said to be edible, but according to Clements "it is dangerous on account of its resemblance to the poisonous Amanitas and every one should avoid all risks by leaving it entirely alone."

There are a number of fungi which while not deadly poisonous contain power-



Fig. 1. The common wild mushroom (*Agaricus campestris*). Fully developed fruit bodies, the gills are clearly seen as is also the membranous ring or annulus on the stem.—
(After Freeman in Minnesota Plant Diseases.)

ful emetic principles. These include such as *Lepiota morgani* and *Clitocybe illudens*. It is interesting to note in this connection that a peculiar idiosyncrasy exists in certain people who are not affected by the emetic principles.

Altogether, there are from three to four hundred different species of mushrooms which are known to be edible and from fifteen to twenty which are poisonous. Then there are many others which as yet have not been tested, leaving an opportunity for any who may desire to make martyrs of themselves.

Before proceeding to indicate some of the characteristic danger signals of the poisonous mushrooms, it may be well to call attention to the various parts of the mushroom plant. The plant body proper consists of numerous thread-like cells which ramify the soil or compost in which the plant is growing. These thread-like cells or hyphæ are known collectively as the mycelium and from the mycelium the upright branches arise which we call the toadstool or mushroom. The mushroom is the fruit body or spore-bearing-organ and usually consists of several well

differentiated parts. First a stalk usually spoken of as the stipe and which may be enlarged at the base and sometimes enclosed in a short cup-shaped sac called the volva. Upon the stalk there develops a more or less umbrella-like portion known as the pileus which varies greatly in shape and size depending upon the age and species. On the under surface of the pileus, which is known as the hymenium, are developed the gills or in some species these gills are replaced by teeth or pores. Upon these latter organs the spores are produced. When the mushroom first makes its appearance above ground it is in the form of a more or less rounded head which is spoken of as a button. At this early stage the gills are usually covered over with membranous tissue known as the veil, later



Fig. 2. *Agaricus campestris*, a cultivated variety grown by Mr. A. J. Kline from pure culture spawn.
(Original.)

the veil becomes ruptured leaving a more or less distinct ring around the stipe or entirely disappearing.

The following rule concerning the selection of the edible fungi has been given by an expert on the subject: "Avoid eating all mushrooms with white gills, a ring around the stem and a cup or scales at the bulb-like base of the stem, to be in no danger of fatal poisoning. Since the volva, especially when scaly, disappears with maturity and sometimes the ring also, care must be taken to apply this rule to young plants." The collector should also be on guard for the species which contain emetic principles, for while they are not deadly they may cause illness. Finally unless one is an expert on the subject it should be a fast rule to give no advice to others on the edible qualities of any specimen.

The culture of the edible mushroom is becoming more and more a subject of general interest and while there is nothing difficult about the work many fail

from lack of adherence to certain general rules. Five conditions are very essential for the successful cultivation of the edible mushroom, viz.: reliable spawn, properly prepared compost, temperature, humidity and fresh air. For the cultivation of the mushroom the compost must first be prepared. Fresh horse manure is the most suitable material to use for the compost. The manure should be moistened with water until it is uniformly damp and so that water will not run out when squeezed. It should then be thoroughly mixed and put in piles three or four feet deep. In seven or eight days the compost will have become quite hot by fermentation brought about by the action of bacteria. At this stage it should



Fig. 8. Morel fungi (*Morchella esculenta*). The ridged caps are to be regarded as everted cups, whose surface has become ridged and hollowed to afford large area for spore formation.

(After Freeman.)

be spread out, re-moistened and piled up again. This process is usually repeated again at the end of the third week, at which time any straw or coarse litter in the manure will be soft and pliable.

The compost is now ready to be placed in the beds or boxes. If beds are made they should be of such size that one can reach to the center from either side. The moist, but not wet, compost should be placed in the beds and firmly packed down to a depth of ten or twelve inches. A thermometer should be placed in the compost and when the temperature drops to 75° F. the bed is ready to spawn or plant. The temperature best suited for the growth of the spawn is between 55° and 65° F. Ordinarily the cultivation of the mushroom should not be at-

tempted during the hot summer months, owing to the presence of insect pests which are very apt to make the mushrooms wormy and unfit for use.

The spawn consists of dried compact masses of turf or compost, containing mycelial threads of the mushroom. Spawn is a commercial article and a number of different varieties are offered. One form which earlier was much in use is propagated directly from the spores. The spore culture spawn does not seem to yield as uniform and satisfactory results as a product of later introduction known as pure culture spawn. This latter spawn is produced by vegetative reproduction and selection which assures the constancy of the variety or strain. One of



Fig. 4. Shaggy-mane fungus (*Coprinus comatus*). This is an inky-gill fungus. The cap is seen to be blackened at the base, where the whole substance of the cap deliquesces and drops its black spores in an inky mass.—(After Freeman.)

the best pure culture spawns is prepared in St. Paul and known as Lambert Pure Culture Spawn.

The spawn should be broken into pieces from one to one and one-half inches square and these pieces should be placed one or two inches below the surface of the compost, the pieces being about a foot apart. After the spawn is planted the compost should be firmly packed. If the compost and spawn are in the proper condition the plant will begin to run in from a week to ten days and innumerable mycelial threads develop throughout the compost. The bed is now ready for "casing." This consists of placing over the compost a rich loam covering from one to two inches deep. This casing should be firmly packed down, but no watering should be done at this time. An excess of moisture will kill the mycelial

threads as the mushroom requires a large amount of oxygen which it derives from the air and at the same time the plant gives off a large amount of carbon dioxide. This process is just the reverse of that which takes place in the manufacture of food by plants which contain chloroplasts, although in the process of respiration CO_2 is given off by the higher plants. The failures of beginners are usually due to a lack of fresh air or to too wet compost, either condition resulting in a deficient amount of oxygen for the growth of the fungus.

The humidity should be just about at the point of saturation and should remain so. Damping off sometimes occurs and this is usually due to sudden changes in



Fig. 5. The shaggy-mane fungus (*Coprinus comatus*). This fruiting body is in a more advanced stage of deliquescence than that shown in Fig 4; almost the entire cap has dripped off. A ring (annulus) is seen at the base of the stalk. (After Freeman.)

temperature or too much moisture. The great amount of CO_2 given off necessitates a good system of ventilation; as the CO_2 is heavy and will settle to the lower layers of atmosphere it is sometimes possible to arrange so that it will run off through a low door, window or pipe. A vent pipe having some draft will usually remove the excess CO_2 satisfactorily.

Mushrooms will not grow in wet, unclean places where the air is vitiated. There must be an abundance of fresh air along with other suitable conditions. The plants will grow in the light as well as in the dark, a dark room not being essential but most desirable owing to less danger from insect infection. The best time to collect the mushrooms it is at the time when the veil is about to leave the pileus. Some growers allow them to develop more before collection as the

weight increases very rapidly; the quality however diminishes. After six or eight weeks of collection the soil and compost become exhausted and the beds must be cleaned out, disinfected and rebuilt. In the collection it is preferable to pull up the mushroom by twisting motion rather than to cut it with a knife as this latter process leaves a portion of the stipe which will decay. After collection they should be cleaned and trimmed and if to be marketed packed in boxes or baskets of from one to three pounds capacity. Mushrooms may be safely shipped by parcel post and at present the demand seems to be in excess of the supply.

The food value of mushrooms ranks well with many fruits, although they are not in the class with highly starchy or highly nitrogenous foods. For those who wish to grow mushrooms I would recommend the planting of some of the pure culture strain of *Agaricus campestris*, yielding the common mushroom, or of *Morchella esculenta*, the common Morel, which I believe is being offered in spawn form at the present time. For home consumption the shaggy mane or *Coprinus comatus* is much employed by some. The specimens I have here represent a strain of *Agaricus campestris* that I have grown in my cellar. The study and culture of the plants not only gives me much pleasure and recreation, but I also have a continual supply of this delicious food for the table.

WINDOWS AND WINDOW DRESSING.*

ARTHUR C. SCHULTE, PH. G.

It seems strange, if not absurd that anyone in any line of business in the commercialized world of today, need be told the value of window dressing as it is so evident on all hands. It would look indeed strange to the most casual observer if he did not see the windows, principally of the department stores and tailoring establishments, dressed as they are today. If one would stop to think of the enormous amount of money expended in window-dressing week in and week out he would be forced to say, "There's a Reason." The druggist today in business who does not give his windows their proper attention is either indispensed, due to lack of ambition, or else he is merely running his store as a convenient place of address. It's a fact that some druggists will sit on their chairs with their hands in their pockets, smoking a cigar and say, "What's the use?" But if you look around their stores to see the condition of things as well as the stock, you will have little cause to wonder why their business is going back-

wards or why they will always complain of business being "on the bum." Druggists in business today with ideas of twenty years ago have no business being in business. They have lost their place. They are holding back, as it were, opportunities which if allowed to develop would count as dollars and cents on the cash register. The men who say that their customers would not stand for the new ideas in business, and that if they did introduce them they would lose their trade are out of luck, and generally this argument is merely a mask to hide behind the cloak of indifference. The druggists who rely on a patronage of twenty years ago are working under a delusion, for while an established name is an adjunct to any business, still that patronage dating that many years back has passed away, and the new blood that takes its place demands the new order of things.

Here is an idea of the store of twenty years ago doing business today that came to my notice. On the ground floor the windows were made up of many small square panes, several of which had been mended with

*Read before the St. Louis Branch of the A. Ph. A.

newspapers. Through them one was almost able to distinguish the interior. In the foreground stood a broken bottle shaped like a mortuary urn and half full of pink liquid. Besides it reposed a broken packing-box in which bleary camphor-balls reposed between faded sheets of blue paper. Of these a silent companion of misery stood on the far side of the window—a towering pagoda-like cage of wire in which were trapped, doubtless, by means of some mysterious bait (known only to alchemists) three worn but brutal looking sponges which were apparently slumbering in exhaustion. Back of these a dirty plaster cast of a male figure lightly draped seemed to represent the survival of the fittest over some strange and deadly patent medicine. The recessed door bore an inscription in gold letters, tarnished and half obliterated:

RANK G HAM
RUGS & HEMIC LS
PR SCRIPT ONS CAR FULY
C POUND D.

The interior needs no description. Here is an idea of what some druggists will say is known as an old land-mark and if changed, the patronage would drop off. Do you believe it? I do, but I would say that it has dropped off so long ago that nobody knows that it ever existed.

From an advertising standpoint, I hold that there are no mediums, such as newspaper inserts, circulars, calendars, almanacs, etc., so powerful, for the moderate or small business man, such as the druggist, or so comprehensive or so satisfying to the prospective purchaser, or so economic to the druggist as a well-dressed window. If one-tenth of the money spent in other methods of advertising was invested in window dressing, I believe that windows would rank first as a medium for increasing business. Of course, other means are sometimes necessary, but the window is the link and should be the connecting link, bringing in the purchaser, in the great chain of advertising. It is the link that serves as the last impetus to bringing in the new customer. Lots of money might be lost and is lost, because of the lack of properly dressed windows where the individual can actually see the articles that have been advertised, as the decision is made then, and nine times out of ten the sale is completed.

I ask you why is it that these big manufac-

turers will spend thousands of dollars in the newspapers in launching a new article, especially a patent medicine and then will come around and inquire whether they can put in a window display and in some instances even offer to pay for the window. Why is it? It's because these men, trained by experience, know that the last place, the jumping off point as it were, for the sale of their articles is the druggists' windows, and if seen there will serve as the last reminder of what they have been hammering at in the newspaper. Do you know, that some downtown drug stores receive from \$50 to \$100 a week for the loan of a window? And that this much is paid to the proprietor to bring purchasers into his store? Do you think these men have money to give away? I should say not. How much are your windows worth?

The value of a window that is well dressed does not lie especially in its attractiveness from an artistic standpoint, but mainly in its pulling power, the power to attract and hold the passer-by long enough to convince him that he really needs the displayed article; or else that it will serve to indelibly write on the individual's mind the fact that Mr. So and So keeps that article, displayed, and especially at the right price, and when he needs that article he will buy it there. The length or duration of the effectiveness of a display has never been, nor is it capable of being computed. For example: A display that I put in the window last May was brought to my attention in November by a customer asking for a can, a red can for bed-bugs, that he had seen in the window some time back, he didn't remember where. At once I knew that he had reference to a display of Bug Killer that I had displayed in the window in the before mentioned month.

Displays of such articles as brushes, combs, writing-paper, shaving mugs, mirrors, etc., and such other articles that ordinary purchasers look to the department stores for when they need them, will serve as a reminder that you keep them, and long after a display is removed you will get a call for some article that you had displayed months previous. In the case mentioned above you can contrast the effect or force of newspaper advertising, or what the effect of a one-time insertion in a newspaper would be as compared to a one-time window display. The window is the mainstay of the small or large druggist who believes in doing a little more

business. Some men, purely ethical, might criticise the display of combs, brushes, or other sundries in the windows of drug stores. That might be all right, but the druggist today cannot, conveniently, be too ethical or he will be crowded out by his competitor. It is a deplorable state of affairs that the present day druggist has to resort to sundries to make his business pay, but the people ask for them, demand them and the requests today are almost unlimited. The other day a lady asked me if we sold fruit. I told her no—then she said, "Oh! well, I guess I will take some cakes." I told her we didn't sell cakes. She said, "Oh! do you only keep candy?" This is a true incident and only shows the trend of the druggists' business. And why shouldn't the druggist handle anything and everything that is profitable as long as his trade demands it? As conditions now are, almost all of the druggist's prescription business is cut off by the dispensing doctor, and the bulk of his drug trade by the department stores (the ten-cent stores have taken away our last staple seller, Peroxide of Hydrogen, 1 lb. at 8c), he is forced to look around for added means of a livelihood. I think it is just as well to sell a woman a box of paper at 25c and make a few cents profit as to greet her with a smiling countenance when she asks you for five two-cent stamps to mail some letters, the material for which she has bought down town.

Window dressing is an art, and unless the window dresser has some artistic temperament the best way for him to dress a window is to leave it alone. The best system for finding out which one of the clerks is the best window dresser is to try-out first one and then another. After they all have had their turn, pick the one you think is the best, and let it be known that from that time on it will be his duty to dress the windows. Of course, you do the choosing as to what you want displayed. It is then left to the individual to develop within himself the latent temperament. So many boys, or I should say young men, have asked me, "How do you do it?" not in the sense of praise, but for the sake of information, pure and simple. They ask me if I think a course of instruction in some correspondence school would make them efficient as window-dresser or whether it would be a good thing, and so on. As you know, various schools realizing the value of window dressing as a field for ac-

tivity, have included a course of instruction in window dressing, but believe me, no window-dresser can be made, and these courses are worthless unless the artistic capacity is inherent in the individual. The window-dresser can be improved, or perfected, possibly, by such a course, but that is all, and at that, a chance. A good window-dresser will profit more by experience and practice than by any other means. We say, to use a popular expression, that "So and So" has a "knack" of dressing windows and that really is the truth, the knack of doing it.

The good window-dresser profits by observation, and suggestion as well. In going around he sees other windows and at once ideas are suggested. If he is a true artist he will not copy, but change according to his own notions, and the new creation is then stamped with his own individuality. It has been said and truly that the window is the eye of the drug store, and like the 'eye is the window of the soul' in the human being, so the soul or interior of the drug store today shines through the window, and it is a safe bet that the well dressed and up-to-date window will show a modern store on the inside, and a poorly dressed or neglected window will show a neglected or behind-the-times store on the interior. Remember, that the man today who is prosperous shows a clean front, and by keeping a clean front, a well-dressed front, he is advertising his business methods, besides reaping the profits thereby. In going through any business section, you don't have to be told which store is clean on the inside, and which store keeps a complete stock. You'll look at the windows and decide for yourself. And that is what others do about your store.

In dealing with windows, there are two kinds to take into consideration, namely, the open or unprotected window and the enclosed or protected one. To dwell on the open window is a waste of time unless by so doing we can convert the owner of such windows, and convince him of the folly of attempting to make displays in the open window as offset by the thousand-fold possibilities of the closed window. The man who is interested enough in his windows to dress them will not tolerate for any length of time the open window, or will not remain long in ignorance of the fact that he is wasting his time, if not money, in bothering with them as it is impracticable to display perishable goods, which are generally

the ones necessary to display. He will also find that he is losing money as he cannot display profitable goods as the material at hand is generally in the form of folding cartons from patent-medicine houses, or cigarette displays from the various tobacco houses. The open window is unprofitable from the standpoint of soiled packages that after being displayed must be destroyed or sold at a sacrifice to get rid of them. Take for instance writing-paper, face powder or even rubber goods and display them in an open window. The material or products themselves are not harmed, but the containers are, and no one can tell me that a box of writing paper or face powder will sell very readily or satisfactorily that is marked by the peculiar tendencies of an open window display. In summer the flies and dust are the main items to take into consideration, and I wonder how many new comers will have their palates tickled by the display of bulk candy in an open window, where the flies and bugs are having a royal contest for supremacy, coupled with the dust that is blown in the open door at the passing of a street-car or the blowing up of the wind.

Of course, the closed window might have its objections, but they will be outnumbered by the open window. It has been said that the closed window causes sweating, and that the moisture condensing runs down and ruins some part of the display. This might be true, but if the proper precautions were taken, there would be no sweating, and consequently, condensation. The problem resolves itself into a pure one of physics. We know that moisture will collect on the outside of a pitcher of ice-water—why? Because of the difference of the temperature inside and outside the pitcher. The remedy for sweating windows is to equalize the temperature. Have the temperature inside the window the same as the temperature outside, and there will be no deposit. This can be accomplished by having the lower portion or floor of the window bored with holes connecting with the transom of the cellar. This will supply you outside air. Also at the top bore holes or make a ventilator opening, connecting with the outside air. This will produce a current of air and the cold will come in and rise, driving the warm air out at the top. And I would like to know what prevents the open window from sweating? We had open windows and they sweated; our doors sweat

today. The temperature surrounding an open window cannot be regulated as you have no confined atmosphere. In seeking to remedy the sweating open window you will have to equalize the temperature of the whole store, which virtually means throwing out your furnace or stove in the winter.

The problem of sweating-enclosed-windows, even if for the sake of argument it were impossible to do away with, is better than the open window which, we also will grant for the sake of argument, does not sweat, as you have a longer period, say nine months, in which to display perishable goods as contrasted to three months of the sweating period. The problem of generated heat in the closed window in summer, as some will say, is without foundation, as a closed window with proper ventilation is bound to have the same tendency in summer, in which instance one can place a fan under the window and then the circulation of air is assured.

I am going to spend a few moments on figures that should interest the open-window proprietor. Our windows are approximately 7 x 6 feet in height and width and about 3 feet deep. Being tired of the open window, I took it upon myself to enclose them and proceeded as follows: Having brought the floor of the window up to the pane margin I took two uprights and one cross-piece of 2 x 2" lumber and placed them at the back of the window to the required depth. I drew in the uprights six inches on either side and reduced in length the cross-piece, 12 inches, thus making the back edge or frame of the window one foot narrower than the front, or five feet, and the height of the back six inches shorter than the height of the front, forming a drop of six inches, making them six and a half feet in height. Then I put on the top, using one-inch yellow pine flooring. Then I put in the sides, allowing for windows almost the entire length and width of the side, say 5 x 2½ feet. Then I used two uprights of 2 x 1" and placed them equi-distant from the sides at the back, marking the width of the door. Then by using two cross-pieces three feet long of 2 x 1", I made or finished the casing for the door by placing them equi-distant from the top and bottom. Then the remaining upright and cross sections were again divided, forming panels, which were glazed, thus giving a full clear view into the inside of the store. Then by

using some quarter-inch quarter-round molding and putting in the glass, I had a window that was neat looking and absolutely dust-proof. The door I had made at the mill to make sure of being accurate, and used the hinge method to fasten it. This work was done at an approximate cost of \$12.90 for two windows, a price that I believe is pretty reasonable, not counting the labor. I also bored holes in the floor as mentioned above, for ventilation.

The interior I finished in white, using four coats of white lead and two coats of zinc white and two coats of zinc white and damar varnish mixed. The exterior was finished to conform with the finish of the store, which was cherry. White, I believe, is the most desirable color, as it reflects the light, thus serving a double purpose. The usual objection raised that white gets dirty is a good reason for using it, as it serves as a good reminder that it is time either to wash the wood-work, or time to change a display, and thus acts as an incentive to one who is apt to become careless or negligent. This verging in of the sides and top makes a very effective window, as the whole window, top, sides and bottom, can be seen at the same angle and gives the appearance of a beveled picture frame with the display as the picture. The top and sides in a window like this make an admirable space for show-cards. But no matter how a window is enclosed, it can be made a selling factor and works toward the increase of trade.

The method, or series of display, adapts itself according to the seasons, and by that I mean that a druggist will or should make the proper displays in their proper seasons. We would not expect to see a display of fire-works in the month of December.

We know that in spring comes the blood purifiers, tonics, etc., and the method of displaying rests mainly with the individual. The display that usually marks spring is that of cream of tartar and sulphur lozenges, or syrup of sarsaparilla with iodide of potassium. Combined with the display might be shown crude sarsaparilla, various other herbs used in the formula, also the various chemicals used. This form of display will hold the pedestrian longer than any other method, besides convincing him, or at least making him think that the man behind that window really knows something about what he is trying to sell. The result of such a window

is bound to produce new customers and an increase of sales.

The next regular spring display will fall about Easter; that is, an Easter window is next in order. An Easter display will hold good for at least three weeks. Not the same display, but the same material differently arranged each week, for three consecutive weeks. And spring displays, such as soaps, perfumes, cigars, candy, will always be appropriate trade getters.

Summer, commencing in June, also brings its various suggestions for displays, particularly talcum powder, and in this season real effective displays are produced by the use of vines, flowers, and Japanese lanterns, which are reasonably priced and readily obtainable. Writing paper forms a good item in this season when the prospective purchaser is thinking of taking his or her annual vacation, and of course will need some material for correspondence. Cameras also have their play in this season, and various other sundries, such as baseball goods, swimming caps, and in some localities, fishing tackle and paraphernalia. In July, fire-works, which, however, I do not think, if averaged, will prove profitable, everything considered, such as loss of insurance, or left-over stock.

Fall brings its house-cleaning and displays of sponges, chamois, paint cleaners, wall-paper cleaners, etc., have full play in this season. Real effective sponge displays can be arranged, and I will mention one. Place in the center of the window on the floor an electric fan, facing the top of the window. Fasten red and yellow crepe streamers to the wire guard. Then arrange a red bulb, with extension socket connection, at the center of the fan guard. Now pile the sponges around the fan until completely covered, forming a mound in the center, and also be sure to cover the floor of the window completely. If handy, place here and there some shells that you may possibly have on hand, and then hang chamois skins all round the interior of the window. This will make a pretty display and produces a unique effect. At night the fan and the light are turned on and the effect will bring people from across the street or some people in the cars will remark about the window. Of course, the usual "sign card" should be displayed, announcing that "Fall house-cleaning is at hand, and that Mr. Jones keeps a full line of necessities, selling at prices not the cheapest, but

prices consistent with the quality, which anyone knows varies greatly in sponges. In this season Thanksgiving Day affords an excellent opening for an effective window.

Winter now comes, and the windows in this season are either too small in size or too few in number to display the innumerable holiday suggestions that may be carried the year round, but which at this time have to be featured. Christmas, with its multitude of "Practical Suggestions," affords the window-dresser the same opportunity as the bargain hunter on a rainy day. Christmas displays should commence the first of the month and, of course, last until the first of January. In this season the best idea is obtained of the trade-pulling qualities and increased sale facilities of well-dressed windows. Most druggists say that the Christmas season makes little difference to them, but they are the men who don't go after the business, and nine chances out of ten are druggists who don't attempt to dress their windows. The bulk of Christmas trade is brought in through the use of the windows, and to the druggist who has an increase of from \$800 to \$1000 in this month, this means a good deal. This is the time when closed windows mean money with a capital "M."

During January, you have your cough and cold mixtures to exploit; your backache plasters, hand lotions, face creams and what not. In February comes "Valentine Day," and here is made possible a profit of from 100 percent to 200 percent on an investment of two weeks' time. Pretty good! And if a druggist sells \$100 worth he knows he has sure made \$50. Here you see is your closed window again. How long would "Cupid," as pictured on the valentine, be able to hold his dart in the face of the furnace smoke and the floor sweeper's dust? He would bow his head with dust in shame at the end of a week, or else change color with the mortification of the indignities thrust upon his poor naked body.

The means or method of displaying varies according to the material at hand. In some cases the "unit" system is best; in other cases the "group" system, where various items are grouped, making the display more effective. Then again, the "topsy-turvy" method is good, as in the case of a cigar display. You want to impress the smoker that you have something good at the right price. You can talk yourself blue in the face and still lose

him. But you put this same cigar in the window, even if it is only one full box shown open, and throw promiscuously around on the floor of the window empty boxes or cans and write a card that "Here is the sale of the empty cans, 5000 sold in one week. There's a reason." You will have him in your store in less time than it takes him to read the sign to try one, for seeing is believing, and you have convinced him, if he is not too skeptical, that they are selling by showing the empty cans. And you make the sale, possibly, without uttering one word. This method is especially good on a transfer corner.

The best idea in dressing windows is to feature one article. For example, take talcum powder. In dispensing talcum powder I feature talcum and talcum only. Get the idea fixed and hammer it in to the individual that you are selling talcum and, if a special talcum, feature the best points over other makes, but most of all, feature talcum. Some stores fill their windows week in and week out with a conglomeration of articles, including everything from A to Z, and impressing, to my mind, the observer, as being a curiosity shop. This forms what is known to window dressers as a junk shop display and will only serve as a detriment to the store employing it. It is wrong, and there should be no excuse for it.

A good idea of the group display is shown in a window dressed with shaving supplies. Here you have shaving mugs, lather brushes, soaps, shaving sticks, powders, creams, strops and everything relative to shaving. But the main idea to the observer is that you have "shaving supplies" and that is the feature you are trying to impress upon him. As an added feature to a window of this character, you can cover the floor of the window with shavings obtained from some packing case. Put up your sign "Shaving Materials" and your window will move the goods. I know it because I have tried it.

Ethical displays, pure and simple, are unprofitable from a pecuniary standpoint, but may add to the local prestige of the proprietor. However, in the present day of commercialized pharmacy I believe that an ethical display by itself is impossible, if one wants to be very technical in discrimination. Ethical features, however, sometimes added to windows are good added attractions, such as a filtration process, or a percolating stand,

or even a distillation process. Then various items from the laboratory, if placed in a window, showing the working process of a preparation from its inception on through until it is finished, is good.

I cannot understand how any well-meaning druggist will fill up a window with such items as suspensories, trusses, syringes, abdominal supporters, and other various appliances that are known only to the needy and not needed by others. There isn't anyone who can convince me that a man will buy a suspensory or that a woman will buy a syringe or supporter because he or she sees them in the window. It is wrong and obnoxious to even the fairest minded critic. This idea, however, is not new with me, but the sentiment that I here voice is being taken care of by the legislature, showing that my view is not altogether prejudiced. Have you ever noticed a display of this kind? Did you ever stop to look in? No, and how many others do? The moment the individual catches what the window is showing, he or she hurries on, afraid that someone has seen him or her look at the window. And how does the young man feel who is walking with his lady friend and on looking up his gaze is confronted by a glaring display of suspensories, etc., or how does she feel, vice versa? They are the kind of displays that should be censured and stopped. The only ones who gather around a window of this kind are small girls and boys, kids, we'll say, and they stand there and giggle. What does it mean?

Most stores make the mistake of adopting a set form and never deviating from it. That is a bad idea. The idea to produce a display that is different is the one to be sought after; one that is not necessarily startling in being foreign to the drug trade, but one that is different from the standpoint of style and manner. Originality is the word that defines good windows, and does more good towards effective window displaying than anything else.

I can sell a hundred pounds of mint stick in a week at 5 cents a stick simply by throwing in almost the entire stock and making a dummy stick of immense proportions by pasting cartons end to end, covering with white crepe paper and using red crepe to mark the stripes. Hang this diagonally in the window—put up your sign "Big Stick, 5c," and that's all you need. Not only are

your sales increased in that week at your candy counter, but you will have produced permanent customers for that item, and possibly created new customers for your general trade.

In the matter of changing displays, I would advise that the displays be kept not longer than one week, or in some exceptions, ten days or two weeks. Sometimes I have had people who have seen me in the act of breaking up an exceptionally attractive window, produced by using vines or lanterns, exclaim, "Oh, what are you doing that for; such a pretty display." The answer is in the question. This individual, and why not the other people, who are accustomed to passing your windows, saw this display and remarked on its attractiveness. They saw the display day after day, say for two weeks. Well, then, that display has done its work, and it is time for something new, different, and maybe, better than the one before it, and then those same people will look in the window and your window commences again to do its duty.

In the matter of price marks, I will say, that sometimes they are imperative, and at other times they are inadvisable. For instance, in special sales, clearance sales or cut prices. You have a sale for the sole purpose of featuring prices; that is, the prices or cut-prices are the main reasons for that sale, and they are the items that are going to make the sale successful, and so, of course, in instances of this kind, feature prices, and feature them strongly. Sometimes prices alone will appeal to the individual and they think if the article is cut they are getting the best of you. Not long ago I filled out an order with soap, wrapped, and in boxes that ordinarily would and does retail at 5c a cake. I placed this soap in the window and put up a card, "Special, 17c a box, only two boxes to a customer." That soap went like hot cakes, and after the sale I put it in the case at the regular price, 5c a cake. No harm done, and a nice little stock moved off my hands. Also in displaying a new line of goods, or a new toilet article, anything that is new on the market or new to the consumer, use price marks. But take in the case of, say a display of hair brushes. You display an assortment of brushes valued at 25c to \$5. You put the price on every brush, but the first price that catches the eye is \$5. The individual who sees it will throw

up his hands and exclaim, "\$5 for a hair brush, my goodness, but they're high." And he will pass on and you will have lost a sale, possibly a customer. Of course, a fair-minded person will go a little further and reason the matter, but it is the ordinary individual we have to take account of, and the buying public is most ordinarily skeptical, and it's pretty hard to argue through a window glass. Grant that the brush is worth \$5, say a solid ebony back with genuine hog bristles, one and one-half to two inches long. Anyone that knows the value will concede the price. But take the same display, do not use price marks but make up a show card something like this, "Our line of hair brushes is complete, prices consistent with the quality, from 25c up." With a window like this you will get the prospective purchaser in the store anyhow—and then the sale is half made. If they want a 25c brush, you are in a position to give it to them, but you at the same time have the opportunity of talking up the better wearing qualities and satisfaction in owning a better priced brush; in fact, to employ your salesmanship. You, at least, send away a satisfied customer with possibly a dollar sale made, instead of a person who, stopping at the price-marked window, will move on grumbling at the high cost of living.

Again, take a window around the holiday season. You can put all the energy you possess, pile all the goods you have into the windows, arrange them tastily and do everything in fact to make what is known as a good display, and leave off price marks and you will lose many a chance purchaser whom otherwise you would have captured. Take yourself, for instance. If you should see an item in a window, say a bottle of perfume; you knew you could use it, knew you had a place to put it where it would do most good; still you wouldn't, nine chances out of ten, go in and inquire the price, for fear it would not be satisfactory, and would leave you embarrassed. But let there be a price on this same package, say \$1, you wouldn't hesitate long in reaching down in your jeans, if you wanted it, and marching right in with the intention of making that package your personal property.

There is one main item I want to bring out in window-dressing, and that is action. Action in a window is the greatest asset imaginable towards sale-producing qualities.

A window with action is the greatest attention arrestor of any. A man demonstrating a safety razor, a woman demonstrating a face cream, in fact, any live working model is conducive to good results. But action does not necessarily have to be human. Live rabbits around Easter time are good, an aquarium with gold fish, live guinea-pigs, or mechanical devices that show what they are supposed to represent. You have seen them all; so have I, and you know how they worked towards drawing crowds to the windows. If you are walking down the street and see a crowd in front of a window, you hasten your steps, and then, when you reach the window, you pass on, do you not? Yes, you do not. You crane and crowd and crane your neck to see what's doing. It is that quality given to us all, curiosity, that makes you want to find out what is going on. And I needn't say that in such a window there is something moving. For the last four or five years, with the exception of the last two, and then because I couldn't get any, I have put live young rabbits in the window, made small houses, and the attraction was phenomenal. At the top I advertised Egg Dyes. You might say that the window as a profit-making factor was worthless. It might have been but for the fact that each year I sold young rabbits from 75 to 100, all I could get, at a profit of from 200 to 300 percent.

In employing color schemes by the aid of crepe paper I would say, do not overlook any holidays or special occasion, such as the Horse Show, or Veiled Prophets, etc. For the Fourth of July, of course, red, white and blue; for the Veiled Prophets, use purple and gold; for the Horse Show, use green and white, and so on. No matter how far removed you are from the scene of activities, the color scheme shows your patrons that you are up-to-date, a fact that might have some bearing when they are in need of something that must be particularly fresh or up to the standard. Remember, the druggist who is up-to-date will, is bound to, get the business, and if you are in business you might as well get all there is in it. As a general idea use bright colors in spring and summer and dark colors in fall and winter.

Druggists, dress your windows. An hour spent in making up a display is worth sometimes a whole day spent in figuring and planning how you will be able to move an item that is going exceptionally slow, and then

contemplating a cut in price. A window sends the message, the purchaser interprets it, and the druggist delivers it. That's the system. "System" is the word in the world of business-getters today, and the druggist who is content to sit idly by with his hands folded, complacently waiting for the people to come in to deposit their money with him, is wrong. He is the druggist who will barely exist, or else fail altogether. Such a druggist is wasting his time, and the sooner he finds it out and improves himself, or steps down and out and gives the other fellow a chance, the better off he will be, as interest on money sometimes fails, and at that is a poor excuse for neglect of business.

Before closing there is one item I have overlooked, that comes to my mind, which, however, seems hardly necessary to mention, and that is light. Light in a window is, of course, the main attraction. Use light and lots of it. As moths are attracted by the flame, so are the people attracted by light. Light effects in windows are attractive and easily produced. In a window with lights running around the edge, very pretty light effects are produced by tying squares of colored crepe, alternating the colors, such as purple and gold, or green and red in the Xmas season. This scheme has a very good

effect and will serve to catch the eye whether the individual has time to spare or is hurrying to catch a train. Well lighted windows mean well-lit stores, and well-lit stores mean prosperous stores, and prosperous stores mean new business, satisfied customers and prosperity. Do you see it? It's easy to understand.

The druggist who dresses his windows today is the one who has judgment, good judgment, and uses it; has common sense and employs it, and last but not least, has good business ability and ideas and profits by them. Be up-to-date. The druggist today who is up-to-date, or at least who is thought to be, gets the money, and that, I believe, is one of the main reasons, if not the main one, why he is in business.

I hope this paper has been of benefit to a few or has instilled new thoughts or ideas into the indifferent, but whether you are good, bad or indifferent, you had better get in the band-wagon today and "dress your windows." There is so much to be said and done and so much that can be done that is inexpressible that I will have to leave off and beg to be excused from the floor, hoping that the many points that I have omitted will be brought out in the discussion.

CREDITS AND COLLECTIONS.

This is a good time of year to think about credits. In fact, any time of year is just splendid to think about credits, for like the poor they are always with us. You fellows with definitely formulated retailing policies have already done it, but you might be surprised to learn how many of the brethren just plod along and try to think of the right thing to do when the question comes up. They are easy-going souls who like their neighbors and don't want to have trouble. I used to number among my acquaintances a brindle pup of just that easy-going disposition. He slipped along without ever asserting himself, wagged his tail when kicked at, and seemed to try to apologize when he got stepped on. He was a nice dog in some ways and a good friend; but I always felt I should respect him more and take greater account of him in my calculations if he'd get his bristles up a little. The fellow who tries to get along with the least trouble and yields his business or his moral principles rather than risk giving offense is inviting trouble to hit him right in the eye. It's a pretty good thing to think carefully about what ought to be done in a given case before the case arises. Then when it does come a fellow has something to fall back on.—*Western Druggist.*

Of General Interest

PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

CHEMICAL AND PHARMACAL EXHIBITS.

The exhibits from the chemical and pharmaceutical industries of the world will be shown in the splendid Palace of Liberal Arts at the Panama-Pacific International Exposition in 1915, and their extent promises to be as inclusive as their variety will be instructive and interesting.

The diversity of these displays is seen in the fact that soaps and perfumes are scheduled under group 36 of the exposition's book of classification and so are apparatus and processes for the compression and liquefaction of gas. Pyrotechnics, bombs and signals, together with matches, will find a logical place in chemical relationship with the by-products for pharmaceutical use obtained from treatment of petroleum and coal-tar derivatives. The evolution of the den of an ancient alchemist will be seen in model laboratories of the present with complete equipment installed.

The extent of the industrial interests that are embraced in this department is disclosed in the statistical eloquence of the United States Census Bureau which shows that there are 5,168 establishments in the United States devoted to the production of articles involved in the chemical and pharmaceutical arts, with an invested capital of \$419,930,000, employing 109,309 persons earning \$73,491,000 and producing \$455,095,000 annually.

In connection with this exhibit it is expected that there will be carried on a most interesting series of public demonstrations—exhibitions for instance, of the research work carried out by the use of liquid hydrogen and illustrating the properties of matter at the temperatures approaching "absolute zero," should be of engrossing interest.

There is, according to scientists, a point at which heat is extinguished—where "the molecule ceases to vibrate." This theoretical point is called "absolute zero." It has been

scientifically stated to be at 460.6 degrees, Fahrenheit below zero. The lowest temperature recorded by Arctic explorers is 72 degrees below zero, though balloon-carried thermometers have registered as low as 100 degrees below zero by thermometers carried to a height of nine miles at which altitude the 100 degrees below zero weather prevailed.

Another series of experiments that is calculated to prove as interesting in a popular way as important scientifically will be the demonstrations devoted to the exposition of liquid air. These experiments, as prosecuted under the genius of Professor Dewar, have been reduced to the terms of popular understanding without rendering negative their scientific value.

The principle upon which Professor Dewar constructed his apparatus for liquid air production is elemental. Vapors and gases in a state of expansion absorb heat and reduce temperature. His successful experiments grew out of the extremes to which he carried this principle and the marvelous precision of the apparatus employed. The low temperature required for solidifying hydrogen was attained in three progressive stages. The liquefier was divided into three concentric and corresponding parts. The low temperature of the first stage became the high temperature of the second and the low temperature of the second became the high temperature of the third. Step by step the theoretical, critical temperature has been approached and gas after gas solidified, the element helium alone resisting all efforts to reduce it to a solid state.

The Federal government's interest in these experimental processes is sufficiently indicated by the fact that the United States has installed a complete "low temperature" plant in Washington and is proceeding with more important experiments. Germany is another nation deeply interested, and the more recent achievements in that country in the field of synthetic carbon chemistry being

largely responsible for the reputation popularly ascribed to Germany of being in the lead of all nations in individual chemistry—a belief intimately associated with Germany's recent brilliant achievements in her color industries.

It is probable that these experiments in what until recently was the world's greatest mystery—next to life itself—the mystery of heat, will be carried on at the forthcoming exposition under the light of the latest research and knowledge.

Theodore Hardee, chief of the department of Liberal Arts, says that there has been a more than gratifying response made to his invitations to participate, and that all nations will send their representatives and products to this most interesting department of human enterprise. From attar of roses brought from Bulgaria—the world's almost single source—in the Balkan mountains, to perfumes from Brazil, herbs from China and medicine chests from France, the American exhibitor is promised much friendly but vigorous competition to the importance of which he is, says Mr. Hardee, fully alive, his concern arising no less from impulses of patriotism than from motives of business and the opening of new trade routes and commercial centers due to the completion of the Panama Canal and the consequent opening up of the Orient and the rich nations on the western coast of South America.

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ANNUAL MEETING OF THE AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY.

The annual stockholders' and directors' meeting of the American Druggists' Fire Insurance Company was held on Tuesday and Wednesday, February 10-11.

The company is now saving its policyholders 25 per cent of their premium cost along absolutely safe and conservative lines, and if its growth in business continues, this saving can be extended to 30 per cent at a comparatively early time, and still greater opportunities along that line are sure to be realized with an increased volume of business. Every retail druggist in the country who places his insurance with the A. D. F. I. Co., thus adds to its ability to ultimately make greater savings in premium cost. The advantages for the retail drug trade of the country which

will accrue from the undivided support of the A. D. F. I. Co. are far reaching and the best which may be hoped for from every source considering as the first essential absolutely safe and reliable insurance.

The Board of Directors found the present office quarters of the company to be wholly inadequate for its needs in taking care of the growing business. It authorized the Executive Board to find either a suitable site for erecting an office building or an existing building which with alterations would be suitable for an office building, in such case providing therein for sufficient office space for the company's use and otherwise adapted for rental purposes as an investment, providing, however, that only the surplus of the company above capital and reserves should be available for such purpose. It is the aim of the Executive Board to carry this project out by finding a location where the company will not only have immediate and profitable return from such investment, but where the company will also derive benefit from the enhancement of ground value.

During the year the company wrote insurance amounting to \$12,569,310, at a premium of \$127,960.36. As compared with other companies this represents a premium value on business written of \$164,472.88. Of its business written during the year the company reinsured \$1,141,450, at a premium of \$13,158.06. On December 31 the company had 6,916 policyholders.

The direct net savings as made by the company for its policyholders during the year representing money actually retained by the policyholders, amounted to \$41,118.22. In addition the company made a net profit from its insurance business of \$20,323.96, and a net profit from the investment of its capital and surplus of \$11,846.36. Since the company has been in business it has saved its policyholders in their premium-cost the magnificent sum of \$158,033.36.

Assets and Liabilities, December 31, 1913.

Assets.	
Government, county and municipal bonds.....	\$323,417 27
Cash in bank and in office.....	9,914 72
Accrued interest on bonds and deposits	4,896 46
Office furniture, after deducting depreciation of 10 percent.....	659 45
Agents' balances in course of collection	15,368 31
Making a total of.....	\$354,256 21

Liabilities.

Agents' commissions, net.....	\$1,665 52
Salaries	833 48
State taxes on premiums, estimated income tax and personal property tax.....	2,334 22
Fire losses in course of adjustment	3,498 73
<hr/>	
Making total liabilities, not including re-insurance reserve, of.....	\$ 8,331 95

The above statement of assets and liabilities shows a gross surplus, including capital, of \$345,924.26. Under the insurance laws furniture and fixtures are not admitted as assets, and the reinsurance reserve on the business of the company, which amounts to \$57,697.83, must be shown as a liability, and after deducting these items from the gross surplus the absolute net surplus of the company, including capital, amounted to \$287,566.98.

During the year the company had fire losses amounting to \$37,170.22. Since it commenced business the total fire losses paid by the company amounted to \$143,579.91.

The entire directorate, consisting of Chas. H. Avery, L. G. Heinritz, James H. Beal, W. S. Elkin, Jr., Wm. C. Anderson, G. O. Young, A. O. Zwick, Lewis C. Hopp, Simon N. Jones, John D. Muir, Walter Rothwell, Geo. B. Kauffman, M. S. Kahn, E. B. Heimstreet and Frank H. Freericks, were re-elected.

In the election of Directors, Mr. Samuel C. Davis of Nashville had considerable support in securing the vote of nearly three thousand shares of stock.

The Board of Directors elected the following officers: Chas. H. Avery, President; L. G. Heinritz, Vice-President; Frank H. Freericks, Secretary and General Counsel; Geo. B. Kauffman, Treasurer; the Executive Board, Chas. H. Avery, L. G. Heinritz, Walter Rothwell, A. O. Zwick, J. H. Beal, Geo. B. Kauffman, and Frank H. Freericks.

On Tuesday, February 10, there was served to the stockholders of the company present at the meeting, a stockholders' luncheon at the New Gibson Hotel, and on that occasion all had an opportunity to profit from interesting talks by Dr. Wm. C. Anderson, who discussed the late Convention of the A. D. S., from Dr. James H. Beal, with reference to the progress of the Tampa Cuba Cigar Company, and from E. B. Heimstreet, regarding the National Druggists' Home at Palmyra.

On Tuesday evening the Directors of the company were entertained by the local stockholders who gave a theater party in their honor, the evening being closed with an after theater supper at the Bismarck.



WOMEN'S PHARMACEUTICAL ASSOCIATION.

The regular monthly meeting of the Women's Pharmaceutical Association of the Pacific Coast was held January 24, 1914, in the Assembly Hall, Pacific Building, San Francisco.

The Chairman of the Committee on Papers had prepared an elaborate program for the evening and many new points on the preparation of tincture of cudbear, prescription compounding and a serviceable label varnish were discussed. An interesting paper on Radium was presented by Dr. Barbat-Winslow, Miss Low read a paper on Emetine Hydrochloride, and Mrs. Kane presented a paper on Lloyd's Reagent. Mrs. White showed samples of Alcresta Tasteless Strychnine Tablets, Morphine and Berberine.

The following officers will serve the Association for the ensuing year: Mrs. R. R. White, President; Miss Clarissa Roehr, First Vice-President; Miss Ethel Nelson, Second Vice-President; Dr. J. E. B. Winslow, Secretary; Mrs. A. D. Kane, Treasurer.

The next meeting of the Association will be held in San Francisco, February 27, 1914.



MEMBERS OF THE A. PH. A. IN U. S. HOSPITAL CORPS.*

Arias, Ernest, Field Hospital No. 4, Ft. McKinley, P. I.

Barclay, James M., Camp Downes, Manila, P. I.

Barker, Quentin J., Walter Reed, G. H., Tacoma Park, D. C.

Baum, Fred C., Military Hospital, San Juan, Porto Rico.

Beal, Walter Andrew, Jolo, P. I.

Begley, Henry L., Philippine Division, U. S. A., Manila, P. I.

Behre, John R., Sergt. H. C., U. S. A., Div. Hospital, Manila, P. I.

Benche, Carl S., Hospital Corps, U. S. A., Fort San Pedro, Iloilo, P. I.

*The Editor will be glad to receive notice of any omissions or corrections necessary.

- Berkowitz, Alexander, Sergt. 1st Cl., U. S. A., Post Hospital, Presidio, San Francisco, California.
- Bjork, Neils J., U. S. A., Fort Mackenzie, Sheridan, Wyoming.
- Both, Harold, Sergt. Hosp. Corps, U. S. A., Ft. Mills, P. I.
- Brower, Thomas E., Sergt. 1st Cl., H. C., U. S. A., Ft. Greble, R. I.
- Brown, Arthur E., Sergt. 1st Cl., H. C., U. S. A., care Chief Surgeon, Augur Barracks, Jolo, P. I.
- Brown, Clark L., Letterman G. H., U. S. A., San Francisco, Cal.
- Byers, Jason D., Sergt. 1st Cl., H. C., U. S. A., Medical Sup. Dept., Manila, P. I.
- Carter, Harlen Wilson Searight, Oak Hill Drug Store, Cor. Roosevelt and Arrow Avenues, Indianapolis, Ind.
- Clark, Amos W., H. C., U. S. A., care Postmaster, Manila, P. I.
- Cook, Harry, M. H., Pettit Barracks, Zamboanga, Mindanao, P. I.
- Cook, Samuel, Camp McGrath, Batangas, P. I.
- Cushman, Gabriel, Sergt. 1st Cl., H. C., Manila, P. I.
- Davenport, Jesse St. John, care Chief Surgeon Philippine Dept., Manila, P. I.
- Dailey, Joseph, P. H., Ft. McIntosh, Laredo, Texas.
- Davis, Harry A., 721 13th St., Washington, D. C.
- Delgado, Joseph V., Pri. 1st Cl., 12th Inf., Colon, Panama, C. A.
- Dickson, Robert A., Sergt. 1st Cl., H. C., Ft. William McKinley, P. I.
- Dietz, Henry Warren, Sergt. Hosp. Corps, U. S. A., Augur Barracks, Jolo, P. I.
- Eble, Charles F., care Chief Surgeon, Philippine Div., Camp Kiethley, Mindanao, P. I.
- Eisenman, Francis J., Sergt. 1st Cl., H. C., U. S. A., Ft. McKinley, P. I.
- Elcook, William W., Camp Cregg, Bayambang, P. I.
- Ellingsen, Emil S., Sergt. 1st Cl., H. C., U. S. A., Post Hospital, Ft. Myer, Va.
- Esterly, Milton T., Sergt. 1st Cl., H. C., U. S. A., Ft. Winfield Scott, San Francisco, Cal.
- Fancher, William Q., Sergt. H. C., U. S. A., Ft. Frank, Corregidor, P. I., Post Office Box 155.
- Fender, Walter E., Sergt. H. C., U. S. A., Post Hospital, Ft. Porter, Buffalo, N. Y.
- Folk, Levi E., Sergt., Columbus Barracks, Columbus, O.
- Fonteneyne, Gustave J., Sergt. H. C., U. S. A., Fort Logan, Colorado.
- Frankau, Gust., Sergt. H. C., U. S. A., Gen. Delivery, Manila, P. I.
- Frese, Otto F., Camp Kiethley, Mindanao, P. I.
- Gallagher, Charles, Sergt. 1st Cl., H. C., U. S. A., Med. Supply Depot, Manila, P. I.
- Gavagan, Edward D., Sergt. 1st Cl., H. C., U. S. A., Med. Supply Depot, Manila, P. I.
- George, William R., Ambulance Co. No. 1, Ft. D. A. Russell, Cheyenne, Wyo.
- Gerlach, John L., Sergt. 1st Cl., H. C., U. S. A., Ft. Terry, N. Y.
- Goodman, David, Sergt. H. C., U. S. A., Ft. Mills, Corregidor, P. I.
- Goosey, Gilbert H., Sergt. H. C., U. S. A., Camp John Hay, Benguet, P. I.
- Greene, Earl F., Sergt. 1st Cl., H. C., U. S. A., Ft. William McKinley, P. I.
- Greeno, Edgar O., Fort Casey, Washington.
- Grose, James W., Sergt. 1st Cl., H. C., U. S. A., Augur Barracks, Jolo, P. I.
- Hahn, Gustave, H. C., U. S. A., Camp Stotsenburg, Pampanga Prov., P. I.
- Hamner, James F., Recruit Depot, Ft. McDowell, Cal.
- Hansen, Matthew K., Sergt. 1st Cl., H. C., U. S. A., Recruit Depot, Columbus Barracks, Columbus, Ohio.
- Hardenbrook, Burton, Sergt. 1st Cl., H. C., U. S. A., Texas City, Texas.
- Hare, Ralph E., Hosp Corps, Ft. Mills, Corregidor, P. I.
- Harp, Lewis D., Sergt. 1st Cl., H. C., U. S. A., Columbus Barracks, Columbus, Ohio.
- Harris, Samuel J., Sergt. H. C., U. S. A., F. H. & A. C., No. 2, Presidio, San Francisco, Cal.
- Hermann, Christopher, Sergt. H. C., U. S. A., Ft. Shafter, H. I.
- Hicks, George W., Sergt. H. C., U. S. A., Camp McGrath, Prov. Batangas, P. I.
- Hitch, Edgar T., care Chief Surg., Office Philippine Div., Manila, P. I.
- Holt, Frank, Sergt. 1st Cl., H. C., U. S. A., Post Hosp., Torrey Barracks, P. I.
- Ilitz, Michael, H. C., U. S. A., Ft. Mills, Corregidor, P. I.
- Jeen, Elmer, Sergt. H. C., U. S. A., Fort Mills, Corregidor, P. I.
- Jennings, Harry M., Post Hosp., Ft. D. A. Russell, Cheyenne, Wyoming.
- Howson, William Scott, Sergt. 1st Cl., H. C., U. S. A., Camp E. S. Otis, Las Cascadas, Canal Zone, Panama.

- Johnson, Robert V., Sergt. 1st Cl., H. C., U. S. A., Columbus Barracks, Columbus, O.
- Kennedy, Robert G., Military Hosp., Pettit Barracks, Zamboanga, Mindanao, P. I.
- Knapp, Gustave, Fort Dupont, Delaware.
- Kroger, Harry A., Camp Downes, Manila, P. I.
- LaGrindeur, Romanus A., (home address) Emmitsburg, Md.
- Kishon, Adolph M., Sergt. H. C., U. S. A., Post Hosp., Ft. D. A. Russell, Wyoming.
- Leonard, John F., Sergt. H. C., U. S. A., Regan Barracks, Legaspi, P. I.
- Lieber, Jewel C., 1301 Euclid Ave., Massillon, Ohio.
- Lienhart, Adolph H., Ambulance Co. No. 4, Ft. William McKinley, Rizal, P. I.
- Luhman, Fred, residence unknown. (Formerly Camp McGrath, Batangas, P. I.)
- Lyda, William K., Sergt. H. C., U. S. A., Fort Lawton, Seattle, Wash.
- Marcus, Samuel E., Sergt. 1st Cl., U. S. A., Fort Mills, Corregidor, P. I.
- Mathews, Elmo D., Fort Greble, R. I.
- McClure, Fred H., Sergt. H. C., U. S. A., Columbus Barracks, Columbus, O.
- McEnroe, Robert L., Sergt. H. C., U. S. A., Davao, Mindanao, P. I.
- McFarland, William, Fort Mills, P. I.
- McMahon, Stonewall Jackson, 837 E. South St., Batesville, Ark.
- Merryman, James R., Sergt. H. C., U. S. A., Phil. Div., U. S. A., Manila, P. I.
- Montgomery, Moses, Sergt. H. C., U. S. A., Manila, P. I.
- Murphy, William J., 175 Callo Conseption, Manila, P. I.
- Neil, Matthew, 2900 Harper St., Berkeley, Cal.
- Nelson, Rasmus Peter, Fort Mills, Corregidor, P. I.
- Neville, Arthur, Sergt. 1st Cl., Military Hospital, Pettit Barracks, Zamboanga, Mindanao, P. I.
- Newman, Emanuel, P. I., Division, Manila, P. I.
- Noaks, Richard S., Fort Donelson National Cemetery, Dover, Tenn.
- Oehsen, Herman von, 721 13th St., N. W., Washington, D. C.
- Owen, Fred S., Fort Niagara, Youngstown, N. Y.
- Parker, Hiram C., Ft. Mills, Corregidor, P. I.
- Paul, George H., Augur Baracks, Jolo, P. I.
- Person, Thomas, Post Hospital, Ft. Hunt, Va.
- Phares, Walter L., care Chief Surgeon Phil. Div., Manila, P. I.
- Phillips, Ira B., Medical Supply Depot, Manila, P. I.
- Pollard, Louis J., Jolo, P. I.
- Pye, Harry E., Sergt. H. C., U. S. A., Fort Mills, P. I.
- Rasmussen, Nels., Ambulance Co. No. 4, Fort McKinley, P. I.
- Reiter, Harry L., Sergt. 1st Cl., H. C., U. S. A., Camp Ward Cheney, Cavite, P. I.
- Reynolds, George, Sergt. 1st Cl., H. C., U. S. A., Presidio, San Francisco, California.
- Riesenberg, Max, Camp Connell, Samar, P. I.
- Riess, Herman W., Sergt. 1st Cl., H. C., U. S. A., Office Div. Surgeon, 2d Division, Texas City, Texas.
- Riley, John T., Sergt. 1st Cl., H. C., U. S. A., 1024 8th St., Washington, D. C.
- Robertson, David, Sergt. H. C., U. S. A., Hd. E. Div., Governor's Island, N. Y.
- Robinson, Daniel W., Sergt. 1st Cl., H. C., U. S. A., Fort Mills, Corregidor, P. I.
- Rose, Martin, Post Hospital, Fort Barry, Cal.
- Rousseau, Joe C., Sergt. H. C., U. S. A., Aviation Squadron, Signal Corps, San Diego, Cal.
- Schmitman, Henry, Regt. Hospital, 4th Field Artillery, Texas City, Texas.
- Shull, George J., 1st Cl., H. C., U. S. A., Fort Thomas, Ky.
- Schultheis, Raymond, Curatel de Espana, Manila, P. I.
- Schulz, Emiel, Sergt. 1st Cl., H. C., U. S. A., Ft. Flagler, Washington.
- Seith, Louis F., Fort Warren, Mass.
- Senecal, Henry C., Sergt. 1st Cl., H. C., U. S. A., care Chief Surgeon, Manila, P. I.
- Sharman, Herbert, Sergt. 1st Cl., H. C., U. S. A., Fort Sill, Oklahoma.
- Shiffer, Walter E., Sergt. H. C., U. S. A., Camp McGrath, Batangas, P. I.
- Siedler, August, Sergt. 1st Cl., H. C., U. S. A., Fort William McKinley, P. I.
- Simmel, Martin, Sergt. 1st Cl., H. C., U. S. A., care Depot Q. M. Corps, 26th St. and Gray's Ferry Road, Philadelphia, Pa.
- Simmons, Fred S., Fort Washington, Md.
- Sires, Edward B., Camp Gregg, Bayambang, Pang., P. I.
- Smelsey, Samuel S., Sergt. 1st Cl., H. C., U. S. A., Augur Barracks, Jolo, P. I.

Spry, Ezekiel, care Chief Surgeon, Philippine Dept., Manila, P. I.

Stahl, Joseph, Sergt. 1st Cl., H. C., U. S. A., Fort Mills, Corregidor, P. I.

Stevenson, Ephraim P., Sergt. 1st Cl., H. C., U. S. A., Fort D. A. Russell, Wyoming.

Tanney, Lewis, Sergt. 1st Cl., H. C., U. S. A., Fort William McKinley, Rizal, P. I.

Thomas, William H., Sergt. H. C., U. S. A., Regan Barracks, Albay, P. I.

Thuney, Francis E., Walter Reed G. H., Tacoma Park, D. C.

Vane, Patrick P., 309 B St., S. E. Washington, D. C.

Vennemann, P. Heinrich, Sergt. 1st Cl., H. C., U. S. A., 200 W. Indiana Ave., St. Paul, Minn.

Waitz, August Henry, Sergt. H. C., U. S. A., Transport "Wright," Zamboanga, Mindanao, P. I.

Weir, Samuel A., Sergt. H. C., U. S. A., Post Hospital, Fort Myer, Va.

White, Forrest E., Sergt. 1st Cl., H. C., U. S. A., Ft. Porter, Buffalo, N. Y.

Wickett, Francis W., Sergt. H. C., U. S. A., Post Hospital, Jefferson Barracks, Mo.

Williams, Fred R., residence unknown.

Winkler, Hugo, Sergt. 1st Cl., H. C., Post Hospital, Fort Slocum, N. Y.

Young, Charles C., C. S. O., Philippine Div., Manila, P. I.

Young, George C., Post Hospital, Jefferson Barracks, Mo.

Zamora, Manuel, 917 Sebastian St., Manila, P. I.

Zerbin, August, 21 M St., N. E., Washington, D. C.

operation of some medical interests and suggests a discussion on the ideal Pharmacopœia and Formulary from the physician's standpoint. One proposal has been that we present a symposium on the Pharmacopœias and Formularies of the world. This subject should undoubtedly be made a feature of the work of the Section, but it may be that with the large interest in the new editions of the U. S. P. and the N. F., our Section will be overcrowded this year with work connected with the new books.

It will be remembered that at Nashville, the retiring Chairman suggested that the Secretary compile as complete a list as possible of all pharmacopœias and formularies of the world. Mr. Raubenheimer at that meeting presented an interesting paper on formularies and showed a number of those which are used in this country and abroad. This list was afterwards carefully compiled with Mr. Raubenheimer's aid and will be published in the JOURNAL. A list of modern pharmacopœias will be found in the Digest of Comments of the U. S. P. and N. F. published by the Marine Hospital Service so that the Secretary can no doubt at the next meeting present lists which will cover the modern books in these two classes, thereby carrying out the recommendation of former Chairman Havenhill. When the Association secures its permanent buildings, a feature should undoubtedly be complete files of all modern pharmacopœias and formularies, and this list will be of assistance to the general Secretary when the time comes for purchasing such books.

It has been suggested that we discuss the scope of the two standard books, the U. S. Pharmacopœia and National Formulary. Upon mature thought, I doubt that the time has arrived when this can be discussed to any advantage. On the eve of publication of the new editions, we are not ready to plan too much detail for the next editions. Your Chairman would suggest that we bend our efforts more extensively to the *new books* for the coming year. A presentation of specimens showing all new formulas would be of interest. Papers outlining the changes in the new books in the various departments of the work would attract attention and be of value to the pharmacists and physicians of the country. The chemical side could be reviewed; that of doses and strengths, the

The Bulletin Board

To the Members of the Section on Pharmacopœias and Formularies:

The time has come when this Section should complete its plans for the meeting to be held at Detroit in August, 1914. Letter paper and envelopes have been sent to each member of the Section and the several members have acknowledged their receipt and expressed a willingness to co-operate in the plans.

Dr. Fantus promises to secure the co-

changes in pharmaceutical manipulation, etc., etc.

The time for each session is limited and we cannot read many papers at the meeting. We might solicit papers for criticism, although perhaps the time has not arrived for this. If we can make the meetings of the Section instructive and educational, this year's interests will be well served.

Comments are invited on these suggestions and all other recommendations will be submitted to the committee so that we can formulate plans of action.

Respectfully,

E. FULLERTON COOK, Chairman.



AN APPEAL TO THE WOMEN MEMBERS OF THE A. PH. A.

The Women's Section is desirous of getting in touch with the needs of women pharmacists and urges each member to submit either through the JOURNAL or to the Secretary of the Section any conditions surrounding their work which the Association might help to correct.

Women members are also asked to co-op-

erate in the work of the Women's Section by assisting the various committees and offering suggestions regarding present or new lines of work.

The Press Committee will advertise the A. Ph. A. to those whose interest should be secured. The Outlook Committee will seek new lines of endeavor for the Section and investigate all suggestions offered concerning conditions to be corrected. The duties of the Membership Committee are obvious.

While these committee appointments are limited by the Constitution and By-Laws to a few, that by no means limits the number expected to help on these committees. Rather the committee appointments are to be considered as perfunctory, as a bit of red tape necessary in any organization, but the real committees are limited only by the membership of the Section or Association.

The Committees of the Section will be found in the roster published in the January JOURNAL, and the officers of the Section will be glad to hear from all members at an early date, so that the Section may do its share to make the Detroit Convention a success.

ANNA G. BAGLEY, Secretary.

PHTHISIOPHOBIA..

Baldwin says that we are reasonably sure of the following: 1. Most adults have received some tuberculous infection. 2. From this they have acquired a variable degree of specific allergy. 3. During ordinary health the tissues repel tubercle bacilli, partly, at least, with the aid of this specific allergy. 4. Reinfection of adults is mostly a superinfection coming from the existing lesions, and due to disease, trauma, overstrain or any cause of "lowered vitality," whatever that may mean. 5. "Finally, as a corollary, adults are very little endangered by close contact with open tuberculosis, and not at all in ordinary association. Childhood is the time of infection, youth the time of superinfection, and that from extension of the primary disease. Qualify these statements as we may, it is time for a reaction against the extreme ideas of infection now prevailing. There has been too much read into popular literature by health boards and lectures that has no sound basis in facts, and it needs to be dropped out or revised. More protection of children and better hygiene for adults are logically demanded, but beyond this the preachments about the danger of infection to adults in the present state of society are without justification from an experimental standpoint." The statements which we have quoted represent not one man's views, but what seems to be the growing conviction of many of the most progressive and thoughtful students of tuberculosis at the present time.—*Journal Am. Med. Assoc.*

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Postoffice the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.



REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

- 100 copies, 4 pages, no cover, \$2.50, with cover, \$4.50.
- 200 copies, 4 pages, no cover, \$3.00, with cover, \$5.50.
- 50 copies, 8 pages, no cover, \$2.75, with cover, \$4.50.
- 100 copies, 8 pages, no cover, \$3.50, with cover, \$5.00.
- 200 copies, 8 pages, no cover, \$4.50, with cover, \$6.50.
- 50 copies, 12 or 16 pages, no cover, \$4.00, with cover, \$5.50.
- 100 copies, 12 or 16 pages, no cover, \$5.00, with cover, \$6.50.
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Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co., Columbus, Ohio.

MR. ERNEST C. MARSHALL UNITES WITH THE JOURNAL.

It affords the Editor the greatest of pleasure to be able to announce that Mr. Ernest C. Marshall, Ph. G., hitherto of Boston, Mass., but now of Columbus, Ohio, has united his fortunes with those of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, and with this issue assumes his duties as Advertising Manager and Associate Editor.

Mr. Marshall is a native of Boston, Mass., where he has passed his whole life. At the age of fourteen he entered the drug business under the tutelage of Benjamin F. Stacey, who for many years was an active and honored member of the A. Ph. A. He is a graduate of the Massachusetts College of Pharmacy, has held the offices of Trustee and Vice-President of that institution, and delivered the Commencement oration in 1885. He has also been President of the Alumni Association of the College. He first joined the American Pharmaceutical Association in 1875, but relinquished his membership therein during his temporary disassociation with the profession while engaged in the public service and with outside interests, but again connected himself with the Association on resuming connection with the profession. He was a member of the Boston City Council for two years, a member of its School Board for three years and has been Institutions Commissioner and Penal Institutions Commissioner of the County of Suffolk, of which the city of Boston is almost the whole. He has been prominent in Association work, having been President of the Massachusetts State Pharmaceutical Association, of which he is a life member, of the Boston Druggists' Association, the Suffolk Drug Co., and the Suffolk Drug Club. He is a Past Master in Masonry and is a Knight Templar. He has had experience in newspaper work and in advertising for more than ten years. He has been the New England representative of the Journal of the N. A. R. D. for the past three years and has written "The New England Letter" for the JOURNAL OF THE A. PH. A. He is a member of the Pilgrim Publicity Club, the leading organization of advertising men in New England.

Concerning Mr. Marshall's propaganda work in Boston, the Secretary of the Boston Retail Druggists' Association, Mr. C. H.

Davis writes the Journal of the N. A. R. D. as follows:

The loss of Mr. Marshall will be long felt by our association, yet we cannot help but congratulate Mr. Marshall on the position that he has accepted, and also the *Journal of the American Pharmaceutical Association* for obtaining so able an assistant. As superintendent of the propaganda department of our association, he has won for the betterment of pharmacy the good will and support of many, many physicians, reducing greatly the percentage of proprietaries prescribed, and paving the way for his successor. It was not an easy task to win the confidence of physicians for himself and those whom he was to benefit; to throw down pharmaceuticals and place in their stead those preparations that the physician, seemingly, had about forgotten ever existed. To be sure no little credit belongs to the pharmacist in our own ranks, who made and put up for him the samples for distribution. Yet who but Mr. Marshall could have won the day for us and given us the start?

Mr. Marshall's training and experience render him a valuable acquisition to the JOURNAL, and the Editor bespeaks for him the cordial and enthusiastic support of every member of the A. Ph. A. family.



THE HOSPITAL CORPS OF THE UNITED STATES ARMY.

An Urgent Appeal to Every Pharmacist in the United States.

The American Pharmaceutical Association, backed by the pharmacists of the whole United States, have a bill now before the House introduced by Representative Hughes of Georgia as Bill H. R. No. 1, and now before the Senate, introduced by Senator Bacon of Georgia as Senate Bill S. 929. These bills are identical and their text is as follows:

A BILL

To promote the efficiency of the Hospital Corps of the United States Army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Hospital Corps of the United States Army shall constitute the enlisted personnel of the Hospital Corps now authorized by law, and shall consist of thirty sergeants major at \$75 per month; three hundred sergeants, first class, at \$65 per month; sergeants at \$36 per month; corporals at \$24 per month; cooks at \$30 per month; privates, first class, at \$21 per month; and privates at \$16 per month, with such increase for length of service and other allowances as are or may hereafter be established by law.

As Chairman of the Committee on the Status of Pharmacists in the United States

Government Service of the National Association of Drug Clerks and also as a member of the American Pharmaceutical Association, we wish to urge every pharmacist who reads this article to sit down immediately and write a brief letter and then make copies of it and send a copy to each of the members of the Committee on Military Affairs of the House and Senate and urge that "you will please see that the bill H. R. No. 1 and S. 929 which have been fully endorsed by the surgeon-general of the U. S. army (as you will see in his last report) is offered as an amendment and placed as a "rider" on the army appropriation bill now before Congress."

The members of the hospital corps of the U. S. army are now so poorly paid that many are leaving the service, as the positions in the regular army service pay better salaries, even the men who take care of the sick mules are better paid than those who take care of the sick soldiers. Any one who is in a position to know will readily assure you of the difficulty of getting men in the hospital corps, and after getting them the difficulty of keeping them there on account of the miserably poor pay.

Pharmacists are men of influence in every section, their stores are all in the towns and cities and each one is a nucleus around which clusters the leading sentiments and views of the community. The pharmacists not only of your state, but of the whole United States, are deeply interested in the matter. Every state government requires the pharmacist who practices pharmacy among the people to be examined and licensed by a state board and to be an excellent type of man. With the present miserable salaries given the Army Hospital Corps, as just stated above, it is very difficult to get good men and still more difficult to keep them under present conditions. The Hospital Corps of your state troops are, of course, also in this same bad shape. Your help in this matter will be very much appreciated, as we feel that present conditions are unjust to those in the military service, to the public, to the medical officers of the army and to the profession of pharmacy, which all true pharmacists wish to see secure the recognition which it deserves.

GEORGE F. PAYNE.

(For further information concerning the Hughes-Bacon bill see JOURNAL for June, 1913, p. 669, and January, 1914, p. 13.—Editor.)

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



NASHVILLE BRANCH.

(January Social Meeting.)

One of the most enjoyable social meetings ever given by the Nashville Branch of the A. Ph. A. was the entertainment given Thursday night, January 22, in the parlors of the Y. M. C. A., which was attended by about sixty people besides the Tennessee Board of Pharmacy. Wm. R. White acted as master of ceremonies and in his introductory remarks compared the A. Ph. A. to a diamond with its many brilliant sides. The scientific, commercial, historical, practical and educational sides were all important he said, but the social side should not be neglected, and it was the object of these meetings to develop more sociability and good fellowship among the druggists and their families.

Dr. E. A. Ruddiman made a splendid address, recounting some of the pleasant happenings of the Nashville convention and telling something of the beauties and attractions of Detroit, the next convention city. He said the subject of shorter hours was one that he thought should be discussed. He felt sure the wives and families of the druggists would be as much interested as the druggists themselves.

Mr. F. W. Ward, of Memphis, President of the Tennessee Board of Pharmacy, delivered an eloquent oration which was filled with humor and pathos. He told of the splendid things accomplished by the Memphis Drug Club which sprung into existence as the result of the last State Association meeting.

He highly commended the idea of the Branch in giving these social meetings.

Mr. J. E. Justice, of Clarksville, the newly appointed member of the Board of Pharmacy, told some excellent anecdotes and expressed his gratification at being present.

The following musical and elocutionary program was then rendered: Vocal solo, Mrs. Baxter Moore; recitation, Miss Lucy Davis; vocal solo, Miss Mary Louise Sharp; recitation, Miss Dorothy Clark; piano selection, Mrs. Wm. R. White; recitation, Mr. H. P. Clark; instrumental selection, Miss Bessie Johnson.

W. R. WHITE, Sec'y.



NASHVILLE BRANCH.

(February Meeting.)

The regular meeting of the Nashville Branch of the A. Ph. A. was held at Furman Hall, February 12, with President J. O. Burge presiding.

The Entertainment Committee made a splendid report of the social meeting held at the Y. M. C. A., January 22, which was attended by over sixty people, including the members of the State Board of Pharmacy.

The committee appointed to present the claims and advantages of Nashville as a location for the A. Ph. A. Home made the following report, which will be sent to the Council for consideration:

WHEREAS, At the last annual meeting of the A. Ph. A., held in this city, the proposition to provide a permanent home for the Association was referred to the Council for further consideration; and,

WHEREAS, Efforts are now being made by other cities to secure the location of this permanent home,

Therefore, We, the members of the Nashville Branch, respectfully submit for the consideration of the Council the following reasons why the Home should be located in Nashville, Tenn.:

(1) Because Nashville offers a free site for the Home.

(2) It is about the center of population of the U. S. and within 24 hours' travel for the great majority of the pharmacists of the United States.

(3) The Climate is unexcelled for the proposed Botanical Gardens.

(4) It has the second largest facilities in the United States for printing.

(5) It is the greatest Educational center in the Central-Southern States and one of the greatest in the entire United States.

(6) It has progressive Pharmaceutical Schools for both races.

(7) It has a live growing Local A. Ph. A. Branch.

(8) It affords ample Hotel facilities for any future A. Ph. A. Conventions.

(9) It has low freight rates, proximity to needed supplies considered.

(10) Incorporated Bodies for Educational purposes on a non-profit basis, are not liable for taxation.

(11) It has been proven to have the cheapest cost of living of any city in the U. S.

Respectfully submitted,

W. R. WHITE,

S. C. DAVIS,

IRA B. CLARK,

Committee.

The subject of shorter hours was discussed at length and a state-wide movement is contemplated to interest the Pharmacists of the State in this subject.

The May meeting will be devoted entirely to this subject. W. R. WHITE, Secretary.



NEW YORK BRANCH.

(January Meeting.)

The January meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of the twelfth. The meeting opened with President C. O. Bigelow in the chair. As Secretary Hugh Craig was absent, Frank L. McCartney was requested to act in his stead.

The minutes of the previous meeting were read and approved. The Treasurer's report was also read and approved.

Chairman Louis Berger, of the Membership Committee, announced a new member for the parent association and made reference to several prospective members.

Professor W. C. Anderson, Chairman of the Committee on Legislation, reported that there was little activity in legislative matters due to adjournment of Congress for the holiday season. He stated that such legislation as had been proposed effecting the pharmacist was receiving the necessary attention.

Due to the illness of Prof. G. C. Diekman, there was no report made by the Committee on the Progress of Pharmacy.

Dr. Diner, as Chairman of the Special Committee on the Madison Square Garden Drug and Chemical Exposition, stated it was the opinion of the committee that the New York Branch should not participate in the exposition, and by a majority vote it was decided that the New York Branch of the

American Pharmaceutical Association would not be officially represented. It was then pointed out that literature sent out by the promoters of the exposition indicated that the New York Branch would participate, and this resulted in a resolution being passed to the effect that such publicity was unauthorized, and the Secretary was instructed to so advise the promoters of the exposition in writing and demand that they recall and destroy such advertising matter and literature in which the name of the branch had been used, and at the same time the Secretary was instructed to communicate this information to the daily press.

Dr. Joseph Mayer, acting for the Nominating Committee, submitted the following names to be balloted on for election as officers for 1914:

For President—Dr. H. V. Arny.

For Vice-President—John Roemer.

For Secretary—F. L. McCartney.

For Treasurer—Dr. Joseph Weinstein.

For Committee Chairmen:

Education and Legislation—Dr. W. C. Anderson.

Progress of Pharmacy—Dr. G. C. Diekman.

Membership—J. H. Rehfuess.

Fraternal Relations—Louis Berger.

The committee's nominees were unanimously elected. The newly elected President was escorted to the chair, and after acknowledging the honor bestowed upon him he called for the speaker of the evening, Mrs. St. Claire M. Ransford-Gay, who read a paper on "The Pharmacopœia: Its Limitations."

Mrs. Gay expressed the opinion that the U. S. Pharmacopœia was behind the times and she attributed the decline in the professional side of the pharmacy to this fact. A great many of the drugs, chemicals and preparations of the Pharmacopœia were practically obsolete, stated the speaker, and indicated that the modern physician wanted elegant preparations which would appeal to the eye and taste, and manufacturing pharmacists recognized this fact. Mrs. Gay stated that a great deal of good would result to pharmacy if a central U. S. P. research laboratory were established. In pointing out what she considers pharmacopœial defects, Mrs. Gay asks why some elixirs were in the Pharmacopœia while others were to be found in the National Formulary; why the obsolete synthetic remedies are found in the Phar-

macopœia while those now most used are not given recognition. In conclusion, she stated that it was high time that the Pharmacopœia became modernized so that it would be used to educate physicians on new remedies.

A discussion followed, in which Messrs. Diner, Raubenheimer, Army, Mayer and Roemer took part.

Dr. Diner agreed with Mrs. Gay in that the Pharmacopœia was many years behind the times. He stated that many pharmacists regarded the U. S. P. as a sacred book, and added that if age is any criterion, then some of the formulas contained therein are indeed quite sacred. He indicated that the pharmaceutical press could do a lot towards keeping pharmacists abreast with new developments, but at the same time thought that their editorial pages were too often compelled to sing the tune of the advertising manager.

Otto Raubenheimer stated that he could not agree with the speaker in that the U. S. P. was behind the times, and asserted "we have the best Pharmacopœia in the world today, and I am proud of it. The next one will be better yet." He pointed out that many of the newer coal tar products were not official for the reason that process patents on them had not expired. He admitted that some reformation was needed in the U. S. P. and N. F.

Dr. Joseph Mayer suggested that the Revision Committee issue lists of items to be included in the U. S. P. more frequently in order that they might be published in the pharmaceutical journals. He indicated that quite recently a large batch of U. S. P. inclusions were issued at one time, and it was his opinion that this was done with the view to avoid publicity.

Dr. H. V. Army pointed out many of the obstacles with which the Revision Committee had to contend.

He was followed by John Roemer, who asserted that it was a vote and not a science which determined the inclusion of articles in the U. S. P. The Revision Committee rests on antiquated prejudices of 100 years ago in revising the U. S. P. He was of the impression that if the U. S. P. and N. F. were to act as a link between the physician and the pharmacist that these books must include some information useful to the physician. He indicated that the pharmacist also needed standards. He felt that the Pharmacopœia

should include single drugs and chemicals and the National Formulary should embody all preparations involving a pharmaceutical process.

The Branch placed itself on record as favoring this by adopting the following resolutions:

"That the U. S. Pharmacopœia include only single Drugs and Chemicals, with standards for such, and that the National Formulary embody all preparations involving a pharmaceutical process or processes."

Mrs. Gay was formally thanked by the Branch.

Upon Dr. Weinstein's motion, it was decided that the Branch hold a joint meeting with the New York County Medical Society at an early date, and suggested that Louis Berger, Chairman of the Committee on Fraternal Relations, should direct his efforts to bring this meeting about.

Former Secretary Hugh Craig telegraphed from Chicago, "All sorts of good wishes; I am with you in spirit."

FRANK L. MCCARTNEY, Secretary.

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CHICAGO BRANCH.

(January Meeting.)

The annual election of officers, reception of new members and social evening of the Chicago Branch of the American Pharmaceutical Association occurred Tuesday evening, January 20, at the University of Illinois School of Pharmacy building, Chicago.

The newly elected officers are as follows: President, J. H. Wells; First Vice-President, W. B. Day; Second Vice-President, Wm. Gray; Third Vice-President, Maurice Miner; Secretary-Treasurer, E. N. Gathercoal. Committee Chairmen: Practical Pharmacy, I. A. Becker; Medical Relations, Dr. Bernard Fantus; Publicity, L. E. Warren; Legislation, H. C. Christensen.

The Secretary-Treasurer reported receipts during the year of \$80, expenditures of \$67.61, and a cash balance of \$24.90. There were received 20 new members during the year. The total membership is 136, of which 86 are druggists, 17 members of pharmaceutical manufacturing houses, 14 teachers in pharmaceutical schools, four editors of pharmacy journals and the remainder chemists or engaged in allied industries.

An especial event of the evening was the welcome extended to new members. Secretary Thos. Potts introduced Mr. Hugh Craig,

recently installed Editor of the Journal of the National Association of Retail Druggists, and moved his election to membership in the Chicago branch. The motion was carried by acclamation. Professor Day introduced Mr. H. W. Colson, Mr. J. A. Dorjahn, Mrs. Mary Zwick, Mr. George Kraemer and Mr. A. E. Anderson as new members. They were each pleasantly received by the company. Mr. Wm. Gray was congratulated upon his recent election to life membership in the A. Ph. A. Mr. Potts, in introducing Mr. Craig, took occasion to speak of the great need among retail druggists for reliable formulas covering the great number of unofficial preparations and household remedies. He spoke of the proposed A. Ph. A. Book of Recipes and said that the A. Ph. A. was derelict in not having published such a work ten years ago. He mentioned the attempt now being made by the N. A. R. D. to remedy this pressing need of the druggist by furnishing to the retail drug trade not only practicable reliable formulas for a number of household articles, but also in supplying suitable labels in small quantities at a very low price to retail druggists for these preparations.

Mr. Craig expressed his pleasure in uniting with the Chicago Branch and assured us that he expected soon to be as much at home here as he had been for seven years in the New York Branch. During the seven years in New York he had not missed a Branch meeting and this, his first meeting with the Chicago Branch in January, followed within a month of the last branch meeting in New York, his record was still intact. Mr. Craig, referring to his experience as Associate Editor of the Druggists' Circular, spoke of the great number of formulas for every variety of preparation that could possibly be used in the drug business that he had originated, "borrowed" or "stolen." He dwelt upon the fact that unless a formula went into very great detail as to the materials to be used and the method to be followed in making a preparation, or unless the operator had an intuitive or acquired knowledge of methods, the product from the formula was usually a decided failure. In other words, the "personal equation" was the *q. s.* in all formulas, and unless a pharmacist had the "know how" in him the formula could but rarely put it in him.

Professor Day took occasion to review in a

few words some of the accomplishments of the Branch during the last seven years. He brought out the fact that when the Branch was organized in Chicago, the city already possessed one of the strongest and most active local druggists associations in the world, the C. R. D. A.; that the N. A. R. D. maintained its headquarters here, with all of their great activity, that the social side of things pharmaceutical was ably cared for by the Social Drug Club, now known as the Chicago Drug Club, and that our city possessed the most unique of all pharmaceutical organizations, the Chicago Veteran Druggists' Association, which especially attracted the older druggists. The Chicago Branch, therefore, upon its organization, chose as its special line of work the presentation and discussion of (1) legislative matters affecting pharmacists; (2) the revision of our national standards, the U. S. P. and N. F., and (3) original or improved unofficial formulas. Much good work along each of these lines has been accomplished. In addition, the Branch usually devoted one evening each season to a popular lecture and one evening to social events.

Under the able direction of Mrs. M. M. Gray and Miss Rose Schmid, refreshments were served and the meeting adjourned with many expressions of felicitations over "an evening well spent."

E. N. GATHERCOAL, Secretary.



CHICAGO BRANCH.

(February Meeting.)

Professor Joseph P. Remington honored the Chicago Branch of the American Pharmaceutical Association, Monday evening, February 16, with a visit and led the discussion of the evening, "Progress of Pharmacopoeial Revision." The meeting was very well attended. Many pharmacists, chemists, editors, teachers and students from the pharmaceutical schools of Chicago and vicinity, all friends and admirers of Professor Remington, were present.

Professor Remington brought out the fact that the revision of U. S. P. VIII is nearing completion and that U. S. P. IX will undoubtedly be in the hands of the publishers this year, possibly by July 1. He spoke of the large publicity being given to the work of revision and referred to the fact that

according to the wish of the 1910 convention, all changes in and additions to the text of the new pharmacopœia are to be published for comment and criticism before the matter goes to the printer. These changes and additions in the text of the chemicals has already been published (see J. A. Ph. A. for Dec., 1913), the copy of the text for the crude drugs has been sent to journals and will be published during March and April, and the material on the volatile oils and pharmaceuticals will immediately follow. The final date for the reception of criticisms by the Revision Committee will be announced with the last of the copy.

Professor Remington spoke of the inclusion of mercuric chloride tablets in the U. S. P. and the selection of the most desirable form for their administration. The subject is exceedingly important and suggestions are wanted. The definition of a "poison" has been put up to the Committee of Revision, and the professor humorously offered a prize of a five-dollar gold piece for a definition that would be acceptable to the committee. He discussed the admission to the Pharmacopœia of substances known as protected, proprietary or patented, and was inclined to oppose the admittance of such substances.

The address of Professor Remington was received with much applause. Then ensued a very interesting and profitable discussion of the address. Mr. Wilhelm Bodeman, member of the Committee of Revision, extended a welcome to Professor Remington.

Dr. Bernard Fantus, pharmacologist at the U. of I. Medical College, questioned the advisability of any tablet form, particularly a colored tablet, for dispensing bichloride, especially in view of the increasing use of candy medicaments in tablet or lozenge form.

Mr. Fred Meissner, of the U. S. P. Board of Trustees, believed that the present attention given to the dangers of bichloride tablets was largely due to newspaper notoriety and that if newspaper editors could be persuaded to omit the name of the poison in the published accounts of suicides, the danger of suicidal waves from particular poisons would be largely averted. In his extensive experience as a retail pharmacist he had never personally known of an accidental poisoning from bichloride.

Secretary Thos. Potts, of the N. A. R. D., spoke very strongly against the bichloride tablet, stating that the U. S. P. should not

recognize it and that this extreme poison should never be sold except on physicians' prescription, and then only in solution.

Secretary Light, of the C. R. D. A., said that the sale of bichloride tablets could be regulated in Chicago by city ordinance just as has been done in the case of phenol, cocaine, heroin, etc. He stated that recently a newspaper reporter came to him in regard to the sale and use of heroin in Chicago, and had been informed that members of the C. R. D. A. strictly adhered to the municipal code. Later the reporter attempted to buy heroin in twenty-seven drug stores located in different sections of the city, and in every case was refused the drug.

C. P. Van Schaack, of the wholesale trade, was warmly in favor of some regulation over the sale of bichloride.

Editor Hugh Craig, of the Journal of the N. A. R. D., endorsed the idea that corrosive mercuric chloride should be sold only on physicians' prescriptions. He referred to the suicidal cycles, lately phenol, now bichloride, next something else, each fostered by newspaper notoriety. He favored the addition to the U. S. P. of definite and important medicaments, even if patented.

Professor W. B. Day referred to Dr. Cohen's famous definition of a dose, "A dose is enough," and said then that a poison might be defined as "A poison is too much."

Dr. H. M. Gordin, member of the Revision Committee, humorously defined a poison as those substances listed by a suitable committee of learned gentlemen as such. Professor Remington refused him the prize.

Professor A. H. Clark, of the Revision Committee, said that the wide divergence of opinion as brought out in the discussion of the evening on one or two topics only illustrated some of the difficulties Professor Remington, as chairman of the committee, had to overcome in harmonizing on many subjects just as great differences of opinion in the committee. He was sure that U. S. P. IX, however, will rank, as does now U. S. P. VIII, the premier pharmacopœia of the world.

Professor George D. Timmons spoke of the U. S. P. doses, which Professor Remington had criticized as of no legal value, and held that average doses were of much value to teacher and student, pharmacist and even the physician.

Professor C. W. Patterson favored the

radical regulation of the sale of bichloride tablets and expressed, he was sure, the opinion of the entire audience, his pleasure in hearing the very interesting and instructive address and discussion of the evening.

Professor C. M. Snow spoke of the very complicated formula proposed for fluidextract of squill. Professor Remington thanked him for the criticism, and again asked for comments, favorable or unfavorable, on the text as now being published, stating that such comments would invariably receive the attention of the committee.

Secretary Gathercoal, of the Chicago Branch, announced the subject of the March meeting, "The Preparation of Diphtheria Antitoxin." Dr. H. M. Letton will lead with an illustrated lecture on the subject. All present, as well as others interested in this subject in Chicago and vicinity, were invited to attend the March meeting.

He moved a vote of thanks to Professor Remington for his very generous service to the Branch on this occasion. There was a unanimous response in a rising vote.

E. N. GATHERCOAL, Secretary.



NORTHWESTERN BRANCH.

(January Meeting.)

The January meeting of the Northwestern Branch of the American Pharmaceutical Association was held jointly with the Minneapolis Retail Druggists' Association and the Minneapolis Drug Club, in Odd Fellows' Hall, 703 Hennepin avenue, Minneapolis, on Thursday evening, January 22, at 8 p. m.

On account of the inability of President Gamble to arrive until later in the evening, Dr. Justin S. Brewer was asked to take the chair. The program consisted of the following symposium on Fungi:

1. "The Culture of the Edible Mushroom (*Agaricus Campestris*) as a Hobby for the Retail Pharmacist," illustrated with specimens grown by the speaker, Mr. A. J. Kline.
2. "Ergota and the Standardization of Ergot Preparations," demonstrated by the Cock's Comb Test, by Prof. H. C. Rogers.
3. "Fungus Plants and the Pharmacist," by Prof. E. L. Newcomb.

The papers presented were further illustrated with drug specimens, models of fungus plants, charts, lantern slides, etc.

Mr. Kline first gave descriptions of the more common forms of edible mushrooms and then proceeded in detail with the methods of soil preparation, culture and marketing

of the crop. The speaker illustrated his talk with beautiful specimens which he, as a busy retail pharmacist, had found great pleasure in growing. The paper, which appears elsewhere in this issue, was discussed by President Gamble, Dr. Brewer and others. Mr. J. D. Smeltzer called attention to the work of the Minnesota Mycological Society and stated that pharmacists who are interested in fungi would be welcomed at the meetings of that association. Mr. Smeltzer also suggested for those interested in the subject a visit to the Lambert caves in St. Paul and a perusal of the book entitled "Minnesota Mushrooms" by Prof. Frederick E. Clements.

In discussing Ergota, Prof. Rogers first gave a description of the life history of the plant yielding the drug, followed by a consideration of the different commercial varieties and their supposed relative value. Old and new methods for the preservation of the crude drug and its preparations were given and it was stated that experiments covering probably five years should be carried out before positive assertions can be made concerning the keeping qualities of ergot preparations under vacuum conditions. In discussing the constituents, attention was called to the unstable character of amines under certain conditions. The physiologic effect of ergot upon various animals such as pigs, horses, cattle, dogs and man were referred to. The different physiologic assay methods of ergot were explained and the method of applying the cock's-comb test was given in detail after which intra-muscular injections of U. S. P. fluidextracts of ergot were made on two white leghorn roosters. The arbitrary standard dose of 1.5 cc. per Kilo was given. Both samples were freshly prepared preparations, one being made from Spanish Ergot and the other from Russian. The results as indicated by the darkening of the comb, due to the rise in blood pressure, were pointed out by comparison with a third untreated rooster and these results were said to indicate that both preparations were of excellent quality. The preparations made from the Spanish Ergot gave slightly the better test. While waiting for the reactions to take place the speaker called attention to a tabulation which he had prepared of some fifteen tests carried out at the College of Pharmacy, University of Minnesota, showing the relative value of various commercial preparations and the deterioration due to age. The simplicity

of the manufacture of the fluidextract was also demonstrated. The retail pharmacist who uses considerable fluidextract of ergot was encouraged to make and standardize his own preparations from selected drugs and it was shown that by so doing the pharmacist not only can save money, but that he can accomplish something of greater importance by insuring the physician of a uniform active medicament and at the same time demonstrate his ability, all of which will tend to raise the doctor's estimation of the druggist as a professional man.

The symposium was closed by Prof. Newcomb, who spoke briefly on a number of fungus plants of interest to the pharmacist. These were illustrated by views thrown upon the screen by means of the projection lantern. Prof. Newcomb stated that the slides were loaned by the Department of Botany of the University of Minnesota and that many of them represented accurately colored photographs of rare specimens. Among the large number of fungi illustrated the following were dwelt upon at some length: *Peronospora*, *Aspergillus*, *Penicillium*, *Mucor*, *Claviceps*, *Ustilago*, *Agaricus*, *Amanita*, *Polyporus*, *Lycoperdon*, *Morchella*, *Coprinus* etc.

Following the several papers Mr. E. V. Clark gave a short talk on the value of active membership in such organizations as were represented by the joint meeting, laying special emphasis upon the lasting qualities of educational programs such as had just been presented.

After studying the various exhibits the meeting adjourned to meet in February with the Scientific Section of the Minnesota State Pharmaceutical Association.

E. L. NEWCOMB,

Secretary, N. W. Branch, A. Ph. A.



CINCINNATI BRANCH.

(January Meeting.)

The monthly meeting of the Cincinnati Branch A. Ph. A. was held at the Lloyd Library, January 13-14, with Prof. John Uri Lloyd as President of the meeting. The Secretary's report of the previous meeting was accepted and was favorably commented upon by the President. The exhaustive communication drafted by the Legislative Committee voicing the protest of the Branch to the enactment of the so-called Duffy act and

to other proposed laws was forwarded to Governor J. M. Cox, and a most courteous reply has been received by the Secretary. The President then introduced as the subject of discussion for the evening, "Mercury and Its Salts."

Mr. Charles A. Apmeyer, in stating the historical points of the subject, said in part, that the first records as to the use of mercury are found in Theophrastus, about 325 years before Christ. Its preparation is here given as from cinnabar by means of copper and vinegar and it was called Liquid Silver. The metal was known to the Egyptians, to India, and to China. The Arabs also were much interested in Mercury, as is shown by the works of Geber, in which the metal and its compounds, red precipitate and corrosive sublimate, are described. It was used much by the Arabians for skin diseases. Dioscorides describes the production of mercury from cinnabar. Pliny also makes mention of its preparation and described its purification by squeezing it through leather. It was known then that gold and other metals were altered by mercury. This knowledge is shown by processes described for assaying gold and silver. Paracelsus and his disciples had no hesitancy in making use of mercury sublimate and the so-called Turpeth Mineral. In this way a much better knowledge of the various mercurial compounds was gradually obtained until finally investigations and experiments led up to the discovery of calomel and white precipitate, both of which were hailed as great discoveries, were highly prized as medicines and still hold an important position among medicinal chemicals. It was during this period also that it was determined that cinnabar consisted of mercury and sulphur, and that mercury was a true metal.

We do not find mercury mentioned in the Book of Moses, or in the writings of the older Greek authors. Theophrastus (300 B. B.) speaks of liquid silver or quicksilver, and says it is obtained by rubbing cinnabar with vinegar in a copper vessel. Dioscorides, in the first century, mentions this body and states that it was obtained by subliming cinnabar and charcoal in an iron pot upon which a cover was luted. Pliny, who named the material thus obtained Hydrargyrum, in contradistinction to the native mercury to which he gave the name of *Argentum Vivum*, was acquainted with the fact that all solid bodies, with the exception of gold, float upon the

surface of the metal. Isidorus, in the beginning of the seventh century, was acquainted with the metal as is shown by the following extract: "Argentum vivum servitur melius in vitrius vasis nam caeteras materias perficit." Mercury was well known to the older alchemists for they believed it to be one of the component parts of all metals. Native mercury is occasionally met with in globules disseminated through the native sulphide, which is the ordinary ore. This is called cinnabar. It is found in many places in the world. From investigations of Becker and Schrauf the average per cent of metal found in cinnabar was 82.2%. Statistics show that California produced, in 1850, 7,723 lbs., and in 1908, 16,984 lbs. In 1906 the United States produced 26,238 lbs.,—in 1908, 19,752 lbs. In 1907 the average price per flask of 75 lbs. was \$38.43, and in 1908, \$41.72. The world's production of quicksilver in the years 1907-8 was:

	1907	1908
United States.....	734	672 flasks
Austria	610	630
Italy	680	423
Russia	130	49
Spain	1,210	1,065
Mexico	200	200

Mr. Apmeyer was followed by Dr. Dieckmeier, who spoke of the medical sides of the question. He said, "The physiological effects of all mercury salts and compounds are similar and vary only in degree according to the preparations used, with the exception of those salts of mercury in which that metal is combined with a substance having stronger toxic properties than mercury. All soluble mercury salts act on the skin and other surfaces as caustics and the insoluble salts do this as soon as they are converted by the body juices into soluble salts. Salts of mercury are of principal use for their antiseptic action, both internal and external. Mercury is principally a brain poison and in toxic cases few organs show definite pathological changes, the kidneys, bones, skin and mucus membranes being an exception.

Mercury is mostly eliminated by the intestinal tract, about 77% passing off through this channel, but all organs of the body will be found to contain some of the mercury ingested. Mercury injected into blood-vessels or sub-cutaneously is eliminated most quickly by the body, the effect of the poison administered in this way is more transitory. Mercury administered by mouth or inunction is

eliminated from the system, but very slowly, its presence in the system having been ascertained a year after its administration had been discontinued. The use of the bichloride as a surgical antiseptic should be discontinued on account of its caustic properties and because other equally important but less dangerous agents are available for use.

The discovery of the Wasserman test enables us to regulate the use of mercury preparations, so as to correct dosage, and to limit administration."

Dr. A. O. Zwick followed Dr. Dieckmeier, giving a short talk upon the destructive local effects of the bichloride of mercury, after which F. W. Wiessmann gave an interesting address upon "The Construction of Substitution Products," which was received by the members with much and earnest appreciation.

CHARLES A. APMEYER, Secretary.



CINCINNATI BRANCH.

(February Meeting.)

The regular meeting was held at Lloyd Library on February 10. President Lloyd being out of the city the duties of presiding fell upon Vice-President, Prof. Theo. D. Wetterstroem. The minutes of the last meeting were read and approved.

Prof. Theo. D. Wetterstroem read a paper on the subject of "Aspirin and Other Synthetics." He commented upon the products of different manufacturers, Hoffman, Van Heyden and others, calling particular attention to the fact of the trade name being perpetual, and described the physical and chemical properties, melting points, etc., of this synthetic drug. The discussion was participated in by Mr. L. Werner, Mr. C. G. Merrell and others.

Mr. Chas. G. Merrell took for his subject, "Sodium Salicylate." He presented the uses of same and illustrated the distinctive features between the products obtained from natural sources and that by artificial means. Notwithstanding the similarity of crystalline construction, he still prefers the sodium salicylate obtained from natural sources. He very entertainingly described his efforts in trying to secure the true herb in Pennsylvania and North Carolina, and said that most of the oil used was the Oil of Birch, which was indicated by a difference in the amount of Terpenes. Government distinguishing tests are not efficient as yet, but show im-

provement, based upon the presence or absence of Terpenes. Many other interesting points were brought out by this discussion, which were appreciated by the audience.

Miss Bertha Ott read a paper on the subject of "The Hospital Apothecary," describing the grand work accomplished, especially in hospital work in the missionary field.

Mr. Louis Werner took for his subject "Should sodium peroxide be used in the manufacture of H_2O_2 ?" He gave an exhaustive explanation of the various commercial methods of producing solution of peroxide hydrogen, giving the reasons for the production of cheap grades of this preparation, and stated, among other things, that one of the most important methods is that of burning metallic sodium in a stream of pure oxygen, or air free from nitrogen and carbon dioxide. This operation is best carried out in aluminum vessels and the gases must be thoroughly dried.

He described another commercial process conducted by burning slices of sodium resting upon trays of aluminum in a tubular vessel. In this it comes in contact with a current of air, which has been freed from carbon dioxide, and is maintained at a temperature between 300° to 400° . The oxide formed when thrown into water decomposes in part, in consequence of the heat developed, and gives sodium hydrate and oxygen. By careful cooling much of it can be dissolved. As metallic sodium, made by the electrolytic process is rather inexpensive, this forms a very desirable commercial method of manufacture.

Another process depends upon the ignition of sodium hydroxide, sodium oxide or sodium nitrate in an atmosphere of oxygen. This process is varied sometimes by dropping metallic sodium into fused sodium nitrate.

In order to make hydrogen peroxide from sodium peroxide, it is merely necessary to dissolve the sodium peroxide in ice cold water and neutralize with hydrochloric or sulphuric acid.

In making the solution of the peroxide, if the temperature is allowed to rise, the peroxide is decomposed by water, giving oxygen and sodium hydroxide.

In this process the peroxide solution is contaminated with sodium chloride. In order to avoid the presence of sodium salts, which would cause the non-volatile residue to exceed that allowed by the U. S. P., hydroflu-

silic acid is used, which forms an insoluble sodium salt.

Another method is first to treat an ice-cold solution of sodium peroxide with hydrofluoric acid. This solution is then treated with aluminum fluoride, which forms an insoluble double salt with the sodium fluoride.

Another method is to treat the ice-cold solution of sodium peroxide with dilute sulphuric acid, and then subject the mixture to fractional distillation, *in vacuo*. In this way the H_2O_2 is distilled off from the sodium sulphate and can later be diluted to the strength desired.

Mr. Werner's admirable paper was favorably commented upon.

Mr. Otto Katz, to whom had been assigned the subject "Dosage and Effects of Aconitine," said in part that DuRoi first obtained Aconitine in crystalline form in 1871, but Geiger and Hesse had applied the name Aconitine in 1833 to an amorphous base, obtained from the root of *Aconitum Napellus*.

After describing the physical and chemical properties of this most powerful drug, he passed to the dosage, giving the same as from 1/200 to 1/100 of a grain. He cites, however, a case where two grains have been given with no untoward effect, while 1/100 grain has caused death, which shows the uncertainty of dosage and the extreme care which must be employed in dispensing this powerful poison. He also calls attention to the local use of Aconitine, as in the form of oleate aconitine, and warned against the use of same, especially upon abraded surfaces. After moderate toxic doses the prominent symptoms are great disturbance of the respiration, muscular weakness, vascular depression and finally death, with or without convulsions. Given to a rabbit by injection of $\frac{1}{6}$ to a $\frac{1}{4}$ gr. the animal commences to jump vertically in a very peculiar manner. These movements grow less and less powerful and are finally replaced by severe convulsions, during which the animal lies prostrate on its side. In the dog, however, the muscles have remained without a quiver during all stages of the poisoning. The convulsions are an inconstant symptom, dependent upon the peculiarities of the individual or species, as well as the amount injected. Dilatation of the pupil very frequently occurs, if it be not indeed a constant phenomenon.

The symptoms, which are induced by small therapeutic doses of aconitine in man, are re-

duction of the force and frequency of the circulation, a sense of muscular inertia and weakness and a slight tingling in the extremities or in the hips.

If the dose administered be large, all these symptoms are, of course, intensified.

Mr. Katz treated his subject in a very exhaustive manner, and gained the thorough appreciation of his auditors.

A general discussion ensued regarding the various papers submitted during the evening, in which Mr. C. A. Apmeyer, Mr. Chas. G. Merrell, Mr. Louis Werner and others took part. CHAS. A. APMEYER, Secretary.

The Pharmacist and the Law

ABSTRACT OF JUDICIAL DECISIONS.

MISBRANDING—ADMINISTRATIVE REGULATIONS—DRUG DERIVATIVES. Certain packages of Antikamnia Tablets, Antikamnia and Codeine Tablets, and Antikamnia and Quinine Tablets were confiscated and condemned for alleged misbranding under the Federal Food and Drugs Act. The owner petitioned to be made a defendant in the libel, which was done, and the Court of Appeals of the District of Columbia affirmed a decree of the Supreme Court of the District, dismissing the libel. The United States Supreme Court has reversed this decision and remanded the cause with directions to overrule the exceptions to the libel. The labels on the packages bore the statement that the tablets contained no acetanilide, antifebrine, antipyrine, morphine, opium, codeine, heroin, cocaine, alpha or beta eucaine, arsenic, strychnine, chloroform, cannabis indica, or chloral hydrate, and stated the number of grains of acetphenetidin, which, the owners contended, was a sufficient compliance with section 8 of the Federal Food and Drugs Act. The ground of condemnation alleged was that the packages contained a large quantity and proportion of acetphenetidin, which, it was alleged, is a derivative of acetanilide, and that under the provisions of the act and of the regulations made thereunder, it was provided and required that the label on each package should bear a statement that the acetphene-

tidin contained therein is a derivative of acetanilide; which the labels on the packages did not do. It was also alleged that the packages were misbranded in that the labels thereon were false and misleading, for the reason that they bore the statement that no acetanilide is contained therein, and that the statement imports and signifies that there is no quality of any derivative of acetanilide contained in the drug. The owner's exceptions averred that the act does not provide that there should be added to any derivative of any of the substances contained therein the name of the parent substance, and the act cannot be added to or enlarged by requiring the company to add to the name of a known article, the fact that the article is a derivative of any of the substances mentioned in the act. It was also averred that the statement on the labels that no acetanilide was contained in the packages was not false and misleading, but true.

Food Inspection Decision No. 112, issued January 27, 1910, by the Department of Agriculture, quotes section 8 of the act, and states that the Attorney General, in an opinion rendered January 15, 1909, held that a rule or regulation requiring the name of the specified substance to follow that of the derivative would be in harmony with the general purpose of the act, and an appropriate method by which to give effect to its provisions. In conformity to this opinion, Regulation 28 of the Rules and Regulations for the Enforcement of the Food and Drugs Act was amended as follows: "Acetanilide (antifebrine, phenylacetamide). Derivatives—Acetphenetidine * * * (g). In declaring the quantity or proportion of any of the specified substances the names by which they are designated in the act shall be used, and in declaring the quantity or proportion of the derivatives of any of the specified substances, in addition to the trade name of the derivative, the name of the specified substance shall also be stated so as to indicate clearly that the product is a derivative of the particular specified substance."

Section 3 of the Federal Pure Food and Drugs Act gives the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor, power to "make uniform rules and regulations for carrying out the provisions of the act, and the power to collect specimens of food and drugs offered in interstate and foreign com-

merce." It adopts the definitions of the United States Pharmacopœia.

It was held that the power of the Secretaries is one of regulation only—not a power to alter or add to the act. If, therefore, the quantity or proportion of the substances or any derivative or preparation of them must be stated, is it administrative of the law or additive to it to require by regulation that not only the name of the derivative or preparation be stated, but from what substance derived or of which it is a preparation? It was held that the provision was one of regulation or administration only. Furthermore, it was held that the requirement of section 8 of the act means that the label shall also state the substance from which the derivative is produced, in order to make the warning of the labels complete.—*U. S. v. Antikamnia Chemical Co.*, 34 *Supreme Court*, 222.

ANTI-TRUST ACT—INTERSTATE COMMERCE IN MEDICINES.—In an action for a balance due and owing for medicines, extracts, etc., furnished by the plaintiff to the defendant on a written contract, the defense was that the contract was illegal and unenforceable because violative of the anti-trust laws of Texas. By the contract the plaintiff was to sell to the defendant, f. o. b. the cars at Winona, Minn., its medicines at the usual wholesale prices, less certain discounts, to be sold by him at the regular retail prices in a certain part of Texas, except in incorporated municipalities. The defendant agreed to sell no other goods except those purchased from the plaintiff while the contract remained in force, and only to customers at their residences in the prescribed district. It was held that the contract was violative of the Texas Anti-Trust Act of 1911, it clearly showing by its terms an intention to combine the capital, skill, and acts of the parties to fix and maintain a standard of prices upon a certain commodity and to prevent competition in a given territory. The sale was held to be interstate commerce, the sale of goods by a citizen in one state to a citizen in another state, the goods to be shipped from one to the other, being interstate commerce, even when the sale is made by an agent of the seller in the state of the buyer. But the fact that the sale constituted interstate commerce did not prevent the Anti-Trust Act from applying to invalidate the contract and prevent a recovery thereon. The fact that a part of the account was due

and stated at the time the contract was made and that the defendant expressly agreed to pay that sum did not save that part from being illegal and unenforceable; all items of the illegal contract being invalid.—*J. R. Watkins Medical Co. v. Johnson*, *Texas Civil Appeals*, 162 *S. W.*, 394.

ACTION AGAINST BOARD OF PHARMACY—ITS NATURE—PARTIES.—In an action of mandamus against the Kentucky Board of Pharmacy and its members to compel the issuance of a pharmacist's certificate of registration, permitting him to practice his profession in the state, the question was whether the action must be brought in the county in which the president of the board resides; the board having no office or place of business in any county. It was held that such an action is a transitory action governed by Kentucky Civ. Code Prac., §78, requiring actions whose venue is not established by other sections of the article to be brought in the county where the defendant, or any one of several defendants, resides or is summoned, and may be brought in any county where process is executed upon the members of the board or any one or more of them. The board, not being designated a corporation by the act organizing it, is not a "corporation," and, while it is a "quasi corporation," when acting pursuant to contractual powers conferred by the act creating it, is not governed by Civ. Code Prac., §72, requiring an action of contract against a corporation having an office or place of business in a county or an agent residing therein to be brought in such county or in the county in which the contract is made or to be performed, and that an action of tort be brought in such county or the county in which it is committed. The action being to compel the performance of a ministerial duty, the members must be sued by name in order that the court may determine whether they are the proper persons to perform such duty, and in order that it may command them to perform it.—*King v. Kentucky Board of Pharmacy*, *Kentucky Court of Appeals*, 162 *S. W.*, 561.

OCCUPATION TAX ON TRAVELING VENDORS OF PATENT MEDICINES.—In proceedings for unlawfully following the occupation of a traveling retail peddler of patent medicines without being licensed and paying the tax required by law, the chief defense was that druggists selling patent and other medicines

at their regular places of business were not required to pay any tax. It was held that Texas Const., Art. 8, §§ 1, 2, authorizing the imposition of occupation taxes, which must be equal and uniform on the same class, empowers the Legislature to establish such classes, and Rev. Civ. St. 1911, arts. 7355, 7357, imposing an occupation tax on traveling vendors of patent medicines, is not invalid because exempting merchants and druggists selling patent medicines, for the classification is reasonable. Penal Code 1911, arts. 3, 6, provides that no person shall be punished for any act unless the same is made a penal offense and a penalty affixed by written law, and that the articles in the Penal Code and other written law may be looked to. Article 130 of the Code makes one pursuing a taxable occupation, without first obtaining a license, liable to a fine not less than the tax due. It is held that under these articles, read in connection with arts. 7355, 7357 of Rev. Civ. St., imposing an occupation tax of \$100 on traveling vendors of patent medicines, and providing that the commissioners' court may levy for county revenue purposes, one-half of the state occupation tax on all occupations, prescribes a penal offense for pursuing the business of peddling patent medicines without first paying the occupation tax imposed by the statute and by the commissioners' court. The statutory provisions were held not to be void on the ground that the penalty in part may be fixed by the commissioners' court, levying a tax of one-half of that of the state for the county.—*South v. State, Texas Criminal Appeals*, 162 S. W., 510.

AGENTS' AUTHORITY TO PURCHASE DRUGS—EVIDENCE.—Action was brought for the price of 250 dozen of a patent or proprietary medicine, sold and delivered to an agent of a branch house of the defendant company, which was engaged in a mercantile business. The issue was whether the agent had authority to order the drugs and bind the company for the price. It was held that evidence that the purchase involved was such a large one that it was out of the ordinary line of business of an agent of the character of the one acting for the defendant was properly excluded, in the absence of evidence bringing home to the plaintiff knowledge of the custom, especially where the defendant's vice-president had stated that the agent had

authority to make the purchase in question.—*Patton-Worsham Drug Co. v. Goddard Grocery Co. (Mo.)*, 162 S. W., 288.

NORTH DAKOTA "ANTI-SNUFF ACT" HELD CONSTITUTIONAL.—Chapter 271 of North Dakota Laws of 1913 makes it unlawful "for any person, firm or corporation to import, manufacture, distribute, * * * or give away any snuff or substitute therefor, under whatever name called, and as defined in this act." The act defines snuff as "any tobacco that has been fermented, or dried, or flavored, or pulverized, or cut, or scented, or otherwise treated, or any substitute therefor or imitation thereof, intended to be taken by the mouth or nose. Provided, however, that ordinary plug, fine-cut, or long-cut chewing tobacco as now commonly known to the trade of this state, shall not be included in this definition." It is held that the statute is constitutional and cannot be assailed upon the ground that it deprives any person of life, liberty, or property without due process of law, or denies to any person the equal protection of the laws. In commenting upon the necessity for the statute, the court held that it could take judicial notice of the fact that the use of tobacco by the young was injurious, and that the school boy could secretly use tobacco in the form of snuff, when he would be liable to be detected in any other form of use. It could also take judicial notice of the general fear in the community that drugs and opium are, and can be, more easily mingled with snuff and be less readily detected than in other forms of tobacco.—*State v. Olson, North Dakota Supreme Court*, 144 N. W., 661.



ABSTRACT OF TREASURY DECISIONS.

CHEMICALS — MEDICINAL COMPOUNDS — ARTICLES IN PACKAGES OF 2½ POUNDS OR LESS.—All articles provided for in the dutiable schedule of the tariff act of 1913 which in fact consist of chemical or medicinal compounds, or combinations, or articles similar thereto, in packages of 2½ pounds or less, are dutiable at not less than 20 percent ad valorem under paragraph 17. This provision is a new one, and, in the opinion of the department, not only all the articles in Schedule A except soap and sponges, but all

articles elsewhere provided for in the act which in fact consist of chemical or medicinal compounds or combinations or articles similar thereto, are also subject to such minimum rate of duty when put up in such packages.—(T. D. 34035.)

DRAWBACKS ON MEDICINAL PREPARATIONS.—Drawbacks have been allowed on the following medicinal preparations:

Tobias Liniment, manufactured by O. H. Jadwin & Sons (Inc.), New York, N. Y., with the use of domestic tax-paid alcohol.—(T. D. 34068).

Medicinal and toilet preparations and flavoring extracts manufactured by Dr. Ward's Medical Co., of Winona, Minn., with the use of domestic tax-paid alcohol.—(T. D. 34071).

Flavoring extracts manufactured by Richard Frank & Co., of New York, N. Y., with the use of domestic tax-paid alcohol.—(T. D. 34082).

Flavoring extracts manufactured by the Liquid Carbonic Co., of Chicago, Ill., with the use of domestic tax-paid alcohol and imported ethers, essential oils, roots, herbs, vegetable coloring matter, and acids.—(T. D. 34109).

T. D. 34071 (abstracted above) is extended to cover flavoring extracts manufactured by Jacob House & Sons, of Buffalo, N. Y., with the use of domestic tax-paid alcohol.—(T. D. 34149).

ALCOHOLIC PERFUMERY.—The merchandise known as "Lanza" perfume was assessed with duty at the rate of 60 cents per pound and 50 percent ad valorem as an alcoholic perfume under paragraph 67 of the tariff act of August 5, 1909. It was held by the Board of General Appraisers to be properly dutiable, as claimed by the importers in their protest, at the rate of 30 percent ad valorem as ethyl chloride under paragraph 21 of the said act. In view of the importance of the issue, the Treasury Department has directed appeal to be taken from this decision.—(T. D. 34058).

IMPORTATION OF VIRUSES, SERUMS, ETC.—LIST OF LICENSED MANUFACTURING ESTABLISHMENTS.—A list of the establishments, fifty in number, holding, on January 1, 1914, licenses under the act of 1902 for the regula-

tion of the sale of viruses, serums, toxins, and analogous products in the District of Columbia, is issued by the Treasury Department, with the names of the several products for which licenses have been given.—(T. D. 34060).

DRUMS — RE-IMPORTATION — GLYCERIN — CHEMICAL.—Free importation is authorized upon re-importation of drums used for the shipment of glycerin under paragraph 406, tariff act of 1913.

The Bureau of Chemistry states that from a commercial point of view a chemical may be defined as "any substance or mixture of substances of fairly definite composition obtained by chemical process used in the arts for its chemical effect either by itself or in the manufacture of other substances." (T. D. 34,113.)

MIXED FISH OIL—COD OIL.—Only oil which is the product of unhealthy and putrid livers of codfish and allied species, whether or not containing the entrails and other refuse parts of the fish thrown in and allowed to undergo putrefaction, is entitled to admission free of duty under paragraph 561 of the tariff act as cod oil.—(T. D. 34160.)

RADIOGEN-TRINKWASSER—RADIUM BROMIDE IN WATER.—Radium bromide dissolved in distilled water is entitled to free entry as "radium" under paragraph 659 of the free list, and is not properly dutiable at 25 percent ad valorem as a medicinal preparation not specially provided for under paragraph 65, act of 1909.—(T. D. 34052.)

ALCOHOLIC COMPOUND—CHEMICAL MIXTURE CONTAINING ALCOHOL.—To constitute a chemical mixture containing alcohol under paragraph 3, act of 1909, the chemicals themselves must form such a substantial part, without the alcohol, as to give such predominant character to the article taken as a whole.

2. If the alcohol largely predominates, and the other ingredients of a chemical nature become relatively insignificant in quantity and proportion, then the article is an alcoholic compound under paragraph 2.

3. Linalco Seele, manufactured as a base for non-alcoholic drinks, is an alcoholic compound.—*U. S. v. Kraemer* (4 Ct. Court Appls., 433; T. D. 33858) followed. (T. D. 34124—G. A. 7527.)

Council Business

COUNCIL LETTER No. 11.

PHILADELPHIA, PA., Jan. 31, 1914.

To the Members of the Council:

Motions No. 19 (Publication of Tentative Program for the 62d Annual Meeting), No. 20 (Election of Members; Applications Nos. 25 to 33 inclusive), and No. 21 (Approval of Report of Committee on Publication), have each received a majority of affirmative votes.

Motion No. 22 (Appropriation of \$100 for Committee on Status of Pharmacists in the Government Service). Moved by J. H. Beal, seconded by J. A. Koch, that the sum of one hundred (\$100.00) dollars, or so much thereof as may be necessary, be appropriated for the use of the Committee on Status of Pharmacists in the Government Service. This appropriation has been approved by the Committee on Finance.

Motion No. 23 (Appropriation of \$250 for Expenses of Delegates to National Drug Trade Conference for 1914). Moved by J. H. Beal, seconded by J. A. Koch, that the sum of two hundred and fifty (\$250.00) dollars, or so much thereof as may be necessary, be appropriated for payment of the expenses of delegates to the National Drug Trade Conference during the year 1914. This appropriation has been approved by the Committee on Finance.

Motion No. 24 (Election of Members). You are requested to vote on the following applications for membership:

No. 34. Henry W. Dreyfus, 4806 West End Ave., Chicago, Ill., rec. by J. H. Wells and H. M. Whelpley.

No. 35. George Waller Harrison, Railway Ave., Cypress River, Manitoba, rec. by F. E. J. Bletcher and Evelyn Nesbitt.

No. 36. Gustave Horstmann, 14 Mount Vernon Ave., Mount Vernon, N. Y., rec. by Jacob Diner and Caswell A. Mayo.

No. 37. Leopold H. Fried, 1477 Washington Ave., Bronx, New York, N. Y., rec. by A. P. Lohness and Wm. C. Anderson.

No. 38. Louis Cramer, 72 Clinton St., Saratoga Springs, N. Y., rec. by J. H. Beal and J. W. England.

No. 39. Phillip LeVert Gregory, 200 Maine St., Johnson City, Tenn., rec. by Frank S. Brown and George M. Beringer.

No. 40. Pierre Arnold Bernard, 258 W. 74th St., New York, N. Y., rec. by J. W. England and W. B. Day.

No. 41. Clyde I. Killingsworth, 32 Adams Ave., W., Detroit, Mich., rec. by Leonard A. Seltzer and A. H. Wheeler.

No. 42. Charles A. Billups, Jefferson Barracks, Missouri, rec. by E. R. Miller and H. M. Whelpley.

No. 43. Frank J. Butler, 123 N. Mell St., Pontiac, Ill., rec. by W. B. Day and A. H. Clark.

No. 44. Charles Weissmann, 2332 Highland Ave., Cincinnati, Ohio, rec. by Chas. Ehlers and Chas. A. Apmeyer.

No. 45. Walter Gordon Leacock, 2210 Gratiot St., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 46. Constantine Diamanti Lemos, Rue Trassa, Smyrna, Asia Minor, rec. by James A. Patch and T. C. Ladakis.

No. 47. Peter S. Houston, 46 Warner St., Dorchester, Mass., rec. by Anna G. Bagley and John G. Godding.

No. 48. Frank Hamilton Shurtleff, 278 Dartmouth St., Boston, Mass., rec. by Anna G. Bagley and John G. Godding.

No. 49. Mrs. Mary Hall Zwick, 511 South Humphrey Ave., Oak Park, Ill., rec. by Mrs. M. M. Gray and W. B. Day.

No. 50. James D. Howard, Etowah, Tenn., rec. by Ira B. Clark and William R. White.

No. 51. Joseph L. Turner, care Bristol-Myers Co., 281 Greene Ave., Brooklyn, N. Y., rec. by Otto Raubenheimer and E. L. Maines.

No. 52. Clifton Henry Briggs, care Parke, Davis & Co., Detroit, Mich., rec. by Wilbur L. Scoville and H. C. Hamilton.

No. 53. Frank Merrell Best, 120 N. 3d St., Lafayette, Ind., rec. by C. B. Jordan and A. H. Dewey.

No. 54. Lea Ludwig Mrazek, 1500 West 18th St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33d St.

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COUNCIL LETTER No. 12.

PHILADELPHIA, PA., February 19, 1914.

To the Members of the Council:

Motions No. 22 (Appropriation of \$100 for Committee on Status of Pharmacists in the Government Service), No. 23 (Appropriation of \$250 for Expenses of Delegates to National Drug Trade Conference for 1914), and No. 24 (Election of Members; Applications Nos. 34 to 54, inclusive) have each received a majority of affirmative votes.

The following communication has been received:

CAMDEN, N. J., February 17, 1914.

Mr. Joseph W. England, Secretary, Council of the American Pharmaceutical Association, Philadelphia, Pa.:

My Dear Mr. England—The protection of the public by the throwing of every possible

safeguard around the sale of bichloride of mercury tablets is rightly receiving the earnest consideration of thoughtful and progressive pharmacists. THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION has presented to its readers a number of timely articles and suggestions on this subject, and the most recent issue contains an editorial resume of proposed national bichloride legislation.

It is eminently proper that pharmacists should themselves solve some of the problems associated with this question of public safety. There are a number of important points associated therewith on which their judgment should be exercised in properly shaping legislation. Foremost among these is the question of the selection of a proper shape or form for bichloride of mercury tablets not intended for the administration of an internal medicinal dose; what are commonly known as antiseptic tablets.

It is certain that we may soon expect some authoritative statement, either legislative or pharmacopœial, that will designate the form or shape of such bichloride antiseptic tablets. The round disc shaped tablet that has heretofore been commonly used is too dangerous to be continued, because this shape has been almost universally used for all forms of medication as well as for confectionery and food products. There is nothing distinctive about such a shape, and its use should be discontinued for such toxic units as a bichloride antiseptic tablet. Various other shapes, such as triangular, diamond shape, clover leaf shape, pipe or cylindrical shape, cubical shape, have been proposed and advocated even to the extent of incorporating some of these in proposed legislation. The latter shape (cubical), although proposed in several of the bills now before Congress, is particularly objectionable because this form has been used for the exhibition of confectionery and many food products, and likewise for non-poisonous medicines.

The form adopted should be distinctive, so that it could not be possible to mistake it for any other form of medication or any food or confection. Of all the forms so far proposed, the one which appears to best meet this requirement is the coffin shape or casket shape tablet as originally proposed by Mr. Franklin M. Apple in a paper presented to the Pennsylvania Pharmaceutical Association meeting in 1913. This shape is so distinctive, and if the design is further embellished with the "skull and cross bones" and the word "poison," as proposed by Mr. Apple, it could not be mistaken for any other tablet. I am strongly in favor of adopting this shape exclusively for poison tablets intended for external use. Such shape should be adopted by the Pharmacopœia and protected by Congressional and State enactments.

Further, the use of this design for any other purpose than for the preparation of poison tablets for external use, *should be prohibited by such legal enactments.* This will prevent foolish imitations which would de-

stroy the entire value and purpose of such a design.

The suggestion of Mr. Apple has been adopted on a commercial scale by the Norwich Pharmacal Company, who have likewise applied for a patent on this design and its use for poison tablets. Several interviews have been held between officers of this pharmaceutical manufacturing house and your President and Vice-President Apple, and they have very generously offered to assign to the American Pharmaceutical Association all their right, title and interest in this patent so that this form could be adopted by the Pharmacopœia, and under proper protection and free from monopoly by any one manufacturing house. They guarantee to prosecute the application for a patent and its assignment to the American Pharmaceutical Association without any expense to the Association.

It is my pleasure to transmit herewith their communication fully covering this proposition. I ask that these entire communications be promptly submitted to the Council for action.

It is a very opportune proposition by which the American Pharmaceutical Association can demonstrate its active interest in protecting the public in the dispensing of potent medicines. I recommend its prompt acceptance with an appropriate acknowledgment of the humanitarian spirit and the generous action of the Norwich Pharmacal Company in this matter. I am

Yours respectfully,

(Signed) GEORGE M. BERINGER,
President American Pharmaceutical Association."

THE NORWICH PHARMACAL COMPANY.

NORWICH, N. Y., February 16, 1914.

George M. Beringer, Ph. M., President American Pharmaceutical Association:

Dear Mr. Beringer—Confirming our recent conversation, we hereby freely tender to the American Pharmaceutical Association, for the public good, all rights and interests in our invention of a coffin-shaped antiseptic tablet, having embossed on one side the word "Poison" and on the reverse the emblem of a skull and cross-bones. This we propose to make effective by assignment to your Association of all our right, title and interest in the pending application for design patent, Serial No. 801,748, and we hereby agree to bear all expense incident to the prosecution and securing of said patent.

It also gives us much pleasure to advise you that Mr. Franklin M. Apple, of Philadelphia, Pa., joins with us in placing in the hands of your Association this unique means of safeguarding the use of poisons, which idea first received general publicity in the pharmaceutical press through the able and timely paper read by him before the Pennsylvania Pharmaceutical Association in June, 1913.

We are led to voluntarily relinquish our

rights to this invention because we believe that the humanitarian purpose of safeguarding human life against accidental poisoning demands that there should be one form which will be universally recognized as distinguishing the virulent poison. This the coffin-shaped tablet will do. It has never before been used either for compressed tablets, confectionery or like purposes; its surfaces are rough to the touch and its appearance is so suggestive and forbidding that no wrapping in paper is necessary to declare its dangerous character.

With the control of the invention in the hands of a national association representing your splendid profession, and safe from monopolistic use by any manufacturer, it may properly be included in the pharmacopœial requirements for antiseptic tablets. We believe further that under these circumstances, uniform national and state legislation should be urged by all the drug interests to make illegal the use of this form or design for any other purpose than the exhibition of bichloride or like potent poisons.

Our assignment to your Association carries no conditions except that we reserve to ourselves the right of manufacturing these tablets, to be enjoyed in common with all other manufacturers under such regulations as your Association may adopt to fully protect your rights under the U. S. Patent laws.

We enclose herewith a copy of the assignment which we are ready to execute and also a copy of letter from our attorneys, which explains and confirms our purpose to protect your Association from all possible expense or litigation in connection with this matter. This assignment might be deferred until the patent has been granted or the subject fully disposed of, except for the fact that prompt action seems imperative to forestall hasty and ill-advised legislation, lacking uniformity and possibly requiring various forms which might add to existing dangers through their similarity to form at present in use for tablets internally administered or for confectionery.

We are sure that prompt action may be taken by your Council, as we believe no firm or corporation would place any obstacles in the way of granting a patent upon this particular design, in view of the laudable purpose for which it is to be used, as understood by yourself and Mr. Apple and in furtherance of the broad humanitarian purposes of your Association.

Sincerely yours,

THE NORWICH PHARMACAL COMPANY,
(Signed) R. C. STOFER,
President."

"VICTOR J. EVANS & CO.,

Victor Building, 724-726 9th St. Northwest,
WASHINGTON, D. C., February 13, 1914.
The Norwich Pharmacal Co., Norwich, N. Y.:
Gentlemen—Enclosed please find form of
assignment of your application for Design
Patent, Serial No. 801,748.

In reply to your inquiry, it is quite permissible to assign applications for patents, and, in fact, it is the ordinary procedure, excepting that your purpose is of a very unusual character.

We fully understand your instructions, namely, the above design patent is to be prosecuted and obtained at your expense; all bills for our services will, therefore, be rendered to you as usual.

Yours very truly,
(Signed) VICTOR J. EVANS & Co."

"ASSIGNMENT.

Whereas, William P. McNulty, a citizen of the United States, residing at Norwich, in the County of Chanango and State of New York, has invented a new, original, and ornamental design for a Poison Tablet, for which he filed an application for design patent of the United States, on the 18th day of November, 113, Serial No. 801,748; and

Whereas, The Norwich Pharmacal Company, Inc., duly incorporated under the laws of the State of New York, and doing business at Norwich, in the County of Chanango and State of New York, has acquired the entire interest in said invention and in and to the Letters-Patent of the United States to be obtained therefor; and

Whereas, The American Pharmaceutical Association, Inc., duly incorporated under the laws of the State of and doing business at, in the County of and State of, is desirous of acquiring an interest in said invention and in and to the Letters-Patent of the United States to be obtained therefor;

Now, therefore, Be it known that for and in consideration of the sum of one dollar, to us in hand paid, the receipt of which is hereby acknowledged, and other valuable consideration, the said The Norwich Pharmacal Company, have sold, assigned and set over, and do by these presents hereby sell, assign and set over unto the said American Pharmaceutical Association, Inc., its successors and assigns, the entire right, title and interest in and to the said design and in to the Letters-Patent of the United States which may be granted therefor; and we do hereby authorize and request the Commissioner of Patents to issue the said Letters-Patent to the said American Pharmaceutical Association, Inc., in accordance with this assignment.

In Testimony Whereof, we have hereunto set our hand and affixed our seal this day of, 1914.

.....
President.

Witness:

.....

J. W. ENGLAND,
Secretary of the Council.

415 North Thirty-third Street.

UNITED STATES PUBLIC HEALTH SERVICE.

PROMOTIONS.

Passed Assistant Surgeons John M. Holt, Robert L. Wilson and John T. Burkhalter, promoted and commissioned as Surgeons, effective Dec. 1, 1913. Feb. 3, 1914.

BOARDS CONVENED.

Board of medical officers convened to meet at Detroit, Mich., for the re-examination of alien John A. Peterson. Detail for the board: Senior Surgeon H. W. Austin, chairman; Assistant Surgeon Joseph Bolten, member; Acting Assistant Surgeon K. L. Weber, recorder.

Board of commissioned medical officers convened to meet at the U. S. Marine Hospital, Stapleton, N. Y., Monday, Feb. 23, 1914, for the purpose of making the physical examination and conducting the mental examination of Assistant Surgeon Carlisle P. Knight to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Senior Surgeon G. W. Stoner, chairman; Passed Assistant Surgeon W. M. Bryan, recorder. Jan. 16, 1914.

(List of changes of stations and duties of commissioned and other officers of the United States Public Health Service):

Irwin, Fairfax, Senior Surgeon. Authorized to proceed to Marcus Hook, Pa., when necessary for inspection and supervision of quarantine operations. Jan. 19, 1914.

Lavinder, C. H., Surgeon. Detailed for temporary duty at Hygienic Laboratory, effective Jan. 12, 1914. Jan. 12, 1914.

Foster, M. H., Surgeon. Directed to proceed to Saratoga Springs, N. Y., for the purpose of making an examination of an alien to observe the results of the grattage operation for the cure of trachoma. Jan. 19, 1914.

Schereschewsky, J. W., Surgeon. Directed to proceed to Chicago, Ill., to attend meeting of National Council of Safety, Jan. 20, 1914. Jan. 16, 1914.

Ramus, Carl, Surgeon. Granted 5 days' leave of absence on account of sickness from December 12, 1913. Jan. 19, 1914.

Currie, Donald H., Surgeon. Granted 4 months' leave of absence, with pay, from Dec. 20, 1913, and eight months' leave of absence, without pay, from Apr. 20, 1914, for

service as secretary of the State Board of Health of California. Jan. 16, 1914.

Long, J. D., Surgeon. Directed to assume charge of Service Laboratory in addition to his duties in plague suppressive measures in California. Dec. 18, 1913.

Pierce, C. C., Surgeon. Detailed for temporary duty at Hygienic Laboratory, effective Jan. 12, 1914. Jan. 12, 1914.

Creel, R. H., Passed Assistant Surgeon. Directed to proceed to Gulfport, Miss., and vicinity, in company with an inspector from the Bureau of Chemistry, Department of Agriculture, for the purpose of making a sanitary survey of the conditions under which oysters are grown and handled for shipment. Jan. 17, 1914.

Phelps, E. B., Professor of Chemistry. Directed to proceed from New York, N. Y., to Boston, Mass., for the purpose of supervising the investigations of sanitary administration now being conducted in Massachusetts. Jan. 19, 1914.

Brown, F. L., Pharmacist. Directed to proceed with four attendants to the Delaware Breakwater quarantine station to assist in handling personnel of steamer detained on account of smallpox. Jan. 14, 1914.

Berkowitz, M. F., Pharmacist. Relieved from duty at Philadelphia, Pa., and directed to proceed to Cairo, Ill., and report to the medical officer in charge for duty and assignment to quarters.

Gray, Ralph E., Pharmacist. Upon being relieved by Pharmacist Berkowitz, directed to proceed to Lexington, Ky., and report to Surgeon John McMullen for duty in field investigations of trachoma. Jan. 19, 1914.

White, J. H., Surgeon. Authorized to proceed to Chicago, Ill., Feb. 7, 1914, to attend meeting of the Committee of the American Medical Association. Jan. 27, 1914.

Carrington, P. M., Surgeon. Directed to proceed to San Francisco, Cal., when necessary, in the investigation of the migration of tuberculous persons in interstate traffic. Jan. 20, 1914.

Woodward, R. M., Surgeon. Granted 2 months' leave of absence from Jan. 19, 1914, on account of sickness. Jan. 19, 1914.

Wertenbaker, C. P., Surgeon. Authorized to accompany battleship Ohio from Charleston quarantine station to the Delaware Breakwater quarantine station and thence to the League Island Navy Yard, Philadelphia, Pa. Jan. 24, 1914.

Lavinder, C. H. Directed, at the request of the Commissioner General of Immigration, to make an examination of an alien, Elje Hoffman, now undergoing treatment at Garfield Hospital. Jan. 24, 1914.

Grubbs, S. B., Surgeon. Directed to proceed, at such times as may be necessary, to Boston, Mass., for observation and consultation regarding re-examination of aliens at that port. Jan. 23, 1914.

von Ezdorf, R. H., Surgeon. Directed, on request of the State Board of Health of North Carolina, to proceed to Raleigh, N. C., for conference and to devise plans for anti-malaria investigations in that state during the coming season. Also directed to stop at Columbia, S. C., en route, to attend the meeting of the Southeastern Sanitary Association to be held there Feb. 12-13, 1914. Jan. 27, 1914.

Robinson, D. E., Surgeon. Directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for temporary duty precedent to special field studies of tuberculosis. Jan. 26, 1914.

Wille, C. W., Surgeon. Granted 3 days' leave of absence from Jan. 28, 1914. Jan. 27, 1914.

Lloyd, B. J., Surgeon. Directed to confer with secretary, Washington State Board of Health, relative to typhoid fever outbreak. Also to visit cities in the vicinity of Seattle, Wash., on business in connection with measures taken for the suppression of bubonic plague. Jan. 22, 1914.

Bogges, John S., Surgeon. Leave of absence for 1 month from Jan. 1, 1914, amended to read "1 month's leave of absence from Jan. 13, 1914." Jan. 22, 1914.

Roberts, Norman, Passed Assistant Surgeon. Detailed for duty at the state quarantine station, Marcus Hook, Pa., in connection with the fumigation of vessels and quarantine operations on the Delaware river. Jan. 24, 1914.

Collins, G. L., Passed Assistant Surgeon. Directed to proceed to Hindman, Ky., and report to Surgeon John McMullen for duty in connection with the prevention of trachoma. Jan. 21, 1914.

Ridlon, J. R., Passed Assistant Surgeon. Detailed for duty at Philadelphia, Pa., under Senior Surgeon Fairfax Irwin. Jan. 24, 1914.

Gillespie, J. M., Assistant Surgeon. Relieved from duty at Hongkong, China, and directed to proceed to San Francisco quar-

antine, Angel Island, Cal., and report arrival to Bureau. Jan. 21, 1914.

Watkins, J. A., Assistant Surgeon. Granted 5 days' leave of absence from Jan. 16, 1914, on account of sickness. Jan. 24, 1914.

Brown, F. L., Pharmacist. Granted 2 days' leave of absence, Jan. 24-25, 1914. Jan. 23, 1914.

Stoner, G. W., Senior Surgeon. Granted 6 days' leave of absence, beginning Jan. 24, 1914, under paragraph 193, Service Regulations. Jan. 29, 1914.

Lumsden, L. L., Surgeon. On request of the State Board of Health of Maryland, directed to proceed to Rockville, Md., and make an investigation of the origin and prevalence of typhoid fever in that town and vicinity. Feb. 2, 1914.

Frost, W. H., Passed Assistant Surgeon. Directed after completion of duties in Pittsburgh, Pa., to proceed to Bureau for conference relative to investigations of pollution of Ohio river. Jan. 28, 1914.

Fairbanks, G. D., Acting Assistant Surgeon. Leave of absence for 15 days from Jan. 10, 1914, amended to read, "12 days' leave of absence from Jan. 10, 1914." Jan. 24, 1914.

Hamilton, H. J., Acting Assistant Surgeon. Granted 2 days' leave of absence from Jan. 31, 1914. Jan. 30, 1914.

Letton, H. P., Sanitary Engineer. On request of the State Board of Health of North Carolina, directed to proceed via Raleigh to Clinton, N. C., to advise with the authorities as to the best source of a public water supply. Jan. 29, 1914.

LaGrange, J. V., Pharmacist. Granted 4 days' leave of absence, Jan. 24, 26, 27 and 28, 1914. Feb. 2, 1914.

Glennan, A. H., Assistant Surgeon General. Granted 9 days' leave of absence on account of sickness under paragraph 209, Service Regulations. Feb. 9, 1914.

Banks, C. E., Senior Surgeon. Granted 4 days' leave of absence from Feb. 20, 1914. Feb. 6, 1914.

Guiteras, G. M., Surgeon. Relieved from duty at Galveston, Tex., and directed to proceed to Key West, Fla., and assume charge of the Marine Hospital at that port. Feb. 4, 1914. Granted 1 month's leave of absence from date of relief at Galveston, Tex.

Nydegger, J. A., Surgeon. Leave of absence for 1 month from Jan. 8, 1914, on account of sickness, amended to read, "27 days'

leave of absence from Jan. 8, 1914, on account of sickness." Feb. 6, 1914.

Anderson, J. F., Surgeon. On request of the State Board of Health of Kentucky, directed to proceed to Richmond, Va., Feb. 10, 1914, for conference with the Commissioner of Health, and for the purpose of presenting an address before the Medical College of Virginia on "Recent Advances in the Study of the Exanthemata." Feb. 9, 1914.

Bahrenburg, L. P. H., Surgeon. Directed to relieve Surgeon G. M. Guiteras and assume charge of all work of the Service carried on at Galveston, Tex. Feb. 4, 1914.

Wilson, R. L., Surgeon. When relieved from duty in charge of the Galveston quarantine station, by Passed Assistant Surgeon H. M. Manning, directed to proceed to Ellis Island, N. Y., for assignment to duty. Granted 21 days' leave of absence when relieved by Past Assistant Surgeon Manning. Feb. 9, 1914.

Manning, H. M., Passed Assistant Surgeon. When relieved from duty in charge of the Marine Hospital at Key West, Fla., directed to proceed to the Charleston quarantine station and assume charge of the Service at that port. Feb. 4, 1914.

deValin, Hugh, Passed Assistant Surgeon. Directed to proceed to Philadelphia, Pa., for inspection of unserviceable property in charge of Senior Surgeon Fairfax Irwin. Feb. 6, 1914.

Kolb, L., Passed Assistant Surgeon. Granted 4 days' leave of absence returning to station at Ellis Island, N. Y. Feb. 4, 1914.

Gillespie, J. M., Assistant Surgeon. Directed to proceed from San Francisco, Cal., to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. Feb. 5, 1914.

Carmelia, F. A., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Galveston, Tex., and report to Surgeon L. P. H. Bahrenburg for duty. Feb. 4, 1914. Granted 3 days' leave *en route* to station. Feb. 9, 1914.

Frank, Leslie, Sanitary Engineer. Directed to proceed from Colgate, Md., to Washington, D. C., and report to the Director of the Hygienic Laboratory for conference and instructions. Feb. 4, 1914.

Streeter, Harold W., Sanitary Chemist. Directed to proceed from Baltimore, Md., stopping at Washington, D. C., for conference, to Cincinnati, Ohio, and report to

Passed Assistant Surgeon W. H. Frost for duty in the investigations of the pollution of the Ohio river. Feb. 7, 1914.

Smith, E. E., 2nd Sanitary Bacteriologist. Directed to proceed from Madison, Wis., by way of Cincinnati, Ohio, to Pittsburgh, Pa., for duty in the investigations of the pollution of the Ohio river. Feb. 5, 1914.

Brown, F. L., Pharmacist. Granted 1 day's leave of absence, Feb. 12, 1914. Feb. 10, 1914.

Iltis, George W., Pharmacist. Granted 4 days' leave of absence from Jan. 17, 1914, under paragraph 214, Service Regulations. Jan. 27, 1914.

Wolfe, J. A., Pharmacist. Relieved from duty at the Pensacola (Fla.) quarantine station and directed to proceed to Philadelphia, Pa., and report to Senior Surgeon Fairfax Irwin for duty. Feb. 4, 1914.

Cofer, L. E., Assistant Surgeon General. Directed to proceed to New York, N. Y., for the purpose of delivering an address before the Medical Society of New York, at the New York Academy of Medicine on the subject "National Quarantine." Also to visit the Marine Hospital, Stapleton, N. Y., to ascertain the necessity for additional attendants. Feb. 10, 1914.

White, J. H., Surgeon. Granted 5 days' leave of absence from Feb. 18, 1914. Feb. 17, 1914.

Woodward, R. M., Surgeon. Leave of absence for 2 months from Jan. 19, 1914, on account of sickness, amended to read "2 months' leave of absence from Jan. 19, 1914." Feb. 17, 1914.

Cumming, H. S., Surgeon. Directed to utilize the S. S. Bratton in investigations of the pollution of navigable tidal waters of Maryland and Virginia, in so far as possible, for laboratory and investigation purposes. Also to proceed overland, or detail assistants for like duty, from Washington to points on the Chesapeake bay watershed to make sanitary surveys and obtain needed laboratory supplies. Feb. 11, 1914.

McMullen, John, Surgeon. On request of the Secretary of the State Board of Health of Indiana, detailed to attend the meeting of the Indiana Sanitary and Water Supply Association to be held in Indianapolis, Ind., Feb. 26-27, 1914. Feb. 17, 1914.

Goldberger, Jos., Surgeon. Directed to proceed to Savannah and Milledgeville, Ga., and Spartanburg, S. C., to inspect the opera-

tions of the Service in respect to pellagra investigations at those points. Feb. 17, 1914.

Schereschewsky, J. W., Surgeon. Detailed to attend the meeting of the New York State Ventilation Commission, to be held in New York City, Feb. 17-18, 1914. Also to visit the American Museum of Safety and investigate safety devices intended for protection of those engaged in different occupations. Feb. 17, 1914.

Wilson, R. L., Surgeon. At the request of the President of the Georgia State Industrial College, Savannah, Ga., detailed to attend the Farmers' Conference to be held at Savannah, Ga., Feb. 18-19, 1914, for the purpose of delivering two lectures on tuberculosis. Feb. 11, 1914.

Frost, W. H., Passed Assistant Surgeon. On request of the Secretary of the State Board of Health of Indiana, detailed to attend the meeting of the Indiana Sanitary and Water Supply Association to be held in Indianapolis, Ind., Feb. 26-27, 1914. Feb. 17, 1914.

Slaughter, W. H., Assistant Surgeon. Directed to report to the Commanding Officer of the U. S. Revenue Cutter Seneca for duty in connection with the ice patrol in the North Atlantic Ocean. Feb. 13, 1914.

Gahn, Henry, Pharmacist. Relieved from duty at the Purveying Depot, Washington, D. C., and directed to proceed to New Orleans, La., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. Feb. 13, 1914.

Miller, Charles, Pharmacist. Relieved from duty at the Marine Hospital, New Orleans, La., and directed to proceed to Key West, Fla., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. Feb. 13, 1914.

Spangler, L. C., Pharmacist. Relieved from duty at the Bureau, and directed to report to Assistant Surgeon General W. G. Stimpson for duty in the Purveying Depot, Washington, D. C. Feb. 14, 1914.

Ryder, L. W., Pharmacist. Relieved from duty at the Hygienic Laboratory, Washington, D. C., and directed to proceed to Mobile, Ala., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. Feb. 10, 1914.

Itlis, G. W., Pharmacist. Relieved from duty at the Marine Hospital, Key West, Fla., and directed to proceed to the Pensacola quarantine station and report to the medical

officer in charge for duty and assignment to quarters. Feb. 13, 1914.

Keen, W. H., Pharmacist. Relieved from duty in connection with plague suppressive measures in California, and directed to proceed to Washington, D. C., and report at the Bureau for duty. Feb. 13, 1914.

Ritter, Clyde, Pharmacist. Relieved from duty at the Marine Hospital, Vineyard Haven, Mass., and directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. Feb. 10, 1914.

RUPERT BLUE,
Surgeon General.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

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ALPERS, W. C.,
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To 14th and Central Ave., Cleveland, Ohio.

BAILEY, FREDERICK.
From 142 First St., Lowell, Mass.
To 65 Merrimack St., Lowell, Mass.

BREWER, H. D.,
From 19 Oxford St., Worcester, Mass.
To 4 Congress St., Worcester, Mass.

BROWN, A. E.,
From Jolo, P. I.
To Attending Surg., Office (Estado Mayor), 17 Nebraska, Manila, P. I.

BURDETTE, B. C.
From McLean Hospital, Waverly, Mass.
To 38 High St., Clinton, Mass.

CRAWFORD, A. E.,
From Stanford Univ., Cal.
To Stanford Med. School, San Francisco, Cal.

DE COSTER, H. W.
From 304 Boston St., Lynn, Mass.
To P. O. Box 145, Lynn, Mass.

- DOOLITTLE, R. E.,
From Washington, D. C.
To 109 Hillside Ave., Glen Ridge, N. J.
- ELDRED, FRANK R.,
From 3323 Kenwood Ave., Indianapolis, Ind.
To 3325 Kenwood Ave., Indianapolis, Ind.
- ESTABROOK, H. A.,
From Fitchburg, Mass.
To Cor. Main and Prichard Sts., Fitchburg, Mass.
- FENDER, W. E.,
From Fort Poster, N. Y.
To Fort Adams, R. I.
- GROSS, S. V. R.,
From Livingston, Montana.
To 12 No. Main St., care C. B. Hoskins & Co., Butte, Montana.
- HANCE, E. H.,
From Cor. Callowhill, Philadelphia, Pa.
To Cor. Marshall and Callowhill, Philadelphia, Pa.
- HUGHES, JOHN R.,
From Idaho Falls, Idaho.
To residence unknown.
- IRWIN, C. H.,
From Fort Stanton, N. Mexico.
To Fairport Harbor, Ohio.
- JEHLIK, A. J.,
From 3401 West 26th St., Chicago, Ill.
To S. W. Cor. Homan and 26th St., Chicago, Ill.
- KELLEY, GUS A.,
From Boston, Mass.
To 11 School St., Dorchester, Mass.
- KNABE, G. A.,
From Court Sq. and Dexter Ave., Montgomery, Ala.
To Dexter Ave. and S. Perry St., Montgomery, Ala., P. O. B. 87.
- KNOWLTON, GEO. H.,
From 728 to 782 Union St., Manchester, N. H.
- KUENZIG, PETER A.,
From Pittsburgh, Pa.
To 316 Atlantic Ave., McKeesport, Pa.
- LILLY, J. K.,
From 1500 N. Meridian St., Indianapolis, Ind.
To 4 W. St. Joe, Indianapolis, Ind.
- MILLER, E. R.,
From Auburn, Ala.
To 214 N. Murray St., Madison, Wis.
- O'GORMAN, T. V.,
From New York City, N. Y.
To 2009 Vallejo St., San Francisco, Cal.
- PEARSON, W. A.,
From 35 Poplar St., Philadelphia, Pa.
To 209 N. 50th St., Philadelphia, Pa.
- PERKINS, R. L.,
From —.
To 505 Freeman St., Valparaiso, Ind.
- RIESS, H. W.,
From Detroit, Mich.
To Office Div. Surgeon, 2d Div., Texas City, Texas.
- ROSE, MARTIN,
From Ft. Barry, Cal.
To Vancouver Barracks, Wash.
- SCHLOSSER, PETER,
From 132 Chestnut St., Louisville, Ky.
To 639 Second St., Louisville, Ky.
- SCHRODT, JACOB,
From Live Oak and Elm Sts., Dallas, Tex.
To 2000 Elm St., Cor. Harwood, Dallas, Tex.
- SEYFERT, PAUL,
From —, Wis.
To Bradentown, Fla.
- SHARMAN, HERBERT,
From Ft. Sill, Okla.
To residence unknown.
- SMITH, CARL E.,
From San Francisco, Cal.
To residence unknown.
- STUART, MRS. H. A.,
From 2609 3d Ave. S., Minneapolis, Minn.
To 3321 3d Ave. S., Minneapolis, Minn.
- VORDICK, A. H.,
From 2329 Herbert St., St. Louis, Mo.
To 6351 Berlin Ave., St. Louis, Mo.
- WHEELER, A. A.,
From 873 Vermont, Ave., Detroit, Mich.
To 1050 Lawton Ave., Detroit, Mich.
- WILLIAMS, S. W.,
From care Bauer & Black, Chicago, Ill.
To 5415 East End Ave., Chicago, Ill.

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THE SENATE AMENDMENTS TO THE HARRISON BILL.

AS is well known, the Harrison Bill, (H. R. 6282) seeks to require registration with Collectors of Internal Revenue of every person who produces, deals in, sells or distributes opium or coca leaves, their derivatives or preparations; and also levies upon such registrants a tax of \$100 annually.

Orders for any of the named drugs or preparations must be written in duplicate upon official order blanks which can be obtained only from collectors of internal revenue.

Persons not registered as dealers cannot obtain these order blanks, and hence cannot purchase the drugs for resale or consumption, though certain provisos permit physicians, dentists and veterinarians to dispense to their bona fide patients, and pharmacists to fill the prescriptions of physicians, dentists, and veterinarians without the furnishing of an order blank by the patients to whom they are dispensed.

By this means the bill aims to trace the drugs from their entry into the country to the hands of their last distributors, and thus afford to the several states the opportunity of obtaining evidence necessary to secure conviction for violation of the state laws.

The bill does not in express terms attempt to prohibit the sale of the drugs, because such a prohibition would not be within the powers conferred upon Congress by the Federal Constitution. Incidentally, however, it would operate as a strong deterrent to the illegitimate traffic by the requirement of the registration of dealers, the use of a specified official order blank which can be obtained only from collectors of internal revenue, and the evidence which the operation of the act will provide for the use of local prosecutors.

The bill has been reported out by the Committee on Finance, which has had it under consideration, and is now upon the Senate Calendar as No. 213.

In its passage through the committee the bill received several important amendments. One of these is the inclusion of dealers in hypodermic syringes or needles adapted to administer any of the drugs, who will now be required to register the same as dealers in the drugs themselves, and the sale of these articles can be made only on orders written upon the official order blank.

The wisdom of this amendment is not apparent. The possession of a hypodermic syringe or needle is not essential to the use of the drugs by habitues, and as a matter of fact the vast majority of them do not employ the hypodermic syringe at all. Hypodermic syringes are, however, used extensively as containers of serums and other medicaments in order to insure their perfect sterility up to the moment of administration. Why should the sale of such necessary medicaments be hampered by a restriction which is altogether useless as a measure for controlling the use of habit-forming drugs?

Two other amendments make it clear that officers of the State and Federal Governments may make purchases of the drugs for the various departments of the Army and Navy, and for government and state hospitals, and may have possession of them for such public purposes, without registration as dealers. Singularly enough, however, no means are provided whereby the dealer may sell to such persons without an order blank.

Another amendment, and one which may greatly affect the efficiency of the Act, is the change made in Sub-section a of Section 2, which originally relieved the physician, dentist or veterinary surgeon from requiring an order blank from his patient, "provided, however, that such physician, dentist, or veterinary surgeon shall personally attend upon such patient." From this proviso the words "personally attend upon such patient" have been stricken out, and replaced by "provided any such physician, dentist or veterinary surgeon shall have been specially employed to prescribe for the particular patient receiving such drug or article."

It is reported that the Committee was induced to make this change through the efforts of a manufacturer of a proprietary asthma cure which is said to contain a small proportion of cocaine, and to be widely used throughout the United States. It is advertised only through the mails, and is not sold through drug stores. Its proprietor is a physician who, it is said, operates by sending blank forms to be filled out by the patient. Since the filling of such a blank and the ordering of the medicine would create a specific contract between the physician and the patient, the amendment will relieve both parties from the obligations of the Act.

While it is possible that the proprietary remedy is harmless enough in itself, and would not be likely to either create or satisfy the cocaine habit, it is unfortunate that the Senate Committee found it necessary to open the door so widely to possible abuse. Any physician who is disposed to supply habitues with the drugs will be able to claim, and to prove by his own testimony and the testimony of the alleged patient, that he was specially employed in the case although he may never have seen the person.

The original reading that the physician should "personally attend such patient," would have required at least one bona fide consultation and examination.

The defect, unfortunately, is one which cannot be cured by state legislation,

because the drugs can be sent direct from the manufacturer in one state to a consumer in another, and thus will be under the protection of interstate commerce.

In addition to the above amendments, several others of minor character have been inserted here and there throughout the bill, such as extending the application of the act to the territories and Insular Possessions of the United States, and so on, most of which are unobjectionable. One, however, requires the statement on the label of the quantity of drug contained in certain preparations which are excepted from the operations of the Act, namely, those which do not contain more than 2 grains of opium, $\frac{1}{4}$ of a grain of morphine, $\frac{1}{12}$ of a grain of heroin, or 1 grain of codeine, etc., in a fluid- or avoirdupois-ounce. If this applies only to proprietary remedies, it is needless, since the subject is already covered by the Food and Drugs Act. If it can be held to apply to medicines compounded on physicians' prescriptions, it will be highly objectionable to both pharmacists and physicians, since the reason for excepting such preparations from the operations of the act is that they are not calculated either to create or satisfy a drug habit.

The Senate Committee not only made amendments of its own, but rejected those recommended by the National Drug Trade Conference at its January meeting. One of these recommendations was to strike out from Sub-section b of Section 2, the words "registered under this Act," so that the pharmacist would not be liable if he filled the prescription of a physician who was not registered under the act. The recommendation was a proper one, made after due consideration, and should have been heeded by the committee. Fortunately, the other requirements of the bill are such that practically all physicians will be compelled to register, and hence the danger to the druggist who is reasonably cautious and acts in good faith will not be great.

Another recommendation which the Senate Committee refused to adopt was one to substitute the word "dealer" for the word "druggist" in Sub-section b of Section 2. This recommendation was made because it has been alleged that the act would be unconstitutional, for the reason that it would favor a particular class of dealers, to wit, pharmacists, over all other classes of dealers, in that while paying the same tax as the pharmacist, the latter would have special privileges in dispensing.

The effect of the Senate Committee's amendments was carefully considered at a special meeting of the Executive Committee of the National Drug Trade Conference held at Washington, D. C., March 18, when a memorial was adopted setting forth the objections of the Conference to the changes made in the bill, and renewing its recommendations for the changes asked for by the Conference at its January meeting.

Some of the friends of the bill are predicting its early passage in practically its present form, but it would not be greatly surprising if the number of other pending measures of greater political importance, and the pressure of congressmen for an early adjournment should result in a postponement of the bill until another session.

THE BICHLORIDE SITUATION.

ORDINARILY the stream of Council business, as reported in the letters which are issued between meetings, flows with scarcely a ripple of debate. This is not because the Councilors are inattentive to the letters or are afraid to express their opinions in opposition, but rather because propositions of a controversial nature are generally held for consideration at the annual meeting, and the questions submitted for mail vote are usually of a formal kind not calculated to provoke debate. Council Letter No. 13, which appears in this issue, and in which Chairman Hugh Craig, of the Section on Education and Legislation, and President George M. Beringer discuss the advisability of adopting a specific shape for bichloride or other highly poisonous tablets, presents an interesting exception to the usual order.

Mr. Craig contends, and his contention is undoubtedly correct, that the frequent cases of alleged accidental poisoning with bichloride tablets are not accidental in fact, but that the tablets are taken with suicidal intention. He also argues that if a person is bent upon self-destruction he will certainly accomplish his purpose, no matter how many restrictions be placed upon the dispensing of poisons, and further, that peculiar shapes or colors for dangerous tablets will not operate as warnings to children.

Mr. Craig's remedy would be to restrict the dispensing of mercury bichloride to physicians' prescriptions, coupled with restrictions which would prevent physicians from leaving such tablets with patients without cautionary wrappings.

Undoubtedly such restrictions would lessen the number of poisonings from bichloride, but this raises the question as to the extent to which such restrictions should be placed upon other poisonous compounds generally and upon dealers other than druggists. If we are to restrict the sale of mercuric bichloride to physicians' prescriptions, why not place the same restrictions upon all drugs which can be used suicidally or which may be taken by mistake for less dangerous ones? And if such restrictions are to be placed upon articles dispensed from drug stores, why should they not be placed equally upon dangerous substances for sale at the paint store or elsewhere? Thoughtless people, while generally ready to applaud restrictions laid upon the druggist in the name of public safety, are generally strongly opposed to legislation that would prevent their obtaining poisonous insecticides and other substances used in agriculture or the arts.

Some years ago the writer, in a paper presented at one of the meetings of this Association, called attention to several state laws which placed heavy penalties upon druggists for selling poisons without certain precautions of labeling and registration, but leaving it open to all other dealers of the state to sell the same articles without restriction. Even at the present time there is a bill pending in Congress greatly limiting the manner in which registered physicians and druggists may sell or dispense mercury bichloride, but not placing any limitation whatever upon its sale by other persons.

Unless we are careful in the endorsement of restrictive legislation, we shall some day awaken to the fact that the druggist is bound hard and fast, while the

paint stores, hardware stores, and other dealers in insecticides are free to sell equally dangerous substances practically without restriction.

The teaching of this is that, since it would be manifestly impossible to restrict the sale of all dangerous poisons to physicians' prescriptions, and manifestly unfair to place such restrictions upon the druggist and leave all other dealers free, then the next best thing, and the thing which is altogether feasible and capable of universal application is to require the indication of the poisonous character of dangerous compounds by appropriate labels, shapes and colors of packages, or other warnings which would appeal to the senses of those who might otherwise handle the articles carelessly. For the would-be suicide, of course, no warning would suffice.

Whatever restrictions are adopted should apply equally to all dangerous substances as well as to those usually handled by the druggist, and to all dealers and distributors alike.

As to the wisdom of the Association's taking over the assignment of the patent which has been applied for by the Norwich Pharmacal Company, on coffin-shaped tablets of mercury bichloride, several considerations present themselves.

If the Association accepts the assignment, it would, of course, accept it simply as a trustee for the public welfare. It would permit all manufacturers to use the design without charge, and would exercise its rights as owner of the patent only in case some one should presume to make use of the design in a freak conception.

If the Association does not accept the assignment tendered by the Norwich Pharmacal Company, the latter will be entitled to prevent any rival manufacturer from using the same design unless licensed for that purpose.

It should be borne in mind that the granting of a patent for a coffin-shaped tablet would not prevent the patenting or copyrighting of other designs, and also that final decision as to what designs shall be lawful or unlawful will remain with the law-making powers.

City councils, state legislatures, and Congress will be besieged constantly for the enactment of bichloride legislation, and will undoubtedly take action. We may protest against such legislation until we are out of breath, without avail. Ordinances and laws will be adopted by the dozen, and no two of them will be alike or in correspondence unless we can set a national standard, as for example, by the adoption by the Pharmacopœia of a specific, or perhaps of several permissible designs, which can be cited for the guidance of the various legislative bodies.

We cannot stop the flood of bichloride legislation, but we can to a large extent direct it into safe and practical channels; and this it seems to me, is the discreet and politic thing to do.

J. H. BEAL.

PRICE STANDARDIZATION.

AT the Second Annual Meeting of the United States Chamber of Commerce held in Washington the week of February 9, last, one of the leading subjects of discussion was that one of paramount importance, not only to the members of our profession but to all retail merchants,—“Price Protection.”

This cause which has been so long discussed and which so many times seemed almost to have received its death-blow, was there stimulated into new and vigorous life, one which gives promise of bringing relief to the retail-traders of the nation from the vexatious and distressing conditions which have so long affected them.

There is hope for the patient when the cancerous growth has been removed and there is hope for the retail business-interests of the country when the vicious and cancerous condition which has so harmfully affected trade shall have been eliminated from it.

So all thoughtful and hopeful men turn their eyes toward this gathering as to a harbinger of good tidings as they read of the enthusiasm shown in the hearty support given to this question in such an influential organization as the U. S. Chamber of Commerce, a body representing a membership of more than half a million of the business men of the country.

The session of Friday, February 13, was devoted almost entirely to this important question. The Hon. Joseph E. Davies, the U. S. Commissioner of Corporations, spoke upon the subject, naturally not committing himself upon so important a question, which was one, he said, that “in the matter of living affects very vitally the great body of consumers in this country.” He said that the Bureau of Corporations was engaged in making a study of the question and that it was its purpose to make that investigation “fair and impartial, without preconceived bias, prejudice or judgment.” Mr. William H. Ingersoll delivered a notable address, in which he said that, “Price Standardization is the term that describes the system best to my mind; not high prices, but standard prices to all, the same thing for the same money to all upon fair and equal terms.” He strongly condemned the methods of those who by means of misleading advertisement and misrepresentation filched from their fellow-citizens their good name and the return they were rightfully entitled to by their enterprise, their toil and thought. Mr. Ingersoll’s able speech stirred his auditors to applause and at the close of his address he was given an ovation. Mr. Donald Dey, of Syracuse, N. Y., while saying that he looked upon price-cutting as a menace and that some saner method of attracting business should be adopted, counseled delay in seeking legislation to remedy the evil. He felt sure “that when the subject had been brought seriously to the attention of the average merchant that the ethical side would appeal strongly to him, that his views would be changed and with a change of view will come a change of method.” In what way this was to be accomplished Mr. Dey did not say, but, judging from past experience in trying to influence the cut-price merchants into a sane way of doing business, his method would bear fruit at about the time the millennium was due.

A Bill, (the Stevens Bill, H. R., 13305), which apparently had its inception at this meeting is given publicity in the Washington News Letter of the Journal of the N. A. R. D. and support for which is asked of all the members of the trade by writing to their representatives in Congress. Deprived of its verbiage the purpose of this bill is to make it "Lawful for a manufacturer to prescribe the sole and uniform price at which each article covered by contract shall be sold." That is, if this bill should become a law, it will make legal that which the Supreme Court decided in the Miles case was unlawful, "was against public policy and void," and manufacturers can lawfully fix the price at which their products shall be sold.

The full text of this bill is as follows:

That in any contract for the sale of articles of commerce to any dealer, wholesale or retail, by any producer, grower, manufacturer, or owner thereof, under trade-mark or special brand, hereinafter referred to as the "vendor," it shall be lawful for such vendor, whenever the contract constitutes a transaction of commerce among the several states, or with foreign nations, or in any territory of the United States, or in the District of Columbia, or between any such territory and another, or between any such territory or territories and any state or the District of Columbia, or with a foreign nation or nations, or between the District of Columbia and any state or states or a foreign nation or nations, to prescribe the sole, uniform price at which each article covered by such contract may be resold: *Provided*, that the following conditions are complied with:

(A) Such vendor shall not have any monopoly or control of the market for articles belonging to the same general class of merchandise as such article or articles of commerce as shall be covered by such contract of sale; nor shall such vendor be a party to any agreement, combination, or understanding with any competitor in the production, manufacture, or sale of any merchandise in the same general class in regard to the price at which the same shall be sold either to dealers at wholesale or retail or to the public.

(B) Such vendor shall affix a notice to each article of commerce or to each carton, package, or other receptacle inclosing an article or articles of commerce covered by such contract of sale stating the price prescribed by the vendor at the time of the delivery of said article as the uniform price of sale of such article to the public, and the name and address of such vendor, and bearing the said trade-mark or special brand of such vendor. Such article or articles of commerce covered thereby shall not be resold except with such notice affixed thereto or to the cartons, packages, or other receptacles inclosing the same.

(C) Such vendor shall file in the Bureau of Corporations a statement setting forth the trade-mark or special brand owned or claimed by such vendor in respect of such article or articles of commerce to be covered by such contract of sale, and also, from time to time, as the same may be adopted or modified, a schedule setting forth the uniform price of sale thereof to dealers at wholesale, and the uniform price of sale thereof to dealers at retail from whatever source acquired and the uniform price of sale thereof to the public, and upon filing such statement such vendor shall pay to the Commissioner of Corporations a registration fee of \$10. The price to the vendee under any such contract shall be one of such uniform prices to wholesale and to retail dealers according as such vendee shall be a dealer at wholesale or a dealer at retail, and there shall be no discrimination in favor of any vendee by the allowance of a discount for any cause, by the grant of any special concession or allowance, or by the payment of any rebate or commission, or by any other device whatsoever.

(D) Any article of commerce or any carton, package, or other receptacle in-

closing an article or articles of commerce covered by such contract and in possession of a dealer may be sold for a price other than the uniform price for resale by such dealer as set forth in the schedule provided in the next preceding paragraph (C): First, if such dealer shall cease to do business and the sale is made in the course of winding up the business of such dealer, or if such dealer shall have become bankrupt, or a receiver of the business of such dealer shall have been appointed, provided that such article or articles of commerce shall have first been offered to the vendor thereof by such dealer or the legal representative of such dealer by written offer at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer, or, second, if such article of commerce or contents of such carton, package, or other receptacle shall have become damaged, deteriorated, or soiled: *Provided*, that such damaged, deteriorated, or soiled article shall have first been offered to the vendor by such dealer by written offer, at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer, and that such damaged, deteriorated, or soiled article shall thereafter only be offered for sale by such dealer with prominent notice to the purchaser that such article is damaged, deteriorated, or soiled, and that the price thereof is reduced because of such damage.

It may be said that the proposed bill is not as precise in its terms nor does it seem so well-contrived to produce the reform desired as the bill endorsed, we understand by the American Fair Trade League. That law made it imperative upon dealers to fix a selling-price upon their product under penalty of losing the protection of the patent, copyright or trade-mark laws, and also declared it unlawful to sell or to offer goods for sale at a price different from the fixed price, under penalty of a fine of not less than \$100.00 nor more than a \$1000.00. The proposed law (H. R. 13305) does not forbid, except by inference, the sale of goods at a price differing from that specified by the maker thereof, nor does it provide any penalty for so doing. A court might construe the law to mean that goods should be sold only at the fixed price, and it might not, and nowhere in the proposed law as it is in the other, is it declared unlawful to "break the price." It seems as though the law might just as well be made a positive and an unevadable law, a law "with teeth in it" for those who have shown themselves so unscrupulous and so careless of the welfare of their fellowmen, instead of being one with loopholes through which these selfish persons may escape the consequences of evil doing.

The proposed law is a good one; a step in advance, but a longer stride in the same direction can be made with almost the same effort, by means of which, hope for reform will not be disappointed and the results which all honorable men of the trade have long desired will be achieved.

The Metz Bill (H. R. 13860) is another bill which seeks with much expanse of language to make price-regulation lawful and, in but one way and that a doubtful one does it appear superior to the Stevens Bill. It makes it legal to establish uniform retail selling prices like the former and further provides that any person who "shall violate either the wholesale or retail uniform selling price of a uniform commodity, shall be liable to an action for damages and an injunction at the suit of any proprietor, dealer or consumer who deals in or with or in consuming such uniform commodity."

The text of the Metz Bill is as follows:

To prevent discrimination between different consumers and localities by establishing uniform prices for uniform commodities.

Whereas experience has demonstrated the advantages and protection to the consumer of standard or uniform commodities marketed under the trade-mark of the proprietor who originates the commodity and who by careful and responsible business methods and guaranties, and by constant maintenance of the excellence of the commodity, builds up a reputation and standard or uniform value for the commodity, and who thus creates and owns the good will connected therewith; and

Whereas it is desirable that consumers shall be able to purchase uniform commodities in all localities at uniform prices, whereby to prevent discrimination between different consumers and localities; and

Whereas uneven prices for the same uniform commodity tend to effect discrimination between different localities and consumers, and to depreciate the quality of the commodity, and to destroy competition in that commodity and to monopolize the sale of the same, and to deceive consumers as to the value of the commodity, and otherwise and wrongfully to appropriate and impair the good will of the originating proprietor; and

Whereas under existing law proprietors possessing large capital, resources, and facilities, through their consequent ability to maintain branch establishments or sole agents throughout the country for fixing uniform prices for uniform commodities, are enabled to discourage competition, to deprive retailers of their independence, and to prevent them from handling competing commodities, and otherwise to exercise an unfair advantage over smaller competitors; and

Whereas the increased expense of maintaining branch establishments or sole agencies increases the price of commodities to the consumers; and

Whereas uniform prices facilitate the wide and steady distribution of uniform commodities and thus tend to lower the price to consumers by lowering the cost of production and distribution: Now, therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following terms and phrases in this Act are used and inserted with the sole sense, meaning, and definitions now set forth:

A "uniform commodity" is hereby declared and defined to be any article, product, or commodity which enters into interstate commerce, and which is standard or uniform in grade, size, and quality with other articles, products, or commodities of the same price of the same proprietor, and which has affixed, printed, stamped, embossed, engraved, or otherwise marked thereon or applied or attached thereto, in any manner, or to the package, can, bottle, box, or other container, receptacle, or covering of any character whatever, in which the article, product, or commodity is packed, contained, or inclosed, the trade-mark or trade-name of the proprietor of said article, product, or commodity, which trade-mark or trade-name has been properly registered in the United States Patent Office under the terms and provisions of the Act entitled "An Act to authorize the registration of trade-marks used in commerce with foreign nations or among the several states or with Indian tribes, and to protect the same," as enacted February twentieth, nineteen hundred and five, and as now, as well as hereafter, amended, together with the notice of the registration of said trade-mark or trade-name, as required by said Act.

A "proprietor" is hereby declared and defined to be any person, firm, corporation, or association engaged in manufacturing, selecting, packing, distributing, printing, publishing, or otherwise producing or preparing for the market any uniform commodity under a trade-mark or trade-name, owned by said proprietor, and which has been registered by said proprietor, or his predecessors in business,

in the United States Patent Office, under the terms of an Act entitled "An Act to authorize the registration of trade-marks used in commerce with foreign nations or among the several states or with Indian tribes, and to protect the same," as enacted February twentieth, nineteen hundred and five, and as now, as well as hereafter, amended.

A "dealer at wholesale" is hereby declared and defined to be any person, firm, corporation, or association who or which distributes or sells any uniform commodity to any dealer for resale.

A "dealer at retail" is hereby declared and defined to be any person, firm, corporation, or association who or which sells any uniform commodity direct to any consumer.

A "consumer" is hereby declared and defined to be any person, firm, corporation, or association who or which purchases any uniform commodity for ultimate consumption or use.

The expression "interstate commerce," as used herein, is hereby declared and defined to mean commerce between the United States and foreign nations, or among the several states, or between a state or states and places subject to the jurisdiction of the United States, or between any territory of the United States, and in and between such territory or territories and any state or states and the District of Columbia, or places under the jurisdiction of the United States, or between the District of Columbia and any state or states and foreign nations or places under the jurisdiction of the United States.

Sec. 2. That the proprietor of any uniform commodity, entering into interstate commerce, may establish a uniform retail selling price for such commodity to all consumers, wherever located, after making due allowance, at the option of the proprietor, for the actual cost of transportation from the point of production or manufacture of such commodity to the point of retail sale or consumption, by a notice of said uniform retail price applied to or connected with said uniform commodity, or served on the dealer either directly or through the usual trade channels: *Provided*, That the purpose and effect of said uniform retail price is to avoid discrimination between different consumers and localities: *And provided also*, That the proprietor shall file in the Bureau of Corporations, as a public record, under rules to be prescribed by said bureau, a uniform price schedule identifying the uniform commodity, and setting forth the uniform price of sale thereof from the proprietor to all dealers at wholesale, and the uniform price of sale thereof from the proprietor and all dealers at wholesale to all dealers at retail, and the uniform retail price of sale from the proprietor and all dealers at either retail or wholesale, to all consumers: *And provided also*, That new uniform price schedules shall always be filed in the Bureau of Corporations not less than thirty days before sales at newly established uniform prices may lawfully be made by the proprietor, such new schedules to apply only to uniform commodities which have notice of the new uniform consumer's price applied thereto or connected therewith.

Sec. 3. That any proprietor or any dealer at wholesale or retail who shall violate either the wholesale or retail uniform selling price of a uniform commodity entering into interstate commerce by charging or accepting, at wholesale or retail, as the case may be, a less price, directly or indirectly, for said commodity than the wholesale or retail uniform price established by the proprietor, shall be liable to an action for damages and an injunction at the suit of any proprietor, dealer, or consumer engaged in producing, or dealing in or with, or in consuming such uniform commodity.

Sec. 4. That any uniform commodity in possession of a dealer at wholesale or retail may be sold for a price other than the uniform price set forth in the uniform-price schedule filed under section two hereof providing such dealer shall cease to do business and the sale shall be in the course of winding up the business of such dealer, or providing such dealer shall have become bankrupt or a re-

ceiver of the business of such dealer shall have been appointed: *Provided*, That in either case above specified such uniform commodity shall have first been offered to the proprietor by the dealer, receiver, or trustee in bankruptcy, or the legal representative of the dealer, by a written offer at the price paid for the uniform commodity by such dealer, and that such proprietor, after reasonable opportunity to inspect such article or articles shall have refused or neglected to accept such offer, or providing such uniform commodity shall have become damaged, deteriorated, or soiled, and providing that such damaged, deteriorated, or soiled article shall have first been offered to the proprietor thereof by the dealer by written offer, at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such uniform commodity, shall have refused or neglected to accept such offer, and providing that such damaged, deteriorated, or soiled article shall thereafter only be offered for sale by the dealer with prominent notice to the consumer that such uniform commodity is damaged, deteriorated, or soiled and that the price thereof is reduced because of such damage.

Sec. 5. That nothing in this Act shall be construed as repealing an Act entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," which became a law on the second day of July, in the year eighteen hundred and ninety.

Comprehensive as this bill is apparently intended to be, with its precise definitions of everything connected with its subject, it does not make clear how a consumer could estimate his damages in a transaction where he had purchased goods at a less price than the one fixed, and the bill is somewhat objectionable because it leaves the punishment of the offender to private initiative. It is possible that this bill, with its provision for the punishment of offenders in this way, may be found acceptable, with a view to after amendment by which those who violate the law may be punished by public prosecution. We urge Price Standardization on the ground of the public weal, not to protect individuals, and we say that anyone who cuts prices is acting against the public interests and it would seem as though they should be punished as others are punished who commit offenses of that nature. But this bill, like the other, is to be commended as marking a distinct and positive advance toward better and more hopeful conditions and as such it should meet the approval of all friends of just and honorable methods in trade.

ERNEST C. MARSHALL.



PROPOSED ENTERTAINMENTS AT THE DETROIT MEETING.

IN preparing for the August meeting of the American Pharmaceutical Association the various committees on Entertainment, Finance, and Ladies' Program have gotten down to real work, with every determination to make the '14 convention the Banner Meeting of the Association. They have ample "steam" and funds at their disposal, backed up by the very rich attractions which Detroit offers as a Convention City.

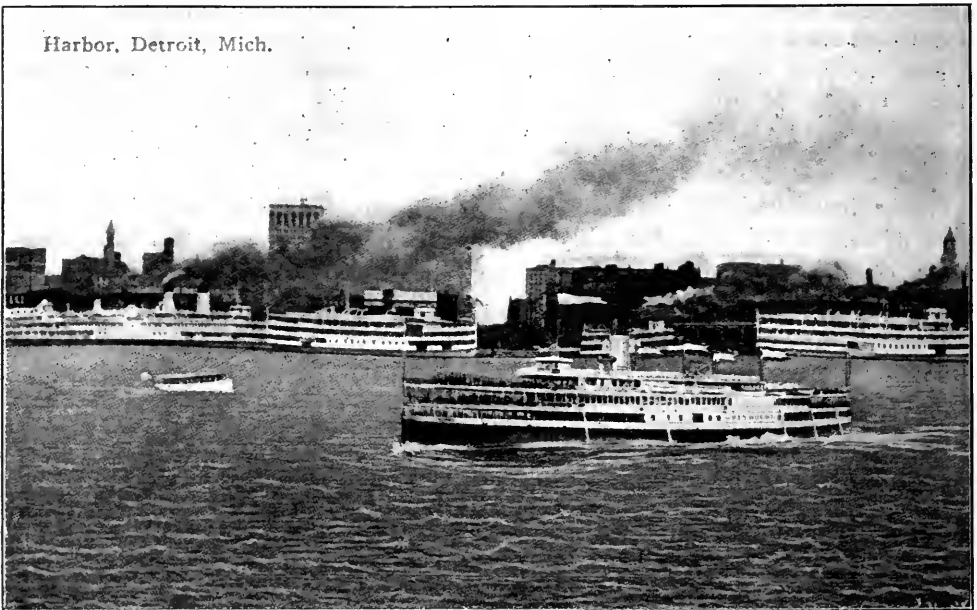
The Michigan travelers of the drug houses, headed by Mr. Frank Kerr, are making it possible to send the Journal of the Detroit Retail Druggists' Association to every druggist in the state. Each issue bears some interesting article or announcement pertaining to the August meeting.

It is expected that the visitors will wish to catch some glimpses of the huge

industrial plants which have made Detroit the greatest manufacturing center in the world for drugs, automobiles, and stoves. The Committee are shaping their arrangements so that small groups can make their own selections for sight-seeing at their convenience. Those desiring it will be welcome to inspect the world-famous Ford plant, or any of the large stove works, or the well-known manufacturing pharmacies.

Entertainment is to be provided for each evening during Convention Week, if this can be done without prejudice to the work of the various sections.

In addition to the regular steamer excursion to the Ste. Claire Flats in which all the delegates and ladies will participate, a special boat ride is on the carpet for ladies only, to charming "Bob-lo" (Bois Blanc), at the mouth of the Detroit



River, where dinner will be served. Theatre parties, card parties, and automobile rides will not be overlooked, though the Committee are not yet able to make definite announcements.

One of the Convention evenings will probably be devoted to a smoker, with proper entertainment.

As for the general attractions by land and water, there is probably not another city on the Continent that offers the varied pleasures which Detroit holds out to the tourist and delegate. Belle Isle, connected by bridge with the city proper, is one of the most beautiful parks in the world. Surrounded by the two arms of the Detroit River, at almost equal distance from the American and Canadian shores, its outside drive is one long feast, charming every inch. The County of Wayne, in which Detroit is situated, is famous for its fine cement motor roads. In every direction one may drive for miles over the smoothest of highways. The facilities for rowing, sailing, and all-day steamer excursions across Lake Erie or Lake Ste. Claire are ideal.

"Where to go" is the perplexing question where there is such embarrassment of riches and the time is limited. Fortunately, the visitor to the August Convention will be spared the necessity of choosing, for he will have the benefit of a carefully planned program in the hands of men who thoroughly know the local ropes.

JOSEPH HELFMAN,
Member of Committee on Publicity.

IODINE IN JAPAN AND SIBERIA.

Crude iodine is produced all along the seacoast of Japan proper, principally in the Prefectures of Chiba, Miye, Kanagawa, Ibaraki, Shidzuoka, and Hokkaido. It is manufactures from a seaweed that is found in great abundance along the southern coast of Japan. The industry is carried on in a small way by numerous individuals and factories. The chief factory is situated at Hayama, near Dzushi, about twenty miles from Yokohama. The subscribed capital of this company is \$17,500.

No statistics of production are available, but the customs returns for 1912 show that 22,772 pounds, valued at \$44,979, were exported to foreign countries in that year, principally to Great Britain, Germany, Hongkong, and Belgium, in the order named. Buyers and commission merchants or their agents go to the manufacturing districts and buy what they can for the exporters in Yokohama and Osaka.

In a report published in December, 1910, it was stated that plans were being made to open a factory at Olga Bay for the manufacture of iodine from the iodine-bearing seaweed to be had in great quantities in that region. The project was dropped and no such factory has ever been built in the district. A Russian firm made experiments and found that iodine exists in commercial quantities in the seaweed. It is said that this concern sold out whatever interest it may have had to a German chemical company that wished to limit competition.

It is understood that in Japan the peasants burn iodine-bearing plants and ship the ashes to Europe. In the Russian Far East this is not done, as the Russian peasants do not understand the proper method of burning the plants and saving the ashes.

Iodine plants grow about Possiet Bay, Expedition Bay, Olga Bay, and other bays in the vicinity. There is a strong odor of iodine in the atmosphere about Expedition Bay, where a sanatorium has been established for sick soldiers, who sleep on beds filled with iodine plants until they are convalescent. As Expedition Bay is not included in the Russo-Japanese fishing convention of 1907, only Russian subjects can work there.—*Daily Consular and Trade Reports*.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

INDIVIDUAL VARIATION IN BELLADONNA PLANTS AS A BASIS FOR IMPROVEMENT BY SELECTION.

A. F. SIEVERS, CHEMICAL BIOLOGIST, OFFICE OF DRUG PLANT INVESTIGATIONS,
BUREAU OF PLANT INDUSTRY, U. S. DEPARTMENT OF AGRICULTURE.

The improvement of medicinal plants through the methods and principles of plant-breeding is beginning to receive considerable attention. The quality of many of our important drug plants as found on the market is far from satisfactory and the inability to secure drugs of sufficient strength has in some cases necessitated the lowering of the Pharmacopœial standard. Such a procedure was followed at the eighth decennial revision of the Pharmacopœia with regard to belladonna and stramonium. The supply of wild belladonna is rapidly becoming exhausted and the demands of the drug trade will soon have to be supplied from the cultivated plant. It is of great advantage, therefore, at this time to make concerted efforts toward securing a type of belladonna plant which, when extensive cultivation of the plant is finally resorted to, will produce a product which is of satisfactory and consistent medicinal strength.

With this object in view, the Office of Drug Plant Investigations of the U. S. Department of Agriculture has had in progress for several years a thorough investigation of the belladonna plant under cultivation with special reference to the variation of the alkaloidal content of the plants with a view toward obtaining data so that through the methods of plant-breeding or selection it might be possible to establish a desirable type of plant. This work is now being carried through the third season, and, while only a beginning has been made, the results are sufficiently illuminating to be worthy of presentation.

The investigation has been conducted mostly at the Arlington Experimental Farm at Arlington, Va. Some additional work has been done at the stations in Wisconsin and Maryland, but the largest number of plants have been under observation at Arlington. After some preliminary work, the investigation was finally started with fifty-nine individual plants in the spring of 1911. The plants were then in their second year. They were carefully watched as to growth and general development, and at five different stages samples of leaves were gathered from each plant. The leaves were taken from all parts of the plant, so as to insure a representative sample. After carefully drying the leaves in a well-ventilated room they were placed in light cloth bags until assayed.

The question of assaying required some special attention in order to devise a method suitable for assaying such small samples as those to be dealt with in this

work. Some samples weighed as little as four grams, dry weight, and since all assays were made in duplicate it was necessary to have a method applicable to two grams of material. After considerable experimentation, the Pharmacopœial method in a modified form was adopted. The principal modification of the method consisted in the use of much greater quantities of menstruum for the extraction of the alkaloids, experience having shown that the quantity recommended in the Pharmacopœia is not sufficient.

The stages of growth at which the leaves were gathered were as follows: The first, during the early part of May before the flowers appeared; the second, during the last of May when the plants were in full bloom; the third, about the middle of June when the berries were developing and in various stages of maturity; the fourth, early in September when the berries were mostly ripe; and the fifth, about the middle of October when the plants had grown considerable new leaves.

In a paper of this kind it is, of course, impossible to give all the analytical data of so many individual plants and only a summary will be given. The maximum, minimum, and average percentages of alkaloids in the leaves of these individual plants at each picking in 1911 were as follows:

Picking.	Percent of Alkaloids in Leaves.		
	Maximum.	Minimum.	Average.
	%	%	%
First .....	.852	.303	.472
Second .....	.879	.267	.528
Third .....	.925	.277	.517
Fourth .....	.908	.311	.633
Fifth .....	.733	.200	.519

In the following season, 1912, these same plants were again under observation and the leaves were picked at corresponding stages of growth. The maximum, minimum, and average percentages of alkaloids in these plants at the various stages were as follows:

Picking.	Percent of Alkaloids in Leaves.		
	Maximum.	Minimum.	Average.
	%	%	%
First .....	.869	.404	.601
Second .....	.747	.292	.503
Third .....	.882	.328	.553
Fourth .....	.806	.359	.568
Fifth .....	.678	.296	.447

It will be noticed that the range of variation in the individual plants is very great. It is this fact that seems to hold forth great promise of the successful application of plant-breeding and selection methods and it was for the purpose of definitely establishing the existence of such great variations that this investigation was started.

Another fact of vital importance has been established by the two years' work. It has been found that, in a general way, the plants which are very rich or very poor in alkaloids one year will display the same characteristic the following year. Furthermore, these same characteristics are evident at each picking throughout the season. Out of the fifty-nine plants examined, forty were found to retain their characteristics as regards alkaloidal content through both seasons. A few especially characteristic individuals may be given here in detail. Thus No. 3 assayed .384 percent, .375 percent, .277 percent, .549 percent, and .451 percent alkaloids at the different stages in 1911, and .393 percent, .448 percent, and .448 percent in 1912. Again, No. 39 assayed .303 percent, .262 percent, .327 percent, .614 percent, and .451 percent, in 1911, and .404 percent, .365 percent, .525 percent, and .600 percent in 1912. On the other hand, plant No. 7w assayed .558 percent, .831 percent, .832 percent, .727 percent, and .575 percent in 1911, and .782 percent, .666 percent, .646 percent, and .694 percent in 1912. Again, No. 6w assayed .596 percent, .879 percent, .925 percent, .711 percent, and .722 percent in 1911, and .847 percent, .882 percent, .804 percent, and .558 percent in 1912. These four plants illustrate what has been said in regard to the consistency of the individual type from season to season. Plants No. 3 and 39 are manifestly of poor medicinal quality, as compared with the average, while plant No. 6w and plant No. 7w are of exceptional quality. It is plants like the last two named which are being used as a basis for the propagation of a desirable type of belladonna. After the selection of a desirable parent plant, new generations are secured from these through seed or cuttings. The flower of the belladonna plant is usually cross-pollinated, so the question of close pollination must be considered. Thus far, only plants from cross-pollinated seeds have been tested. These plants made their first season's growth last year. Two pickings of leaves were made. These plants were not tested individually, but the leaf samples were taken collectively from all the plants secured from the same parent. It is interesting to note that the plants from the seed of No. 7w and No. 6w showed a high alkaloidal content. Thus plants from No. 7w averaged for the two pickings .804 percent, and those from No. 6w averaged 1.043 percent. It will be seen then that the first generation plants from the two richest parent plants selected showed conspicuous richness in their first season, even though the seeds from which they grew had probably been formed from cross-pollination. These plants, as well as many others, are being carefully observed and tested individually this year, 1913, and it is hoped that a few of very great medicinal strength will be obtained. At the same time, other first generation plants which were grown from inbred seeds from the same parent plants as those above are being grown this year and their leaves will be tested as soon as they have attained a suitable growth. The matter of propagation from cuttings is also being taken up in detail this year.

The plant breeder, in striving to evolve a valuable type of economically important plant, must reconcile two factors. The plant must yield a valuable product and at the same time it must yield enough of this product to make its production a commercial possibility. The problem with belladonna does not differ in this respect. If we are to depend on cultivation for its supply, then such cultivation must be made fairly profitable. The problem, therefore, be-

comes more difficult in that the desirable plant is not one which shows great medicinal qualities alone, but one which at the same time produces an abundance of leaves and roots. In the several years during which this work has been progressing, nothing has been found to indicate that any relationship exists between the physical appearance of the plant and its alkaloidal content. While no such general relationship may exist, there is always the possibility, however, of some of those unusually rich plants possessing at the same time the desired physical excellence which would make them the most valuable type from both the medicinal and the agricultural standpoint.

Much has been said and written concerning the production of alkaloids in belladonna. The influence of various soil constituents, excessive rainfall and drought, sunlight and shade have all been the subject of repeated investigations and the conclusions reached do not lack in variation. Of what value are all such investigations when the range of variation in individual plants is frequently greater than the difference in alkaloidal content attributed to different fertilizers or different climatic conditions? Until a type of plant is found which is at least fairly constant in the quality of alkaloids it produces, vital conclusions cannot be drawn from experiments such as those mentioned. The factor of individual variation must first be eliminated before the influence of environment can be definitely determined.

THE PREPARATION OF PURE SUCROSE AND DEXTROSE CAMELS.

GEORGE D. BEAL AND HARPER F. ZOLLER, URBANA, ILL.

The attention of the authors was first directed to the preparation of caramels by the failure of the qualitative tests for caramel in a number of liquids to which it had been added as a coloring agent. In order to study these reactions we set out to prepare pure caramel and observe its behavior. A review of the literature on the subject interested us in the composition of caramels, and it is on this account that we have studied carefully the preparation of the caramels in the purest condition.

The recent communications of Beringer and others have induced us to report our findings to this section in the hope that they may be of some assistance. In nearly all papers caramel has been considered as a mixture of the products of the action of heat on sugars. Prof. Beringer has recently given us a method for the preparation of a purified caramel based on the use of alcohol and sodium carbonate, the latter to dissolve any water insoluble products. In our method we have avoided the formation of this insoluble product by a shorter time of heating, rendering unnecessary the use of the alkali.

Caramel may be defined as an intermediate product in the decomposition of a carbohydrate by heat, and its composition varies according to the source. This will be taken up in a later paper, now in preparation. In addition to the caramel a large amount of vapor is formed, consisting in part of water, formalde-

hyde, acetaldehyde, benzalhyde, acetic acid, and carbon dioxide. This is in the particular case of sucrose caramel.

Caramel may be prepared in the laboratory by heating the desired sugar in a flask suspended in a heating bath at a temperature of 210° C. Personally, we prefer a bath of cottonseed oil, although we have used rape-seed oil, paraffin, sulphuric acid and Wood's metal.

Preparation. In our experiments we proceeded as follows: 100 gms. of granulated cane sugar or crystalized dextrose were placed in a 500 cc. Florence flask, suspended in an oil bath together with a thermometer and heat applied. When the temperature of the bath reached 210° C. it was maintained at that point for 30 minutes.

Sucrose begins to melt at 160° and between 180° and 190° it has a clear yellow color, being then in the form of barley sugar. As the temperature rises to 210° the mass begins to foam, rapidly darkening in color, giving off vapors rich in acetic acid and benzaldehyde.

Dextrose begins to melt at 140° . As the temperature reaches 180° it begins to froth and with the rise in temperature to 210° the color changes from grayish white through yellow to orange, then a golden brown and finally brownish black.

When caramelization was completed the flask was removed from the heating bath, partially cooled, then about 250 cc. of water added and the mixture allowed to stand until solution was complete. We found that by caramelizing in this manner no insoluble substance was formed. If a caramel flavor is desired this solution may be used.

Purification. The caramel solution thus obtained contained unchanged sugar and all the decomposition products not yet volatilized. If the solution be evaporated at this point, a sticky mass will be obtained.

There are three methods of purification, only one of which we have found to be satisfactory. Caramel is not as soluble in alcohol as in water, therefore a concentrated aqueous solution of caramel may be precipitated by pouring it into alcohol. This requires a comparatively large amount of alcohol, and to obtain a pure product requires several precipitations, since part of the sugar and probably some of the other decomposition products are precipitated with the caramel. For this reason the method is expensive and unwieldy.

Caramel is unfermentable, although some varieties of mould will grow upon it. If the caramel solution is kept at a temperature of 35° and some yeast added, the sugar may be fermented out in about three days time. To remove the yeast cells, it is necessary to filter the fermented solution through a Pasteur-Chamberlain filter or through a layer of infusorial earth on a filter paper in a Büchner funnel. The caramel prepared in this manner is extremely bitter and acid to the taste. The reason for this is that the fermentation removes only the sugar. Also, the caramel cannot be obtained in a dry condition free from stickiness.

We sought for a cheap and rapid method for freeing the caramel from all other decomposition products as well as from the sugar. Sabaneef and Zsigmondy both state that caramel passes very slowly through dialysis membranes. We found that membranes of either parchment paper or collodion might be used, diffusion through the collodion being more rapid. The preparation of collodion membranes for dialysis is described by one of us in another paper.

A membrane, prepared in a cylindrical beaker or an Erlenmeyer flask is about half filled with the caramel solution, a small glass tube tied into the neck, and the bag suspended in water, with the water and solution at the same level. The diffusion is allowed to continue for thirty-six hours, either in running water, or water which is changed frequently. A small amount of caramel passes through the membrane and is lost. The solution at the end of the dialysis is odorless, and has only a faint bitter taste. It has only a very slight reducing power which we believe to be due to the caramel itself.

The dialysed solution is then evaporated to a thick syrup and poured onto clean glass plates. When the film of caramel becomes dry, it may be scaled off. Working in this way, we obtain a yield of 15 percent of the original weight of sugar.

The caramel forms shiny, reddish- or brownish-black scales, perfectly dry and readily soluble in water or alcohol. Sucrose caramel is more intensely colored than dextrose caramel. The ratio of the color of solutions of the two caramels of the same concentrations is about ten to one. For this reason we recommend cane sugar as the source of caramel, although it is stated on good authority that by far the greater part of that on the market is made from glucose.

As stated above, the composition of caramel varies according to its source. We have found that the composition of each variety of caramel is constant in a number of preparations, by a determination of carbon and hydrogen in the caramels themselves and their benzoyl-derivatives, and determinations of their molecular weights.

SUMMARY.

Caramel is best prepared by heating cane sugar or glucose at 210° for thirty minutes. A somewhat higher yield is obtained by longer heating, but some insoluble matter is formed at the same time.

The best method of purification is found to be dialysis in a collodion membrane.

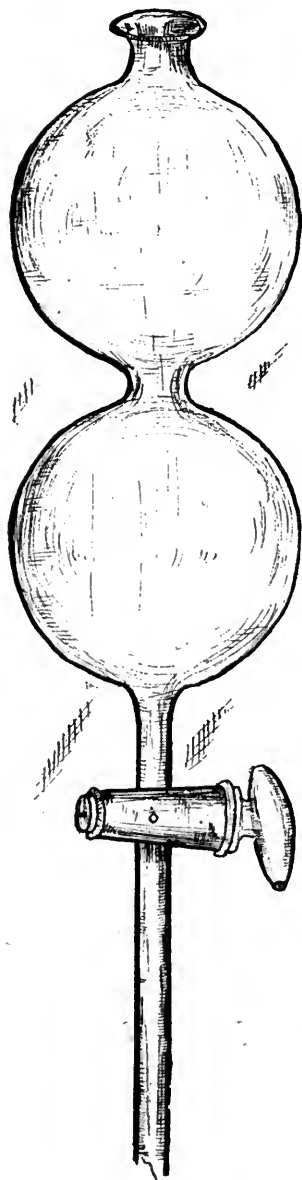
Sucrose caramel solutions are more densely colored than solutions of dextrose caramel of the same concentration.

All of this work is being continued and we hope to report progress from time to time.

CHEMICAL LABORATORY OF THE UNIVERSITY OF ILLINOIS, June, 1913.

A NEW FORM OF SEPARATORY FUNNEL FOR PREVENTING THE FORMATION OF EMULSIONS IN SHAKING OUT WITH IMMISCIBLE SOLVENTS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.



LaWall Separatory Funnel.

Many methods have been suggested for breaking emulsions when once formed and some few devices have been employed for preventing the formation of emulsions. While watching an extraction with hot chloroform in a Landseidl continuous extraction apparatus the idea occurred to me that if some form of separatory funnel could be constructed which would allow the liquids to pass each other in a thin layer without the necessity of agitation or even rotation the result would be satisfactorily achieved. Accordingly I had several separatory funnels made of a shape shown in the accompanying illustration.

The apparatus consists of two bulbs separated by a very small and short neck (not too small, however, as one was constructed in which the liquids were restrained from passing by the force of capillary attraction.) In one of these bulbs the liquid which is to be extracted is to be placed, adding sufficient water to completely fill the bulb. In the other the immiscible solvent which is to be used for the extraction is to be placed, almost completely filling the second bulb. By then inclining the bulbs at an angle, with the lighter of the two liquids in the lower bulb, the two liquids flow past each other in such a fine stream that almost complete extraction is easily accomplished by repeating the operation two or three times by inverting the funnel, after which the immiscible solvent may be drawn off and replaced by a fresh portion for the completion of the operation.

Such difficult operations as the extraction of mineral oil from a saponified vegetable oil dissolved in water can be readily accomplished without the least tendency on the part of the mixture to emulsify. Indeed, if used with ordinary care it would seem to be almost fool proof in this respect.

The use of this device makes possible the application of the assay process for alkaloidal fluidextracts suggested by me in a paper at the Boston A. Ph. A. meeting (J. A. Ph. A., Vol. 1, p. 39), without the difficulty of emulsification which was experienced by many who tried the method. Indeed, it was the search for

some such device which would make the process referred to more practical, that led to the construction of the form of apparatus described above, which I believe to be practical and to have a wide field of usefulness in the analytical and technical laboratory on either the small or large scale.

The bulbs may be made of any size convenient for the work to be accomplished.

NOTE ON THE PREPARATION OF COLLODION MEMBRANES FOR DIALYSIS.

GEO. D. BEAL, PH. D., URBANA, ILL.

The use of dialysis membranes of collodion is becoming fairly well known, but has been only occasionally mentioned in the literature. This note is intended merely to place the information where it will be available to the members of the Association, no originality whatever being claimed for it.

Membranes of parchment or parchment paper, while properly semi-permeable, require the use of an open vessel as a holder, or else form a very clumsy sort of a bag. The advantage of being able to prepare a dialysis cell of any desired shape or size will be apparent at once. This may be done with collodion, which has been prescribed for a long time as a cement for sealing the holes in a parchment membrane, without taking note of the fact that it could itself be formed into a flexible, semi-permeable membrane, possessing considerable strength.

A glass vessel of the desired shape and size is carefully cleaned with chromic acid cleaning mixture and thoroughly dried, after rinsing well with distilled water. It is best not to use alcohol or ether in the drying of the vessel. Twenty-five to 50 cc. of Collodion U. S. P. (according to the size) are poured in, and the vessel rotated while being inclined on its longitudinal axis, in order to secure an even coating on the entire inner surface, and finally the excess allowed to drain off, rotating continually. The inverted flask is rotated until the membrane is firm to the touch and the odor of ether is gone.

Run a knife blade around the rim of the vessel, to start the film loose, then place a glass tube, with rounded edges, in the mouth of the collodion membrane to permit the escape of air, and pour water between the collodion and the vessel to loosen the film, when it may be withdrawn. The bag should be tested for leakage by filling with water, and kept under water until it is to be used.

It is essential that the vessel be clean and dry, and that the collodion be of the U. S. P. variety. I have never been able to make a good bag from acetone collodion.

We have used these membranes successfully in the purification of caramel, the precipitation of certain proteins by dialysis, the preparation of colloidal hydrated manganese dioxide, and a number of other experiments. They are also being used in biological work, and seem to be generally available and easily prepared.

Section on Pharmacopœias and Formularies

Papers Presented at the Sixty-First Annual Convention

THE CAUSE OF ADULTERATED PREPARATIONS.

WALTER H. VARNUM, LAWRENCE, KANSAS.

In treating this subject it is my purpose merely to speak of some of the reasons for the lack of conformity to the standards of the Pharmacopœia in the preparations made by retail pharmacists, which condition unfortunately exists not because, I believe, that the majority of the druggists wilfully or maliciously adulterate their preparations, but because of other reasons of which I shall speak. The reason why I believe this, is because, First, I think most druggists are honest; Second, there are as many preparations found to be in excess of the standard strength as under, and Third, that the amount of manufacturing which the ordinary store undertakes would hardly make it worth while for the practice of dishonesty in lessening the strength of its preparations. To ascertain the reason for the lack of uniformity my first step was to inform myself as to the methods of manufacture in a number of stores, and in twenty-five stores of one of our largest cities I found the following to be the methods used to procure some of the U. S. P. preparations which they dispensed.

By dilution from fluidextracts.....	20
By following the Pharmacopœia.....	3
By purchase from wholesalers.....	2

Whether this same proportion would hold good all over the country it is of course impossible to say, but as these stores represent the conditions existing in one city, it may be assumed as a fair statement of general conditions, and when one stops to think that 80 percent of the druggists of the country do not make their pharmaceuticals by the U. S. P. processes, is it any wonder that there is need for Pure Food Inspectors?

Consider the ease with which unintentional mistakes can be made in the measurement of fluidextracts and the effect of such mistakes on the finished products, where a shortage of a few minims of the concentrated liquid means an appreciable difference in the product. This shortage may proceed from inaccurate measurement or from failure to rinse the graduate with the diluting fluid. For instance if 30 cc. are to be used in the manufacture of a preparation and 3 cc. are adherent to the graduate then there is a loss of ten percent in the strength of the finished product. It may be said that a person who is so careless as to allow these cc. of the fluidextract to fail of inclusion in the tincture would be careless in manufacturing by the U. S. P. processes, but if so a mistake of a few grains in his weighing will make no appreciable difference in the strength of the finished

product, and then too the mental training he will acquire by following out the specific directions of the U. S. P. will tend to make him careful in his work.

The catalogs and price-lists of glass manufacturers advertise graduates guaranteed to deliver certain specified quantities. I hope that no one here present is guilty of using these graduates and feels safe in so doing, for there is no graduate made that is capable of delivering an equal amount of all liquids that are measured in drug stores. The only way to secure accurate results would be to have a separate graduate for each liquid from chloroform down to balsams and heavy oils. But suppose that Mr. Druggist has a special graduate for the particular fluidextract that he is measuring—does that mean that it will deliver that quantity as he pours from it or must he let it drain carefully to get his required quantity? And, too, if he then rinses his graduate with his liquid is he going to get more of his concentrate and thus have a stronger preparation in his completed product? Such things tend to lack of uniformity in attaining the proper standards; furnish employment to pure food inspectors and encourage a lack of confidence in the druggist by physicians and laity. If I were going to use fluidextracts in the manufacture of preparations I would buy a pipette to use in measuring them, for only by using accurate measurements can one be sure of getting accurate results. The principle of using graduates guaranteed to deliver certain quantities is all right in theory but it is absolutely impossible to get a graduate which will deliver the goods. If there are any skeptical persons here that doubt this statement let him go home and test its truth by measuring from a guaranteed graduate 30 cc. each of chloroform and Balsam of Peru. Of two preparations, one made by the process of the Pharmacopœia and the other by diluting the fluidextract, there is but one that you can consistently mark as U. S. P.—the former. The other is made by an unofficial method and from a concentrate whose strength is vouched for by a manufacturer, but of which you have no other evidence. One you know to be true to standard, the other you hope will turn out so. Compare the appearances of preparations made by these two methods. They will be found to differ greatly and most of the tinctures made from fluidextracts will form a precipitate from the variances of the alcoholic strength of the diluting fluid from that used to prepare the fluidextract. Not long ago I was forced to prepare some Syrup of Wild Cherry from the fluidextract, the patient being in a hurry for the prescription which my stock of that syrup was insufficient to prepare. After I had prepared it I was ashamed to dispense the preparation, even in a prescription where the color would be somewhat disguised, for instead of the clear red syrup of the official process the product was a cloudy, dark brown syrup. There is much complaint by physicians on account of lack of uniformity in the appearance of standard pharmaceutical preparations, and if they should be supplied with a dark brown syrup of Wild Cherry instead of a clear red one, can you blame them for their just complaint? This was the first time I had ever used this method and it will be long before I do so again. The men who make the United States Pharmacopœia are as learned a group of men, both in the theory and practice of pharmacy, as can be found in the country, and they certainly would not require a busy pharmacist to waste his time in making preparations in the way directed by them, if the shorter way was "just as good."

In this day and age *speed* is the pass-word, but do not fool yourselves into believing that you are saving time and money when you are not getting the best results. The large manufacturers use the U. S. P. methods because they must conform to its standards; their goods must be able to stand government inspection and they must be sure that they are up to standard. As to the cost of manufacturing one's own preparations I have made two calculations, one including the time-cost, and the other excluding it. The first computation was made in order to fairly compare the cost with that of the manufacturing firms. The second was made for the reason that as the work was incidental to the other work of the store, it was thought best not to add the time-cost in figuring the net cost of the preparation. By the first method I find the actual saving to be from 10 percent to 25 percent, and by the second method the saving is from 25 percent to 50 percent. After making a preparation the next step is to test it to see that it is up to the standard required by the Pharmacopœia. I am afraid that the number of pharmacists who see the fine print underneath the directions for manufacture are very few indeed. I doubt if any druggist in the United States who makes his preparations from fluidextracts ever tests them after making. I am also doubtful as to whether there are many of those who make their preparations by U. S. P. methods who submit them to official tests. The fine print which follows the directions for making the preparations is just as important as the rest, if not more so. Nearly every druggist who uses the short method of manufacture has the same excuse to offer, viz., "This way is just as good and it saves a lot of time. I haven't the time to do it the other way." This may be so, but what does he keep registered men for, if not to do this work? If he has enough confidence in them to stand responsible for the prescriptions they prepare, he should have confidence in their ability to manufacture official preparations. This brings us to another question of importance, but which I will not discuss in this paper on account of lack of time. That is the graduation qualification for registration. While I believe it possible for a person to make a success in the drug business without a college training, yet in such a school he is trained in the pharmaceutical art, is made familiar with its literature, its implements and processes, and is taught to use his Pharmacopœia rightfully and usefully. There is of course a class of druggists in our profession which class is found in all lines of work—the incompetent. While this class do not maintain themselves in the drug business as long as in some other lines of work, many of them are in it long enough to bring discredit upon the profession. This class needs nothing more than a mere mention, as to waste time upon discussion of them would be useless and unprofitable.

We have therefore three classes of druggists that are responsible for the lack of uniformity in pharmaceutical preparations: First, the careless druggists who are the most numerous, and who can improve their methods if they will but try to do so; second, the "busy" (?) druggists who plead "lack of time," but who can be converted by being "shown"; third, the incompetent druggist, who will be out of business before he can be "shown" or taught. I hope that there is no one here that belongs to any of these classes, but should there be, it is time for him to change his ways and then if possible to be his "brother's keeper" and try to help him upward into the right path.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

SUGGESTIONS ON QUALIFICATIONS TO TEACH IN COLLEGES OF PHARMACY.*

ALBERT SCHNEIDER, PH. D., SAN FRANCISCO.

I threatened to prepare a paper on the subject of Qualifications to Teach in Colleges of Pharmacy, but after I thought the matter over somewhat, I got cold feet. I feared that what I might say would not please everybody. As you know, it is practically impossible to please anybody; furthermore, I desire to have it clearly understood that the suggestions which I shall make are not to be taken in any way as personal, or directly applicable to any one institution, or to any one individual. There are simply a few general suggestions that I wish to submit, and if they are worthy of consideration, which I hope they are, they may result in some good.

By qualified teachers in colleges of pharmacy I have in mind the qualifications to have charge of the three departmental heads or divisions of the college of pharmacy, namely: Pharmacy, which is of first importance; second, Chemistry, and third, Pharmacognosy,—using this latter term in the sense that it is used in the California College of Pharmacy, as including general and special botany, and pharmacognosy proper, which includes a lecture course as well as laboratory work, bacteriology, human physiology, urinalysis, special micro-analysis, and such other work as is usually relegated to that division.

We may consider the qualifications to teach under two heads: First, inherited, and second, acquired. I am satisfied—based upon my observation and experience—that no individual, man or woman, should contemplate teaching unless he or she is keenly interested in such work, an interest which amounts to enthusiasm. That enthusiasm manifests itself very early in life, let us say at the age of five or six. You can readily pick out those who will probably make good teachers. The young man or young woman who has a keen ambition to excel along educational lines, has one important qualification to become a teacher. On the other hand, the individual who early in life expresses a predominant interest along commercial lines—who looks upon human activities in the light of the dollar sign—is not qualified, by inheritance, to become a teacher. It is true, we all desire to make a living, and in order to make a living we must interest ourselves in the dollar sign, more or less. Even a teacher in a college of pharmacy wants to live; he has a certain appreciation of the comforts of life; he would like to

*Delivered orally to the Joint Session of the Sections on Education and Legislation, the Conference of Pharmaceutical Faculties and the Association of Boards of Pharmacy.

provide for his family; he would like to send his children to school and give them the advantages of a progressive age. But there are certain reasons, to be mentioned later, which make the attainment of such desires practically impossible.

Next, after inherited qualifications, namely, the thirst for knowledge, comes the ability to convey information to others. This comes with training and experience. Temperamental qualifications are also very important. The individual who gets excited upon the slightest provocation and loses control of himself, is not fit to teach. Such an individual should select some other vocation. The one qualified to teach should be of even temperament, without being phlegmatic or indifferent, because an indifferent person cannot possibly encourage or produce enthusiasm in others. The teacher must have the power of enthusing the pupil in the work. Temperamental qualifications are also inherited. They cannot be taught, nor can they be greatly developed. They are born with the child.

Now, coming to the acquired qualifications: First, educational: It is simply a question of our conception of what constitutes an education. According to the present status of our educational system, it consists first of the grammar grades and inclusive of the high school. Every one who contemplates teaching, whether in the grades, in a college of pharmacy or in a university, certainly should have a high school training or its educational equivalent. Next comes the university and college work. According to the present educational standards and conditions, no man or woman is qualified to teach in a college who has merely had the courses of instruction as given in the college in which he or she contemplates to teach. He must have an educational acquisition wider and broader than that given by the college in which he desires to teach. That would mean he must have had more than the college course, or the university course. Some of this can be had in colleges of pharmacy, (the third—or fourth-year courses), in universities, in medical colleges, and in the higher institutions of learning. I do not wish to specify the particular degrees or diplomas which stand for such educational qualifications. Unfortunately, there are no educational institutions which prepare teachers for colleges of pharmacy; neither are there institutions that prepare especially to teach in colleges of medicine. We must simply utilize the educational facilities that are available.

So, therefore, to summarize: First, the inherited qualification referred to; secondly, the educational qualifications very briefly stated; namely, a university degree, say Bachelor of Science, or let us say Doctor of Philosophy. The teacher who contemplates taking charge of the work in the department of pharmacognosy, etc., should have specialized along botanical lines, as that is the only subject taught in a university which is more directly applicable.

So much in regard to the educational qualifications. The one who contemplates teaching pharmacy or chemistry should specialize along chemical lines, completing the regular or required courses in chemistry as taught in a university or some other higher institution of learning, plus some graduate work along chemical lines. The one to teach human physiology should have a course in physiology equivalent to that given in a first-class university of medical college, etc.

This is not all. I have merely outlined the foundation. These are not sufficient. The recent graduate from a university is not yet qualified to take charge

of a department in the college. He must have, in addition, a certain amount of experience. This he can get in many different ways and from many different sources. I believe it would be very desirable for the one who contemplates taking charge of pharmacy, to make a study of drug stores, the manner in which stores are conducted, the manner in which prescriptions are filled, etc. I should say he might get this experience largely as an observer. It would not be necessary for him to spend very much time as an apprentice in the store. It might be well for him to spend, let us say, two or three months as apprentice. The teacher of pharmacy, for example, should visit manufacturing institutions; should get employment, perhaps, for a time in some wholesale manufacturing concern. This would indeed give him very valuable experience. In addition to that, every teacher should be engaged in what is commonly designated as research work. The teacher who has no higher aim than to meet his classes and teach them the routine demanded by the college curriculum is not a satisfactory teacher. He should have sufficient enthusiasm and interest in his work to engage in special laboratory work, or something that stands for research work. That comes under the head of experience. Lastly, and probably most important of all, a teacher should have enthusiasm enough in his work to build up his department. Not merely teach the routine, not merely engage in research work, but *build up his department*. It should be his ambition to make his department the equal or the superior of any of its kind in any other college. He should keep fully abreast with the highest and best advance work in his special line.

I have said that it was not possible for a teacher, whether in a college or university, to enjoy the comforts of life or to provide for his family. This is only too true. The salaries paid are not sufficient. Let us hope that the time will soon come when competent instructors will be paid salaries high enough so that they may without reservation devote their whole time to the work. As it is, the best men are sooner or later compelled to abandon teaching for callings which will net them the absolutely necessary living income.

I believe this sums up what I had in mind as to what constitutes qualifications to teach in a college of pharmacy. It is true that we have instructors in some of our colleges of pharmacy who do not have these qualifications of inheritance, of education, and of temperament who are, nevertheless, eminently successful as teachers. As you know, it is the exceptions which prove the rules.

BUSINESS BUILDING.

Business building is a methodical operation. Put yourself in the customer's place sometimes. Go out, come into the store as if you were a customer and look around. How does the store look? Does it impress you favorably? Are things clean and bright? Is there a gang of loafers at the cigar counter swapping stories and keeping the ladies away? Ask yourself a few questions such as these. Many of us have opportunities that we cannot see. It is not enough to have opportunities. We must be able to see them; and, furthermore, it is well to be able to make them.—W. S. Adkins in *The National Druggist*.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

METHOD OF HANDLING STRONGER AMMONIA WATER.

WM. R. WHITE, PH. C., NASHVILLE, TENN.

Perhaps there is no more difficult or aggravating task that the pharmacist comes in contact with than the handling of stronger ammonia water as it is ordinarily done in the drug store, by pouring it from one container into another. On account of the irritating and volatile properties of its gas the difficulty in handling it becomes a very grave proposition when it becomes necessary to transfer to small containers the contents of a tank which usually contains about 800 pounds.

Aside from the physical difficulty encountered in coming in contact with the fumes, the loss of strength incurred is a very important factor to consider. In order to obviate these difficulties as much as possible, the following method has been adopted, which is based on the principle of a syphon started by compressed air.

An iron compression tank with intake and outlet tubes, each having a stop-cock, is filled with air from an air pump operated by hand or by motor power until a pressure of about 20 pounds is obtained. Below the stop-cock on the outlet tube, fitted on with a union couple is a T joint, one end of which is closed by a stop-cock, the other end is threaded about $\frac{1}{4}$ " and is screwed into a threaded hole in the iron bung of the ammonia tank. This tube should not be flush with the inside of the bung, as the contact of it with the ammonia will color the ammonia. Another hole, unthreaded, is bored in the bung, and through it a glass tube is passed to the bottom of the ammonia tank, the top end of which is bent at a right angle, and connected with a rubber tube in which is fastened a pinch-cock. A mixture of hot rosin and wax is poured into the bung to make connections air-tight. In order to draw the ammonia, the outlet cock of the air reservoir is opened and the cock at the end of T joint is closed, the air enters the ammonia tank, with pressure, and causes the liquid to flow through the glass tube from the bottom through the rubber tube into container, when pinch-cock is released. The flow can be shut off by fastening down the pinch-cock. When all is drawn that is needed the cock on outlet tube of the compression tank is closed and the cock on T joint is opened, liberating the air in the ammonia tank, thus releasing pressure on syphon tube. Only a pound or two of pressure will be needed to draw ammonia from a full tank, but it will require about twenty pounds to empty it when low. By getting these holes bored in bungs of different

sizes, and keeping these on hand, tanks with various size bungs can be emptied when received. By this method the drawing of the ammonia is under complete control of the operator, with no risk of suffocation or loss of strength of ammonia gas.

This method is especially applicable to wholesale handlers of stronger ammonia water, but the same principle can be used when it is purchased on carboys, and a bicycle pump can be used to give pressure instead of having a reservoir of compressed air.

As this is a question that confronts every handler of ammonia water, the writer would like to hear this subject discussed by other members of this Association.

DISCUSSION.

Mr. F. W. Nitardy, of Denver, said he would like to state the way he handled ammonia water. He used a rubber tube as a siphon. In order to start the siphon, it was first filled with water, one end inserted in the carboy and the water in the siphon was drawn off into a graduate. He had never experienced any trouble in this. The method was very simple, and did not require anything but a piece of rubber tubing.

A NEW AND SATISFACTORY FORMULA FOR LIQUOR ANTISEPTICUS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.

The pharmacopœial formula for Liquor Antisepticus has been frequently criticized and justly so, for being a harsh and unpleasant preparation. Solutions of this type should be pleasant and fragrant, as they form valuable adjuncts to the toilet. A formula which is the result of numerous experiments made by a generous user of such preparations and which has been modified from time to time to correct slight deficiencies, is herewith presented as being satisfactory to a larger number of persons than any other similar solution with which the author has had any experience:

Eucalyptol	5.0 Cc.
Methyl salicylate	1.2 Cc.
Oil thyme, white.....	0.3 Cc.
Thymol	1.0 Gm.
Menthol	1.0 Gm.
Sodium salicylate	1.2 Gm.
Sodium benzoate	6.0 Gm.
Boric acid	25.0 Gm.
Fluidextract golden seal.....	2.0 Cc.
Alcohol	300.0 Cc.
Water q. s. to make.....	1000.0 Cc.

Make the solution according to the art of the pharmacist, reserving 60 cc. of the alcohol to add to the clear filtrate.

Kieselguhr or talc may be used as a filtering medium.

A NEW AND SATISFACTORY FORMULA FOR LIQUOR ANTI-SEPTICUS ALKALINUS.

CHARLES H. LA WALL, PH. M., PHILADELPHIA.

The National Formulary preparation bearing this title is unnecessarily high in solids and in alkalinity. The following formula is offered as one which has been well tested and meets all the requirements of such a solution:

Sodium bicarbonate	5.0 Gm.
Sodium benzoate	10.0 Gm.
Sodium salicylate	10.0 Gm.
Sodium borate	30.0 Gm.
Thymol	0.2 Gm.
Menthol	0.2 Gm.
Eucalyptol	0.2 Cc.
Methyl salicylate	0.2 Cc.
Alcohol	40.0 Cc.
Glycerin	150.0 Cc.
Water q. s. to make.....	1000.0 Cc.

This solution should be made according to the art of the apothecary and if it is desired to color the solution red, as is frequently done, cudbear may be used for this purpose; or if it is desired to employ a more resistant color, one which will not bleach out so quickly when the colored solution is dispensed with hydrogen dioxide solution, the color known as vegetable red, used by confectioners and bakers, which is a sulphonated orcin, may be used.

SUPPLYING THE PHYSICIAN.

The typical M. D. seems to think that every purchase he makes from a supply house saves him just that much money. He regards the druggist as a middle man for whose existence there is no excuse as far as he is concerned. He forgets that the supply house is itself a middle man source of supply, that it is rarely an original manufacturer of high-class specialties. He forgets, too, that there is a limit of price below which certain goods cannot be sold. Supply houses cannot keep underpricing one another and the druggist indefinitely without ultimately reaching the bottom. If he were to investigate he would find that supply house qualities are just about on a level with supply house prices. But it is a condition, not a theory, that confronts the druggist. The physicians do buy from the supply houses, and they will continue to do so unless they are sold by some one else. If you want to sell them, instead of sitting back and complaining or wishing, you will have to take off your coat and go after the business as those competing houses do.—*The Spatula*.

Section on Commercial Interests

Papers Presented at the Sixty-First Annual Convention

"THE ART OF MAKING A SALE."*

ADDRESS OF BEN R. VARDAMAN, DES MOINES, IA.

Gentlemen, I realize it means a great deal for you to be here, at the cost of considerable time and money, that you may come and mingle for a week with your fellow businessmen, and "absorb ideas from one another," as one gentleman has said. I often think when I see men in a convention of this kind that, after all, it is the ideas that we take home that are the all important factors. As I look into your faces, I realize that there is not a man here who is not sitting beside a man that knows just a little more about some particular phase of his business than he himself knows. You cannot be here without taking some ideas home and applying them in your business.

The subject assigned to me this evening is a broad one, "The Art of Making a Sale." We are all engaged in business for the purpose of making sales. And yet, as you well realize, if you have given the thing any thought, the art of making a sale is possibly the subject that is given the least attention in your business. While this is naturally true while you are gathered here in your annual convention, I maintain that it is thoroughly true in your business. I know it is true in the business of the average business man today, strange as it may seem. His business depends on his making sales, and yet it is not given a great deal of thought, as a rule, in his business.

We sometimes become confused in our terms. For instance, I have experimented a great deal, and have asked men to give me a definition of the term "business." It is pretty hard for the average man to do that—to give a concrete definition of the term "business"—"commerce." If I should ask you to do that to-night, the general consensus of opinion would be that "my particular business is just a sort of routine grind." The merchant says, "It means going to work at 7 o'clock in the morning, opening the door, and serving the public all day long." The banker says, "It means going to my bank and serving the public and handling money all day long." Yet, when we think of the term "commerce," how few of us think of ourselves as important elements? We think of the great steamship and railroad systems—the great movement of traffic in the country. We eliminate ourselves. So to-night, in discussing the broad subject of the art of making a sale, I want to eliminate everything else from it, and talk to you for just a little while about the personal element—yourself, and those associated with you, in the act of making sales in your business.

I am going to be brief to-night, because I know you are uncomfortable here in

*Printed from the stenographer's report.

this room, and I am not going to say as many things in the way of general introduction as I might say under other circumstances. I want to try to help you in your own particular line of business. Yet I do not know that I am going to say very much about the drug business. You have that three hundred and sixty-five days in the year. I want to talk to you about the great fundamental principles that lie underneath and about your business. We realize that the business world to-day rests upon the primary wants of humanity. Our whole commercial system rests upon the primary wants of the people. The gathering of sustenance, of food and raiment, is after all, the great problem of modern commerce. Your problem is to learn how to supply that demand, and see that the world gets what it wants.

I am going to talk to you about the art and science of salesmanship. I have heard you gentlemen speak about the Scientific Department of your Association. I have heard some exceedingly interesting papers read here this afternoon on various scientific subjects; and to-night I am speaking to an audience of men not afraid to turn to science. Sometimes I talk to audiences that do not thoroughly appreciate the term "science," because they have not had it drilled into them as you gentlemen have in your particular line of business. I wonder how many of you that have thought of the scientific department of your business realize that the term "scientific department" should cover the selling end of your business, just as it does any other part or phase of your business. A great many say it is impossible to apply it in the selling end of their business. But it is, however, possible to apply it to salesmanship.

Sometime ago I was talking to a retail hardware merchant, and he said, "There is something wrong about my business, and I want you to go through it and see what it is." I spent three hours doing that, and, in examining his stock, I asked him many questions. I said to him at the end, "You have no science in your business; that is all that is the matter with you." He says, "I can't understand your term. I have heard so much about it. It is impossible for me to see how you can apply that term in the hardware business." He said he had a boy in the high school who had been studying science for two years, and he didn't know enough to fly a kite. I said, "He is perhaps trying to fly it with incomplete and piecemeal knowledge." Then I gave him Herbert Spencer's definition of science: "Science is nothing more nor less than thoroughly organized and classified knowledge." To-night, I am sure you gentlemen cannot think of a thing more valuable in your business than thoroughly organized knowledge of your business.

Another illustration: There are several colleges in this city, and some man is designated as Professor of Mathematics in these colleges. That means that he has studied the organized knowledge and science of the subject of mathematics, until he is able to go to the blackboard with a piece of chalk and demonstrate a very complicated problem, so that you can readily grasp and understand it. He is a mathematician, we say, because he understands the great science of mathematics.

To give another illustration: You gentlemen in your business come in contact sometimes with a young man who wants to become a doctor. The law says to him, "You must first attend a medical school and make a study of the organized

science and practice of medicine. You must go into the dissecting-room and take the human system and tear it to pieces, and carefully study it, and analyze every bone and muscle and tendon and artery, and every tissue in the system." After he has gone through this course of study, and passes his examinations, he is granted a certificate, and is given authority to practice medicine. You call in that man when you are sick, and he looks at your tongue, feels your pulse, and asks you a few questions. He has studied the organized knowledge of that subject, the science of it, just as you gentlemen have studied the science of pharmacy. But how far have you studied the science of salesmanship, of business, the thing on which your business depends? It is just as important to have knowledge on the selling end of your business as it is on the chemicals that you supply. The only trouble is, that you have not had your attention drawn to the requirement of knowledge of that kind.

I was going down the street one day and met a real estate salesman, and I said to him, "How did you happen to sell that house and lot on the corner down there?" His reply was, "I hardly know what you mean. A man came into the office and said he wanted to buy a house, and I told him about the size of this house and its location, and said to him, 'That is the house you want,' and he went over there and looked it over, and the price and everything suited him, and he came back and paid for the property, and the deed was made out to him. It was all very simple." I said to him: "But I want you to tell me how to reach the heart-strings of the people that I come in contact with, so that I can create in them the desire for the property that I have for sale. If you cannot do that, you do not thoroughly understand the great science and art of selling real estate."

I was sitting in the office of the president of a large insurance company once, and a man came in and said, "I have made up my mind to take that policy of \$5,000 we have been talking about." I said to him, "How did you do that? It looks like an easy way to make money." He reached into a desk and pulled out a blank and said, "There is the best policy of insurance that is written in the world, and all any one has to do is to find a man that wants insurance, and he takes that policy." I said, "But I am afraid I would starve to death finding people that want insurance. I want to know how to touch the heart-strings of people, to create the desire to take out insurance. If you can't tell me how to do that, you don't understand the great art and science of selling life insurance."

Again, I go into a clothing store across the street and say to the clerk, "Show me how to sell a suit. Show me how it is you lay hold of people and create a desire for the goods you have to sell." And sometimes I wonder if in your own particular business, where you have seen your clerk make a mistake, you have ever called him to the back end of your store, and explained to him what he should have done to appeal to the customer.

There is an art and science in the sale of goods. We fail, sometimes, to go to the bottom of these things. But we have reached that point in our business development—and it is obvious more and more every day—where it is up to the retail merchant to study the organized knowledge of his business, or he is going to have a harder time to exist than he has ever had. A great many merchants to-day are having a hard time to exist. Up to the first of July, over five thousand had gone out of business. And I notice the reports of the rating agencies say

that the great reason for this was incompetency in business. Incompetency! I want to say to you gentlemen that that is a horrible indictment against the methods, the policy of to-day, in the retail world. Incompetency is nothing more nor less than a lack of organized knowledge of the particular business. There is a science and a great art in your business.

I find a great many people who do not appreciate this fact, but who are trying to exist in their business by the "tricks of the trade." Sometime ago, in the city of Detroit, I was talking on this same subject before a great convention. Several hundred men, gathered from all over the country, were assembled there, and I saw a great streamer placed across the lobby of the Cadillac Hotel. The pennant said that I was going to show some of the tricks of selling. I went to the secretary and asked him to take it down. I said, "I am not going to talk about 'tricks,' and I don't want a single man to think that I am going to talk about 'the tricks of the trade.'" I hope there is not a man in all this great convention that is existing in his business because of low-down tricks. I would rather see him exist because of the application of great principles in his business. But sometimes, in some lines of business, I find men resorting to tricks.

A little while ago I was in a shoe store and was talking with the merchant. He carried a stock of \$90,000. I saw that man perform a trick, and make a sale. A woman came into the store, leading a little boy. The boy wanted a pair of hunting-boots. Now, you know there is no such thing as hunting-boots coming from the factories of the country, made for little boys. The little fellow had seen his father wearing hunting-boots, and he wanted a pair, a pair of high-topped boots, water-proof, with viscolized soles, and all that. The merchant knew there was no such thing. The tired mother said she had been to every store in the city, and couldn't find any hunting-boots for the boy. He said to the little boy, "Why, certainly, I can find you a pair, little man." Then he went back to the rear of the store to get a boot that he knew was not there. He brought out the nearest thing to it that the manufacturers made, which was a man's size No. 7 boot. He told the little boy to try them on and he did, but, of course, they were very much too large for him. Then he went back to the rear of the store to get a smaller boot, and put a pair of big felt insoles into it, and brought it back, and still it was too large. The third time he went back to the rear of the store, and put into that boot another heavy felt insole, and had the little boy try that. He stamped his foot and said, "There, Mister, that is all right! That fits me." Then he slipped three soles in the other boot, and let that little boy put those men's boots on, and go stalking up the street with them. After the lady had gone, and he had turned and dropped \$7 into the till, he turned to me and said, "You have got to get the money some way." That poor man believed that he had to get the money "by hook or crook." But I tell you that that man performed a trick when he made that sale, and he made it because he was a moral coward. He didn't know enough about the art and science of his business to sell that little fellow the kind of boot he ought to wear. I was in the store three weeks afterwards, and I asked him if the lady had come back, and he said, "Yes, she came back." He knew when that boy went home with those great, big, heavy boots, that she would come again when she found she

had been wronged; and she brought the boots back, and he lost a customer. He thought he was doing business by that "trick."

Now, some of you are saying: "What is the difference between the science and the trick?" The trick always deceives your customer's mind. By science, you lead and persuade the mind.

I might illustrate this by two common little examples, things that you see every day. Possibly it is done in your own work, I don't know—and maybe you don't know. Possibly you have stepped into a store, and said to the clerk, an unsophisticated young fellow, that has probably not been there very long, "I want 10 cents worth of chocolate creams." The clerk fills the sack and puts it on the scale. Then he stands there and takes out one cream after another and puts them back in the case, and you see that going on until you become convinced that that clerk is a miserable thief, and is taking your chocolates. You will never buy another thing at that store. Then you remember, on your way home, that your wife told you to bring a dollar's worth of sugar home. So you go into old "Uncle Billy" Skinner's and say, "I want a dollar's worth of sugar." Uncle Billy goes behind the counter, and puts a lot of sugar in a bag and puts it on the scales, and he hasn't got enough; then he begins to dip up sugar and put it in the bag, and goes after more sugar, and yet more sugar, until after a while, you begin to wonder if he is going to compel you to carry that whole barrel of sugar home for a dollar. You take it home, and you put it on your scales, and you discover it is a pound short in weight. But no human power could make you say that "Uncle Billy" was a robber, because he had touched a chord that responded just exactly the way he wanted it to respond, while the clerk had touched that same chord, but he had touched it at the other end. One touched it in a positive way and the other in a negative way.

When you have analyzed and come to a thorough understanding of these two little examples, you will have solved the great art and science of salesmanship. It is a simple problem. It is not a vague and mysterious thing. There are only three very common elements in it. But let me impress one thought here:

You gentlemen are here to consider the making of sales. Do not think that there is no connection between the goods you have on your counters and shelves to sell and this idea. The art of making a sale is a great mental problem. I step into a store and say to a salesman, "How many sales have you made to-day?" Nine times out of ten he will pull out his cash register and begin to count his tickets; or perhaps reach for his sales book and say, "Here are the sales I have made to-day." Or maybe he will begin to count the money in the till. I say, "Oh, no, I want to know something about the sales you have made. These things are not the sales. You don't make sales in the cash-drawer, or in the sales-book, or the cash-register, or anything of that kind. They are only the record of your sales."

You make your sales in the minds of your customers. Get that thought and take it home with you, and drive it home to your clerk that when he is making a sale he is dealing with a mental problem. You have never made a sale but that your customer's mind has passed through a certain series or stages of evolutions. I might name quite a number of these stages. For instance, you cannot possibly make a sale without leading a man from what we call the first stage,

that of introduction, to the stage of attention, the stage of interest, the stage of desire, the stage of resolve. You cannot possibly make a sale where your customer's mind does not go through these stages. Sometimes it is done very rapidly, and sometimes it may take a week, or years, to lead a man from one stage to another. Just make a study of the things that go to make up a sale, and see if you cannot detect in your customer's face the workings of his mind.

I want to say to you that there are just three prime elements in the accomplishment of that feat, and they are: First, yourself; second, the thing you have for sale, and third, the other person. That is all there is to it—a very simple problem. Yet no man has studied that problem thoroughly enough to go to the bottom of it. As I look in your faces I know I have before me the most important part of these elements—yourselves; your own individual personality. And yet I say, without the slightest hesitancy, that although this is the principal phase of your business, it is the part you have given the least thought to.

It has been my privilege, during the last fifteen years, to come in contact with practically every leading educational institution in this country, and I have studied their young men. I have made a practical study of the young men in the universities of the country, and I have asked them what they were being taught, regarding their own individuality—themselves, their magnetism, their own personality; and, without one single exception, they have replied that they were not being taught these things in these institutions. I have asked that question everywhere, and have gotten the same answer. I have asked what their parents and guardians were doing regarding the development of their personality, their own individual personal magnetism, and out of a splendid list of a thousand names just three have told me that they had received such instruction. And so I do not hesitate to say that the most important element of all in business, that of individual personality, is the subject that is being given the least thought in our education of to-day.

If I were to advise a young man going out into business to-day, I could not do better than to give the advice given to a class of graduates in a law school by an old, white-haired judge who had taught them. The old man, feeble and infirm, said to them, "Young men, as you go out now into your chosen profession, I want to suggest that when you have found a place that suits you, you should tack your shingle on your office, and look at it from up the street and down the street, and across the street, and find out how it looks to other people." In other words, the first thing for the young man to do, in embarking on his chosen profession, is to learn how he looks in the eyes of the community; how he looks in the eyes of the people upon whom he must depend for his livelihood. And I believe it will be a good thing, when you gentlemen go home, for you to go behind your counters and ask yourselves honestly, "How do I look in the eyes of my community?" Then address yourselves to your clerks and salespeople, and get them to ask, "How do we look to the people about us?" Personality! It is a power, and you know how it radiates. The personality I refer to is not so much the personality we see as that we feel. As I look into your faces to-night, the thing that impresses me the most is not your size or splendid proportions, but that something that comes from inside of your head. I am not going

to talk about the subject of the power of mind over matter—nothing of the kind. But, after all, it is the things that you are thinking that impress people first of all.

If I had the time, I would experiment a little to-night. I would ask some of you business men, and three or four of you who could smile, to come and sit here and smile at this audience while I am talking. You could see the effect and how it would lift you up. Then I would ask them to hold that smile while they thought of the meanest thing they could possibly think of. Not one of them could do it. If you think you can do it, just try it before your mirror, in the privacy of your own room. You will find that just the moment you permit your mind to change from the pleasant thought that induced that smile, and begin to think of low, mean things, that smile will fade. I don't mean a grin. I mean a smile that comes from the very soul of a man; the thing that everybody likes; the thing that you are going to give your customer, when you try to lead and persuade and control that man; the thing you should inspire in your clerks.

As soon as you go home from this convention, try this thing of smiling when you meet your customers, your home people, and just try to see how good you can make them feel, and see how easy it is to sell them, and to bring back trade.

I stopped into a lawyer's office in Detroit, once, and he was out, and I sat down to wait for him. Over his desk was that old motto that reads, "Smile; damn you, Smile!" I wondered why he had that sign up there, and when he came in I asked him, and he said, "Simply to make people smile." He said, "A man comes into the office, and he feels that he is being persecuted. He sits down at the desk and he sees that sign, and he begins to smile, and I know he is being lifted up; then I can help him."

But I must hurry along.

There is another invaluable quality in personality especially, that the salesman loses sight of, and that is memory. Somebody will say, "Can people see my memory?" No, but they can feel it. Several years ago I was in Chicago, and I needed some shirts, some tailor-made shirts, and coming down Dearborn street I saw a little sign that read, "Cobb makes shirts." I said, "If Cobb makes shirts, we ought to get together, because I need shirts." I went in and gave the order, and a little man came from behind the counter, a dapper little gentleman, and he put out his hand and said, "My name is Cobb; I am glad to meet you." Two years later I was in Chicago again, and it occurred to me that I needed some more shirts, and I naturally went back to Cobb. Cobb came in, and reached out his hand, with a big smile on his face, and said, "Why, Mr. Vardaman, how do you do? I am glad to see you." I held his hand and said, "I want you to tell me how you did that." He said it was a part of his business. Yet, it was a magnetic part of his business. I liked that—liked to be remembered; and so do you, and so does everybody. How he reached out there and picked my face out of all the thousands he had seen pass his store in that time, and stuck my name to it, was a marvelous thing to me.

You say you cannot do that. Yes, you have your own memory just as great and powerful as Cobb's was; the only trouble is, that you haven't developed it along that line. You know where all the thousands of articles in your store are; you have that memory, because you have developed that side of it. You can develop your memory just as readily as you can develop the muscles of your

arm; and if you do it, the people about you will pay for it. When people come into your store, and you are able to call them—men, women and children—by their names, and call to mind some little incident that occurred three or four years ago; that is going to draw them to you. It is invaluable, this quality of personal magnetism. There is not a man in this audience to-night, under the age of thirty-five, who cannot broaden his shoulders half an inch, or increase his height half an inch, by applying some of the scientific principles we have been talking about here to-night.

And you men of maturer years, I want to ask you what you have been doing with your clerks, or your salesmen, by way of training them to see things in their business—teaching them to use their eyes. We sometimes think that our eyes are placed in our heads to view the beauties of nature; but I want to tell you that the man who can use his eyes in the right way can bring beads of perspiration onto the brow of the attorney who tries to confuse him on the witness stand. When you have learned how to use your eyes, you can make a sale all right.

An old lawyer said to me once, "I have been practicing at the bar for forty-two years. I would give almost my right arm if I knew how to shake hands with people. Whenever I wish to shake hands with the jury and thank them for their services, I feel my weakness." The politicians know how to do that, as we all know.

But I might continue here for an hour on the subject of your personality. I simply want to say that if you and your salesman will take up some line of that sort and develop it to the fullest degree, the world about you will pay you handsomely in "the coin of the realm."

Now, the second great element in the art of selling is to know what you have to sell. I am only going to touch on that to-night. We all know that the salesman should be an expert adviser in his business, and he cannot be an expert adviser unless he knows the thing he is advising the customer about.

Out in Denver a few days ago I stepped into a store—a drug store—I don't know whether the proprietor is here or not—and I saw a clerk trying to sell a customer a pair of military brushes. The clerk pulled out the drawer and picked up two or three brushes and the customer picked up one particular brush, and was looking at it; he was in a hurry, and he wanted some brushes quickly. He remarked that he had come from home without his brushes, and he had to buy some; and he said to the clerk: "Is this a genuine ebony brush, or is it just a pine board painted black?" The clerk said, "I really don't know, but I imagine it is ebony, from the price." That man went out without buying. These things are happening every day. How long would it have taken that clerk to learn whether that brush was ebony or a pine board painted black? That proprietor could have taken that boy into the back of the store, and, in thirty minutes, have taught him all about his brushes.

I have a shaving brush that I gave 25 cents for. A few days ago I stepped into a store with the idea of buying a "rubber-set" brush, and I asked the clerk what a rubber-set brush was, and he said it was just some way of sticking the bristles in. I asked him what was the difference between a 25-cent brush that

he showed me and a rubber-set brush. His reply was, "I don't know that there is much difference." I said, "I will take the 25-cent brush."

Now, here is a watch (exhibiting same) that I bought several years ago, and paid \$40 for, because the man who sold it to me knew watches. I have always been proud of that watch. And here is the point!—sometimes people say, "Yes, it is a pretty smooth game to sell your customer." But when you know the goods, you can lead your customer to appreciate them before he buys. And I want to say to you that I have carried this watch all these years, because I think so much of it. He put one of those jeweler's magnifying glasses over one of my eyes, and he told me to shut the other eye and look into that watch, while he called my attention to its small spring, and he said, "That one spring in there is worth \$7,500,000 a ton. Then he said, "Those little red objects that you see are ruby jewels." That sounded rich, and I looked with interest. He showed me the whole interior of the watch. Everything else was obscured from me, except what he wanted me to see in it. And all the while he was pouring into my ears just what he wanted me to hear. I was dead to the world, for the time being. I bought the watch. I was afraid he was going to take it away from me. That sale came from the knowledge of how to sell goods.

One time I stepped into a store where a man was trying to sell oranges. He said, "I have bought this pile of oranges, I have tried to sell them, and I can't do it." He was advertising big California oranges at 29 cents a dozen. I said to the man, "Do you really want to sell these oranges?" He said, "I certainly do," and he told me how many cases he had. I said, "This is a big California orange, and nearly everybody knows that, and you are advertising that." They were really large, fine oranges. I asked him what kind of oranges people liked, and he said they liked big oranges. I said, "Do they like juicy oranges? Do they like sweet oranges? Can't you just advertise juicy, sweet oranges? Just say that in your advertisement, and see if the people don't begin to flock in here." He told me afterwards he hadn't lost a single case of oranges; he had sold them all out, by knowing his goods. A man cannot be an expert adviser and not know his goods.

The third great prime element in making sales is to know the people about you. Take the people in your town, and you will discover that the most successful business men, as a rule, are those who know most about sizing up people—who know most about human nature; just the commonplace things about the people we are having to deal with every day. When we have learned what is in the lives of people, it is easy to appeal to them.

But we sometimes have a very erroneous idea of this thing we call human nature; very often the nature of people about us is largely what we make it. That is hard to believe, but there is a great deal of truth in it. Say, for instance, that I come into your town, and decide to buy and made my home there. I go down the street and meet you, and say to you, "I am considering buying this house over here, and I would like to know about the man next door." You say, "To be real honest with you, that man is not the sort of man I would like to be next-door neighbor to." I thank you, and go on farther down the street and meet another citizen, and he says, "I have known that man for twenty-five years,

and I think as much of him as any man in this town." What is the difference? It is largely in what the different individuals have attributed to that man.

I wish I had more time to elaborate upon twenty-five or thirty characteristics of human nature to-night. But I have not the time, and you have not the time to listen to me. I will cut it down to three or four fundamental elements of human nature that the salesman should serve.

The first is, that you cannot drive a man. I mean that you can't argue a man into a thing, but you can lead him. These are universal characteristics, because we find them among people everywhere.

Another is this: People are lazy; and if you are wise, you will cater to that laziness. What I mean is, that people naturally have a desire to go against as little resistance as possible. They move along the lines of least resistance. Yesterday, in coming through Chicago, I went up State street, and stood where I could study the architecture of the great entrance to the Marshall Field store.

That is a wonderful piece of architecture; it is noted the world over. And in studying that, and allowing my eyes to follow the great pillars down from top to bottom, I wondered if the architect had not made a mistake when he placed these pillars there, and forgot to put the threshold in. I felt like going to the manager of that great store and saying to him that the architect had made a mistake in failing to put the threshold there. But had I done so, he would have replied that it had been left out by express direction; that they had told the architect to make it just as easy as possible for people to enter the store—in fact, so easy that they would just fall in. They recognize this principle of human nature.

One time I was in Rochester, Minnesota, and wanted a little 10-cent bottle of perfume, and I went into a drug store to get it. The clerk stood in the back of the store. I walked in 10 or 15 feet and stopped, but he didn't notice me; he was reading the base-ball news or a scandal or something. I stood there for possibly thirty seconds, and then started for the door. He then asked, "Is there something you want?" I said, "No, thank you," and went on out. Down the street a few doors I went into another drug store, where a bright, snappy fellow came up. He knew I wanted something, and he asked, "What can I do for you?" I was about a minute buying that bottle of perfume and paying for it. If I was there to-night I would go in and buy another bottle of perfume, just to see the enthusiasm of that salesman. He made it easy to buy that bottle of perfume; while the other fellow made it so hard I couldn't do business with him. Make it as easy as possible for people to do business with you. People will pay you for it. It is no small part of making a sale.

Another thing for you to remember is, that people are proud and selfish. Every mortal likes "taffy," if you will give it to him the right way. I know a lady who has charge of the family affairs and purchases, because the husband is too busy to give his attention to them. She has some boys, and the salesman where she buys their clothes knows her pride in them. She walks into the store with one of these boys and says to her favorite clerk, "I guess George will have to have a new suit." So he leads George back, selects a coat and slips it on him, leads him over by the mirror, adjusts it so that he can see both front and back, then casually walks over to the mother, turns around and says, "I want to tell you, Mrs.

Blank, there is a son for any mother to be proud of." She is pleased, and she pays the price, just to hear the clerk say these things.

I know an old German merchant in a little town in Iowa who has built up a wonderful business by knowing how to play on some of these characteristics of human nature. He has a stick of candy for every child that comes into the store, and he makes it a point to personally see that each child gets a stick of candy; and it matters not how untidy or unkempt a baby may be, he never permits a mother to come into the store that he does not take up that baby and fondle it, and tell the mother, "How much it looks like papa!" They come to him for fifteen or twenty miles just to hear these little compliments. People like it. Give it to them, and see how easy it is to make sales.

The last point I want to make on this subject of human nature is, that normal men and women are subject to that great thing we call "suggestion." I am not talking about hypnotism, but I want to touch on the fundamental principle of hypnotism. Over here in New York City is a doctor who has given up the practice of medicine, because he has developed that quality to such a marked degree that he can use it for surgical operations where the patient has weak heart action and cannot take an anæsthetic. He tells him that it won't hurt him to undergo the operation, and he tells it to him so emphatically that the man can undergo the operation without serious pain.

I sometimes tell a joke on my wife that illustrates this idea of suggestion. We were coming down the street one cold afternoon, and she was breaking-in a pair of new shoes, with heavy, stiff soles, and her feet got cold. I wanted a particular magazine, and I suggested that we go into a drug store on the corner, and she could warm her feet by the register while I was picking out of the rack the magazine I wanted. She agreed, and we went in, she stood over the register until I finally got through. Then I asked her if she was ready to go, and she said, "Yes," and we started. About that time a clerk came up and said, "I am awfully sorry, lady, but that old furnace of ours has been out of order, and we have not been able to have any heat in it." There was something in the power of suggestion that warmed her feet.

Another time, away out in western Missouri, on a cold, blustery day, twenty-four people besides myself were in a little hot, stuffy station, waiting for a train. Somebody asked when the train was due, and the agent said in about thirty minutes. I thought I would try a little suggestion on the crowd, and accordingly I suddenly reached for my watch, looked at it, snapped it shut, grabbed my grip and hurried out of the station. Every man in that station did the same thing. They thought somebody had said the train was coming around the bend. I pulled up my overcoat collar and went to walking up and down the platform, and they went back feeling sold.

Now, I said I was going to talk to you, in the main, in terms that we could all understand, that I was not going to talk on the art and science of salesmanship in technical terms. But I want to say that, fundamentally, suggestion is possible simply because every normal individual has two mental functions grinding away in his mind all the time. Great and wise scientists tell us that is not true; but, nevertheless, there are certain actions or phases of the mind we are unable to account for on any other hypothesis, except that we have two mental

functions. We call one of these our objective mind, and the other part we call the subjective mind—because it is subject to our objective mind, and that of others, too. I have never found a better illustration of these two qualities than was given me one time in early life by my old father. One rainy day on the farm we were in the barn, and I noticed a stray cat come in, a poor, scrawny, miserable, bobtailed cat; and I asked my father why a bob-tailed cat was always poor. He said there was a good reason for it; that if I would watch a cat creep up on a mouse, I would see that the mouse watched the cat's tail as it lashed back and forth, and the closer the cat got to the mouse, the more furiously the tail lashed; and the mouse watched the cat's tail so closely that it failed to notice the nearer approach of the cat's mouth and claws, until it was too late for him to escape. Of course, he said, a bob-tailed cat was "handicapped." He had no way of taking advantage of the subjective mind of the mouse. And so the salesman must know how to get behind the subjective mind of the customer.

But how are we going to apply these great fundamental principles we have been talking about here. Suppose you are a grocer, and it is along late in the spring, about the time that apples are ready to spoil and become covered with little black specks; and Mrs. Jones comes into the store, and sees a basket of these apples, and says, "Mr. Smith, are these apples the best you have?" What are you going to say? You know they are the best you have, and the best in the market at the time. There are a great many things you might say. But you have a mental problem to solve: it is a mental problem you have to deal with, pure and simple. People have to accept what you tell them, just so long as they haven't a logical reason for disbelieving. Mark that; it is worth a great deal. All right; what are you going to say to her? You may say, "Yes, these are the best I have." She may reply to that, "If they are, they are certainly mighty poor apples." You may say, "Yes, they are the best in the market at this time of the year." She might think it was a mighty poor time to buy apples. But reach down into the basket and pick up one of these apples, split it open, and show her how nice and juicy and white it is, and say to her, "They are the finest apples in the world for cooking." She has never cooked them, and she is compelled, by that great law of nature, to believe that thing. It is her subjective mind. Here is what happens in that mind. It goes back from your store over to her home, into the dining-room there, and sees the big cut-glass bowl there full of juicy apples. She will buy that basket of apples and take it home, and come back and tell you you told the truth. How long would it take you to argue that woman's objective mind into buying apples about to spoil? But you can lead her past that, through her subjective mind, and she will buy them.

Here is another illustration: A customer went into a gentleman's furnishing store to buy a night-shirt. The clerk was new and didn't understand the stock, but he placed a box on the counter and pulled out a shirt with a big red border around the front. The customer smiled and said, "I don't want anything like that; I just want a neat, plain garment." So the clerk turned to the proprietor and said, "What have we in the way of plain night-shirts?" The proprietor replied, "Nothing, they are all coming that way now." The customer was about to leave, when the clerk said, "wait a minute"; and he reached into the box and pulled out a night-shirt identically like the other, but this one he turned over on

the counter. He knew human nature. He knew that a man likes a big, full, roomy, generous garment, and he showed him how long it was, and how broad it was across the shoulders. Now, you will remember, that I said a while ago, if you know how to use your eyes, and make others use their eyes you can accomplish a great deal. He had that man with his eyes down close to that shirt, following a neatly pointed pencil to see the fine stitching of the garment. Finally the customer said, "I believe that is about the garment I am looking for," and he asked the price of it. The clerk said \$1.50. Now, that shirt had that same red border, but the clerk had led him past that. How long would it have taken him to argue that man into the feeling that he wanted to buy a night-shirt with a big red border across the front? He couldn't drive him, but he could lead him past it.

I saw two Italian boys once crying: "Pineapples for sale at seven cents each, or three for a quarter." I thought it was a pity they didn't know how to count money. I sat and watched them make ten sales, and saw seven business men go up and buy pine-apples at three for a quarter, instead of paying seven cents apiece for them, and realized that the boys did know the value of money.

I saw a patent-medicine man one time—one of these fellows you are passing legislation against right along—use this principle on a farmer. He drove up to the farmer's house, and the farmer listened to his story: but he replied, "No, we don't want any more medicine; the whole cupboard is full, out in the kitchen now." Apparently the salesman didn't hear that. He just reached over and tapped this farmer on the knee, and said, "I want you to use one bottle of this, but don't quit using it after two or three days just because it makes you feel so much better!" The old man went down in his pocket for the dollar.

I laughed at a friend of mine some time ago. A druggist was advertising a certain famous medicine—the kind of medicine that, if you are sick, makes you feel so much better; and this man, a great, big, strong, robust fellow, was appealed to by that advertisement, and, with some embarrassment, he went into the drug store and said, "I see you advertise a medicine that makes a sick man feel better, and I wondered if it would make me feel better." That is part of the suggestion.

But sometimes we lose sight of another important factor in suggestion. Sometimes a young man will go into a store, and say, "I reckon you don't want to hire any more clerks in here, do you?" You don't hire him. But this is not half as laughable as to see a great big business man using that kind of negative suggestion in his business right along. I stepped into a big clothing store one day, and saw a man trying to buy a shirt. He said he wanted to buy a fine dress shirt. The proprietor showed him a shirt, and said the price was \$4, and the customer was admiring it. Then the proprietor said to him, "Neighbor, there is one of the greatest pieces of junk I ever sold in my life." That customer immediately saw the old rag man coming down the alley, crying "Rags; old iron!"—that is "junk." He came out of there in a hurry. A few weeks later I saw a notice in the paper that that man's business was in the hands of a receiver. He didn't understand the art of making a sale.

I stepped into a furniture store one time, to buy a folding go-cart for the baby, and the clerk showed me a nice little cart, and persuaded me it was the cart I

wanted. But he wanted to say something more, and he wheeled it across the floor and said, "There is a little cart that has given us the *least trouble* of any we have ever handled." Trouble! I didn't want trouble, I wanted something to wheel the baby in. I expect he wonders to this day why I got out of there. I went down the street to another furniture store, and asked to see a go-cart—and I have always thought that cart was exactly like the one I saw in the first store. The clerk wheeled it up and down, and showed me its strong points, and finally gave it a shove across the floor, and said, "There is a great cart. That cart has given us the greatest satisfaction of any cart we have ever handled in this store." Satisfaction! That is it—satisfaction. I bought that cart, and I have it yet.

Over in Ohio, a gentleman in a jobbing business of some sort told me about this power of suggestion. He said that on every box they shipped out was a tag stating that the article in it was fully guaranteed, and telling the customer if he didn't find it absolutely all right in every respect they would take it back. He said they had 85 percent of such articles brought back—a kick of some kind. A little, scrawny, insignificant man, he said, came in one day, and was nosing around among the boxes, and he said, "What have you got that tag on there for?" He replied, "To make our customers feel better." The little man said, "Take it off." They took them off, and found out that less than 5 percent of the packages they sent out brought back a complaint.

I want to leave this thought with you, that in the art of making a sale you can cause people to see the things you want them to see. I don't want you to understand that you should have any salesman to tell anything but the truth. You cannot build up a permanent business in that way. But the man who properly understands his own nature, the nature of the people about him and the nature of the goods he has to sell, and knows how to apply that great fundamental thing called "suggestion," can make people see the things he wants them to see.

A shoe merchant told me once, "You have given me a thought, and I am going to try it. I have been in business eighteen years, and I have been guaranteeing my goods, and customers have been coming back and complaining about the goods I sell them. I believe I can see why. All these years I have instructed my salesmen that they should impress upon the customer's mind that our shoes were absolutely guaranteed." I said, "Change that, and say something positive about the shoe—that it is "a splendid wearing shoe," or "a neat looking shoe," or, "You will find that an exceedingly comfortable shoe." A year or so later I saw that man again, and he said, "I want to tell you that little change in policy has worked wonders in my business. I very seldom receive a complaint, because people are not looking for things to complain of. They are looking for positive qualities." Apply that in your business.

As I leave this subject with you to-night, I want to lift you up, as I said before, clear out of your business, and make you appreciate the fact that you are dealing with fundamental principles. Do not think that the principles I have been talking about are not applicable to your business, so long as you are dealing with humanity.

A young man in Detroit killed an old woman, snatched her diamond ear rings from her and her rings from her fingers, slipped back across the river and

baffled the police and detectives. After a few weeks, this young man became bold, and said he knew something about that "murder mystery." He was arrested and placed in a cell; whereupon he sent for a public stenographer and dictated the minute details of the horrible crime. He had no money to employ counsel, and one of the great criminal attorneys of that city was appointed to defend him. When he was called upon to plead, in spite of his confession, his attorney arose and said to the court, "Our plea is not guilty." The case was tried before a jury, the young man all through the trial contending that he had killed the woman; the jury was charged, and in two hours there was a rap on the door and the jury was led in, and to the despair and disgust of the court and all the law-abiding citizens of that city, their verdict was, "We find the defendant not guilty." Why? Simply because that great attorney knew some laws that were greater than the laws of the State of Michigan. He knew some of the fundamental laws of human nature. He knew how to say to these men, "Percy didn't commit this crime." These men went out and returned, I believe, a conscientious verdict, because this man knew the power of that great element in human nature—suggestion. I cite this instance to show the extent to which study can develop this insight into human nature.

One time in Chicago a great evangelist was preaching to thousands. One morning a number of representatives of the Associated Press called on him, and interviewed him on his marvelous power over men. They expected him to button his coat up and say, "Gentlemen, that power is simply a manifestation of the great Divine power." But Gypsy Smith said nothing of the kind. He said, "The secret of my power over men is in knowing how to appeal to them. I have studied men. When I see a man in trouble in the audience, I know how to touch him, I know how to appeal to him." So I say to you, if you study the people about you,—as that great lawyer did, and as that great evangelist did,—you will experience a great revival in your business.

But I want to impress upon your minds that your whole problem in any sale is a mental problem. The three great fundamental elements in it are yourself, the goods you have for sale, the people about you; and don't forget that the one great single element is the *man* element.

Contributed and Selected

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

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PART III—FIRST PROOF.

A third installment of the Abstract of proposed new descriptions and standards and of changes in descriptions and standards is herewith submitted.

This Abstract embraces most of the Waters, Solutions, Spirits, Extracts, Fluid-extracts, Resins, Tinctures and Miscellaneous Galenicals. Where no reference is made to rubrics, formulas, directions, tests or chemical assays, it is understood that the material facts remain the same as in the United States Pharmacopœia, Eighth Revision. In galenical preparations the requirements for alkaloidal content and the proximate assay methods are not included; these will be published later.

Other Abstracts will be submitted later. Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, 1832 Pine Street, Philadelphia, before June 1, 1914.

WATERS.

Aqua Aromaticæ.—General process added calling for 2 Cc. of Volatile Oil in 1000 Cc. of Aromatic Water and 15 Gm. of Purified Talc. Purified Siliceous Earth (Kieselguhr) is added to the alternative distributing and filtering media. Recently boiled distilled water is directed. Aromatic Water should not be allowed to freeze.

Aqua.—"Without odor or taste" changed to "practically tasteless and odorless." Odorless when heated nearly to boiling and agitated. Solids limited to 0.03 Gm. in 100 Cc., changed from "0.05 Gm. in 100 Cc." Tests replacing "heavy metal test": Add 1 Cc. of hydrochloric acid to 100 Cc. of Water and then introduce 50 Cc. of hydrogen sulphide T. S. It should show no darkening after standing fifteen minutes (metals). Add 1 Cc. of hydrochloric acid to 100 Cc. of Water and then introduce 1 Cc. of potassium ferrocyanide T. S.; no blue coloration should be produced immediately (iron). New test for limit of chloride: Add 0.5 Cc. of tenth-normal silver nitrate V. S. to 200 Cc. of Water. Filter and add to the filtrate 3 drops of potassium chromate T. S.; a permanent red precipitate should be produced. Modified test for nitrites: Add 1 drop of

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hydrochloric acid, 1 Cc. of sulphanilic acid T. S. and 1 Cc. of naphthylamine acetate T. S. to 100 Cc. of Water in a Nessler jar, stirring with a glass rod after each addition. Closely cover the jar with a glass plate and place it upon a white surface and view it from above; no pink coloration should appear within five minutes. Modified test for nitrates: Add 1 Cc. of sodium carbonate T. S. to 100 Cc. of Water and evaporate the liquid in a small porcelain dish just to dryness. Moisten the residue thoroughly with 2 Cc. of phenol-sulphonic acid T. S., gently warm the dish, then add 20 Cc. of ammonia water and sufficient distilled water to measure 100 Cc. Any yellow color produced should not be greater than that obtained by evaporating 0.0021 Gm. of potassium nitrate, dissolved in 3 Cc. of distilled water and 1 Cc. of sodium carbonate T. S. to dryness and treating the residue in the same manner as the residue from the Water; the comparison of colors must be made in Nessler jars of the same diameter and size. In tests for ammonium compounds add 2 Cc. of reagent to 50 Cc. of Water and observe through a Nessler jar.

Aqua Ammonia.—Rubric changed from "10 percent." to "not less than 9.5 percent. nor more than 10.5 percent., by weight, of ammonia." Specific gravity changed from "0.958" to "about 0.958" at 25° C. "Completely volatilized at 100° C." changed to "not more than 0.005 Gm. of residue from 25 Cc. of Ammonia Water when evaporated in a platinum dish at 120° C."

Aqua Ammonia Fortior.—Rubric changed from "28 percent." to "not less than 27 percent. nor more than 29 percent. by weight, of ammonia." Specific gravity changed from "0.897" to "about 0.897" at 25° C.

Aqua Amygdalæ Amaræ.—Recently boiled distilled water directed.

Aqua Anisi.—Recently boiled distilled water directed.

Aqua Aurantii Florum.—Must comply with description and tests under *Aqua Aurantii Florum Fortior*. Dilute with recently boiled distilled water.

Aqua Aurantii Florum Fortior.—Added requirement: It should be free from empyreuma, mustiness and mucilaginous growths. Added test: It should be neutral or show only a slightly acid reaction with litmus and should leave no residue on evaporation.

Aqua Camphoræ.—Recently boiled distilled water directed.

Aqua Chloroformi.—Recently boiled distilled water directed.

Aqua Cinnamomi.—Recently boiled distilled water directed.

Aqua Creosoti.—Recently boiled distilled water directed.

Aqua Destillata.—Amount of distillate collected changed from 800 volumes to 750 volumes. Any other kind of distillatory apparatus may be used if the water complies with the tests given. "Neutral to litmus" changed to "neutral to indicators" (see page —). Heavy metal test replaced by the requirement that 100 Cc. portions should show no alteration on the addition of hydrogen sulphide T. S. or ammonium sulphide T. S. New ammonia test: "Distilled water should show no marked brown coloration when 1 Cc. of Nessler's reagent is added to 100 Cc. of the water. Residue when evaporated to dryness on a water-bath changed from "0.005 Gm. from 100 Cc." to "0.001 Gm. from 100 Cc." In test for

oxidizable substances the requirement that the color should not wholly disappear after ten hours is omitted.

Aqua Destillata Sterilisata.—Freshly Distilled Water, a sufficient quantity. Transfer the necessary quantity of freshly Distilled Water to a flask of hard-glass, of sufficient size, which has previously been cleansed and sterilized as described in paragraph No. 1 under Sterilization. Close the mouth of the flask with a pledget of sterilized purified cotton, boil the contents vigorously for 30 minutes and allow it to cool without removing the cotton plug. Finally protect the mouth of the flask and the cotton pledget from infection with dust by wrapping it in sterilized paper. Sterilized Distilled Water should be used within 48 hours after its preparation wherever practicable.

Aqua Fœniculi.—Recently boiled distilled water directed.

Aqua Menthæ Piperitæ.—Recently boiled distilled water directed.

Aqua Menthæ Viridis.—Recently boiled distilled water directed.

Aqua Rosæ.—Must comply with description and tests given under *Aqua Rosæ Fortior*. Dilute with recently boiled distilled water.

Aqua Rosæ Fortior.—Added requirement: It should be free from mustiness and mucilaginous growths. Added test: It should be neutral or show only a slightly acid reaction with litmus and should leave no residue on evaporation.

SPIRITS.

Spiritus Aetheris.—No change.

Spiritus Aetheris Nitrosi.—Rubric changed from "not less than 4 percent." to "not less than 3.5 percent. nor more than 4 percent. of ethyl nitrite."

Spiritus Ammonia Aromaticus.—No change.

Spiritus Amygdalæ Amaræ.—No change.

Spiritus Anisi.—No change.

Spiritus Aurantii Compositus.—No change.

Spiritus Camphoræ.—No change in formula and directions. Assay will be reported later.

Spiritus Chloroformi.—No change.

Spiritus Cinnamomi.—No change.

Spiritus Gaultheriæ.—No change.

Spiritus Glycerylis Nitratis.—Rubric changed from "1 percent. by weight" to "not less than 1 percent. nor more than 1.1 percent. by weight of Glyceryl Trinitrate. Added test: On heating about 10 Cc. of Spirit of Nitroglycerin on a water-bath with 1 Cc. of potassium hydroxide T. S. until the alcohol is evaporated, and then heating a portion of the residue with about 0.5 Gm. of potassium bisulphate, the pungent odor of acrolein will be evolved. On dissolving the remainder of the residue in 2 Cc. of distilled water acidulated with diluted sulphuric acid, then adding a few drops of diphenylamine T. S. and pouring the solution upon 2 Cc. of sulphuric acid in a test-tube so as to form a separate layer, a dark blue color will be produced at the zone of contact. Modified test: On

mixing 10 Cc. of the Spirit with 11 Cc. of distilled water, both previously cooled to 15° C., the mixture should be slightly opalescent. On adding 1 Cc. more of distilled water, a distinct turbidity should be produced. Assay: Weigh accurately not more than about 5 Cc. of the Spirit, allow it to evaporate spontaneously in a tared dish protected from dust, and dry the residue to a constant weight in a desiccator. The weight obtained should correspond to not less than 1 percent. nor more than 1.1 percent. of glyceryl trinitrate. Statement requiring rejection if specific gravity be above 0.830 or if 10 Cc. be rendered turbid by less than 10 Cc. of water is omitted.

Spiritus Juniperi.—No change.

Spiritus Juniperi Compositus.—No change.

Spiritus Lavandulae.—No change.

Spiritus Menthae Piperitæ and Spiritus Menthae Viridis.—Modified directions: Macerate the Peppermint leaves (and respectively the Spearmint leaves), freed as much as possible from stems, during one hour, in 500 Cc. of water and then strongly express them. Add the macerated leaves to the alcoholic solution of the oil, macerate the mixture during six hours, with frequent agitation, and then immediately filter it. Store the product in amber-colored bottles.

SOLUTIONS.

Liquor Acidi Arsenosi.—Rubric changed from "Arsenous Acid corresponding to 1 percent. of arsenic trioxide" to "Arsenous Acid corresponding to not less than 0.975 percent. nor more than 1.025 percent. of arsenic trioxide." Specific gravity added: "About 1.025 at 25° C."

Liquor Ammonii Acetatis.—Specific gravity added: "About 1.018 at 25° C." "Wholly volatile" changed to "volatile; not more than 0.01 percent. of ash remaining on ignition." Assay added: Weigh accurately about 25 Gm. of Solution of Ammonium Acetate, dilute it with 100 Cc. of distilled water and transfer it to a distilling flask fitted with a safety tube. Render it alkaline with potassium hydroxide T. S. and subject the liquid to distillation until no more ammonia is evolved. The distillate should be received under the surface of 50 Cc. of normal sulphuric acid V. S. contained in a flask. The residual titration with normal potassium hydroxide V. S., using methyl-orange T. S. as indicator, should show not less than 7 percent. of ammonium acetate.

Liquor Arseni et Hydrargyri Iodidi.—Rubric changed from "not less than 1 percent. of Arsenous Iodide and 1 percent. of Mercuric Iodide" to "not less than 0.95 percent. nor more than 1.05 percent. of Arsenous Iodide and not less than 0.95 percent. nor more than 1.05 percent. of Red Mercuric Iodide." Added tests: One Cc. of Solution of Arsenous and Mercuric Iodides, mixed with 10 Cc. of distilled water and to which a few drops of lead acetate T. S. is added, should produce a bright yellow precipitate. Add a few drops of Solution of Arsenous and Mercuric Iodides to a mixture of 0.1 Gm. of zinc and 5 Cc. of diluted hydrochloric acid in a test-tube, and cover the mouth of the test-tube with a filter paper which has been moistened with mercuric chloride T. S. and dried. A yellow colored stain should appear within one minute upon the inner surface of the filter paper. Assays: Weigh accurately about 25 Gm. of Solution of

Arsenous and Mercuric Iodides, mix it with 2 Gm. of sodium bicarbonate and titrate the solution with tenth-normal iodine V. S., using starch T. S. as indicator. It should show not less than 0.95 percent. nor more than 1.05 percent. of Arsenous Iodide. Weigh accurately about 25 Gm. of Solution of Arsenous and Mercuric Iodides, mix it with 5 Cc. of potassium hydroxide T. S. and 5 Cc. of solution of formaldehyde in a flask, and place the mixture upon a water-bath until the mercuric salt has been completely reduced to metallic mercury. Carefully decant the clear, supernatant liquid from the residue of metallic mercury and wash the mercury carefully by decantation, with two successive portions of 25 Cc. each of distilled water. Convert the residue of metallic mercury into mercuric nitrate by the action of 5 Cc. of nitric acid and dilute the solution with 50 Cc. of distilled water. The subsequent titration with tenth-normal potassium sulphocyanate V. S. to the formation of a permanent pink color, should show not less than 0.95 percent. nor more than 1.05 percent. of Red Mercuric Iodide.

Liquor Calcis.—In the process the magma is to be washed with boiling distilled water until the washings show not more than a faint cloudiness with AgNO_3 T. S. Lime Water should be frequently prepared from fresh magma of Calcium Hydroxide and not made by shaking up the sediment with a fresh portion of Distilled Water, unless the product be assayed and found to be of full strength. Requirement that it should conform to the tests under Calx omitted.

Liquor Chlori Compositus.—Rubric changed from "about 0.4 percent. of Chlorine with some oxides of chlorine" to "a mixture of chlorine and chlorine oxides equivalent to at least 0.35 Gm. of chlorine in each 100 Cc. of the solution." Added tests: Compound Solution of Chlorine when evaporated to dryness on a water-bath leaves a white residue of potassium chloride. Add 1 Gm. of potassium iodide to 25 Cc. of Compound Solution of Chlorine in a flask. The subsequent titration with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 0.35 Gm. of available chlorine in each 100 Cc.

Liquor Cresolis Compositus.—Cresol, 500 Gm.; Linseed Oil, 300 Gm.; Potassium Hydroxide, 80 Gm.; Alcohol, 30 Cc.; Water, a sufficient quantity to make 1000 Gm. Add the Potassium Hydroxide dissolved in 50 Cc. of water to the Linseed Oil, both at 70° C. Incorporate the Alcohol and heat the mixture without stirring until soluble in boiling water; while yet warm add the Cresol, heat at 70° C. until clear and add water to make 1000 Gm.

Liquor Ferri Chloridi.—Test for "absence of salts of the fixed alkalies" changed to "residue on evaporation not more than 0.10 percent." Assay: Weigh accurately about 2 Gm. of Solution of Ferric Chloride, dilute it with distilled water to a volume of about 25 Cc. and mix it with 5 Cc. of hydrochloric acid and about 3 Gm. of potassium iodide. Allow the mixture to stand for 30 minutes at a temperature of 40° C., cool, and then dilute with 100 Cc. of distilled water. The titration of this solution with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 10 percent. of iron.

Liquor Ferri et Ammonii Acetatis.—Added tests: Acid reaction with litmus. Specific gravity about 1.0385. The solution yields a blue precipitate with potassium ferrocyanide T. S.; ammonia water produces no precipitate. When

Solution of Iron and Ammonium Acetate is heated with potassium hydroxide T. S., ammonia is evolved. On adding 1 Cc. each of sulphuric acid and alcohol to 5 Cc. of the Solution and boiling the mixture, ethyl acetate will be formed, recognizable by its odor.

Liquor Ferri Subsulphatis.—Rubric changed from 13.57 percent. to 13.50 percent. of metallic iron. The test showing "difference from tersulphate" omitted.

Liquor Ferri Tersulphatis.—The test showing "difference from subsulphate" is omitted.

Liquor Formaldehydi.—From 7 to 14 percent. of methyl alcohol added to prevent polymerization. Specific gravity changed from "1.075 to 1.078" to "from 1.070 to 1.095 at 25° C." On evaporating 20 Cc. of Solution of Formaldehyde to dryness on a water-bath, a white, amorphous mass (paraformaldehyde) should remain, and upon igniting this residue the yield of ash should not exceed 0.05 percent. (fixed impurities). Changed from "no residue on evaporation and ignition" to "ash not exceeding 0.05 percent." Test for formic and other acids changed from "absence of not more than 0.1 percent." to "not more than 0.2 percent." Tests for chloride, sulphate, iron, lead, copper and calcium replaced by "ten Cc. of an aqueous dilution of the solution (1 in 20) slightly acidulated with hydrochloric acid should not respond to the test for heavy metals." In assay allow the mixture to stand for thirty minutes instead of ten minutes before titrating back with normal H_2SO_4 V. S.

Liquor Hydrogenii Dioxidi.—(Aqua Hydrogenii Dioxidi, U. S. P. VIII.) Add to rubric: Acetanilide may be used to prevent deterioration and pressure in this solution in an amount not exceeding 0.4 Gm. to each 1000 Cc. Solution of Hydrogen Dioxide in which acetanilide has been used as a preservative sometimes acquires a yellow color or an odor of nitrobenzol. If either of these conditions is noticed the solution should not be dispensed for medicinal purposes. Free acid test replaced by the following: On titrating 25 Cc. of Solution of Hydrogen Dioxide with tenth-normal potassium hydroxide V. S., not more than 2.0 Cc. of volumetric solution should be required to effect neutralization, phenolphthalein T. S. being used as indicator (free acid). Modified tests: Evaporate 50 Cc. of the Solution, previously rendered alkaline by the addition of sodium hydroxide T. S., to dryness on a water-bath and transfer the dry residue to a platinum crucible. Moisten the residue with sulphuric acid, cover the crucible with a watch-glass, the converse side of which is coated with a thin layer of yellow wax and afterwards scratched so as to expose the glass and then cooled by placing water in the concave side and standing in this a small beaker which must be kept filled with cold water. Now heat the crucible and contents in a water-bath for one hour; the surface of the watch-glass after being cleaned should exhibit no sign of corrosion (hydrofluoric acid). On evaporating 1 Cc. of the solution to dryness on a water-bath and dissolving the residue in 10 Cc. of distilled water containing 1 Cc. of diluted hydrochloric acid, the liquid should not respond to the test for heavy metals. Added tests: Add 4 drops of sodium acetate T. S. to 10 Cc. of the solution and follow with 4 drops of calcium chloride T. S. No turbidity or precipitate should be produced within 10 minutes (oxalic acid). Subject 100 Cc. of Solution of Hydrogen Dioxide to the shaking-out process with

two portions of 25 Cc. each of chloroform and evaporate the chloroformic solution to dryness at room temperature in a tared glass dish. A crystalline residue may be obtained which should not weigh more than 0.040 Gm. and which, upon heating with 1 Cc. of sodium hydroxide T. S. and 2 drops of chloroform, will evolve the disagreeable odor of phenyl-isocyanide (presence and limit of acetanilide).

Liquor Iodi Compositus.—Rubric changed from “not less than 5 percent. of iodine and 10 percent. of potassium iodide” to “not less than 4.75 percent. nor more than 5.25 percent. of iodine, and not less than 9.5 percent. nor more than 10.5 percent. of potassium iodide.” Added tests: A drop of Compound Solution of Iodine when added to 1 Cc. of starch T. S., diluted with 10 Cc. of water, produces a deep blue color. Assays: Weigh accurately about 10 Gm. of Compound Solution of Iodine, evaporate it in a tared, porcelain dish on a water-bath, and gently heat the residue over a Bunsen burner. It should leave a residue of not less than 9.5 percent. nor more than 10.5 percent. of a salt corresponding to the identity tests for potassium iodide given under Potassii Iodidum. Weigh accurately about 10 Gm. of Compound Solution of Iodine, dilute it with 25 Cc. of distilled water and titrate with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator. It should show not less than 4.75 percent. nor more than 5.25 percent. of Iodine.

Liquor Magnesia Citratis.—Magnesium Carbonate, 15.0 Gm.; Citric Acid, 33.0 Gm.; Syrup, 60.0 Cc.; Purified Talc, 5.0 Gm.; Oil of Lemon, 0.1 Cc.; Potassium Bicarbonate, 2.5 Gm.; Water, a sufficient quantity. Dissolve the Citric Acid in 150 Cc. of hot water in a porcelain dish, and, having added the Magnesium Carbonate previously mixed with 100 Cc. of water, stir until it is dissolved. Then add the Syrup, heat the mixed liquids to the boiling point, immediately introduce the Oil of Lemon, previously triturated with the Purified Talc, and filter the mixture, while hot, into a strong bottle (previously rinsed with boiling water) of the capacity of about 300 Cc. Introduce enough boiled water to nearly fill the bottle, stopper it with purified cotton until cold, then drop in the Potassium Bicarbonate, and immediately stopper the bottle securely. Lastly, shake the solution occasionally, until the Potassium Bicarbonate is dissolved. Keep the bottle on its side in a cool place, preferably in an ice chest.

Liquor Plumbi Subacetatis.—Change in assay: Warm the clear acidified liquid to 80° C. before titrating with normal potassium permanganate V. S. Reference to tests under Plumbi Acetas omitted. Added tests: Solution of Lead Subacetate, diluted with 10 parts of recently boiled distilled water, yields a black precipitate with hydrogen sulphide T. S., a yellow precipitate with potassium iodide T. S., and a white precipitate with diluted sulphuric acid. Solution of Lead Subacetate should yield with potassium ferrocyanide T. S. a precipitate which should not be perceptibly blue and red (limit of iron and copper).

Liquor Plumbi Subacetatis Dilutus.—No change.

Liquor Potassii Arsenitis.—Rubric changed from “Potassium Arsenite corresponding in amount to 1 percent.” to “Potassium Arsenite corresponding in amount to not less than 0.975 percent. and not more than 1.025 percent. of arsenic trioxide.” Added tests: It shows an alkaline reaction with litmus. On acidulating 4 Cc. of Solution of Potassium Arsenite with nitric acid and adding 1 Cc.

of silver nitrate T. S., a yellow precipitate should be produced free from red or reddish-brown color (arsenate).

Liquor Potassii Citratis.—An aqueous solution containing not less than 8 percent. of anhydrous Potassium Citrate ($K_3C_6H_5O_7=306.34$) (corresponding to about 8.5 percent. of the hydrated salt), with small amounts of citric and carbonic acids. Potassium Bicarbonate, 8 Gm.; Citric Acid, 6 Gm.; Distilled Water, a sufficient quantity to make one hundred cubic centimeters. Dissolve the Potassium Bicarbonate and the Citric Acid, each, in forty cubic centimeters of Distilled Water. Filter the solutions separately, and wash the filters with enough Distilled Water to obtain in each case fifty cubic centimeters. Finally, mix the two solutions, and, when effervescence has nearly ceased, transfer the liquid to a bottle. This preparation should be freshly made when wanted. Modified assay: Weigh accurately about 15 Gm. of Solution of Potassium Citrate, evaporate it to dryness in a platinum vessel, then thoroughly carbonize the residue at a temperature not exceeding red heat, transfer the vessel and its contents to a beaker, and boil them for thirty minutes with a mixture of 50 Cc. of half-normal sulphuric acid V. S. and 50 Cc. of distilled water. Then filter the mixture, wash the residue with hot distilled water until the washings cease to affect litmus, cool the filtrate and subject the washings to residual titration with half-normal potassium hydroxide T. S. It should show not less than 8 percent. of anhydrous Potassium Citrate, methyl-orange T. S. being used as indicator..

Liquor Potassii Hydroxidi.—Rubric changed from "containing about 5 percent.," to "containing not less than 4.5 percent. of Potassium Hydroxide." Instructions for using Potassium Hydroxide of other than official strength omitted. Specific gravity, about 1.046 at 25° C. Added test: Weigh accurately about 20 Gm. of Solution of Potassium Hydroxide and titrate it directly with normal hydrochloric acid V. S., using methyl-orange T. S. as indicator. It should show not more than 5.5 percent. of alkalinity, calculated as potassium hydroxide (limit of carbonate). Modified assay: Weigh accurately about 50 Gm. of Solution of Potassium Hydroxide, transfer it to a 250 Cc. graduated flask, add 20 Cc. of barium chloride T. S. and fill the flask to the mark with distilled water, which has previously been boiled and cooled. Then thoroughly agitate the liquid, pass it through a filter which has not been previously moistened (rejecting the first 20 Cc.) and titrate 100 Cc. of the filtrate with normal hydrochloric acid V. S., using phenolphthalein T. S. as indicator. It should show not less than 4.5 percent. of Potassium Hydroxide, when calculated to the amount of Solution originally taken.

Liquor Sodæ Chlorinata.—Rubric changed from "containing at least 2.4 percent." to "containing at least 2.5 percent. by weight of available chlorine." Modified formula: Monohydrated Sodium Carbonate, 70 Gm.; Chlorinated Lime, 100 Gm.; Water, a sufficient quantity to make 1000 Gm. Triturate the Chlorinated Lime with five hundred cubic centimeters of water gradually added until a uniform mixture results. Dissolve the Monohydrated Sodium Carbonate in five hundred cubic centimeters of hot water, and add this solution to the previously obtained magma in a suitable vessel. Stir or shake the mixture thoroughly, and if it becomes gelatinous warm the vessel very gently until it again liquefies. Then

transfer the mixture to a wetted muslin strainer returning the first portion until the liquid passes through clear and when no more liquid drains from it, wash the precipitate with enough water to make the product weigh one thousand grammes. Specific gravity omitted. Modified assay: Weigh accurately about 7 Gm. of Solution of Chlorinated Soda in a flask, mix it with 50 Cc. of distilled water and add 1 Gm. of potassium iodide and 5 Cc. of acetic acid. The subsequent titration with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 2.5 percent. of available chlorine.

Liquor Sodii Arsenatis.—Rubric changed from "not less than 1 percent." to "not less than 0.975 nor more than 1.025 percent. of anhydrous Sodium Arsenate." The Exsiccated Sodium Arsenate must be dried to constant weight at 150° C. before weighing. Add to assay: Weigh accurately about 30 Cc. of Solution of Sodium Arsenate, heat the solution to 80° C. and add 10 Cc. of hydrochloric acid and 3 Gm. of potassium iodide. Allow the mixture to stand for 15 minutes at 80° C., cool the mixture and then titrate it with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator. It should show not less than 0.95 percent. nor more than 1.00 percent. of anhydrous Sodium Arsenate.

Liquor Sodii Chloridi Physiologicus.—Sodium Chloride, 8.5 Gm.; Distilled Water, a sufficient quantity to make 1000 Cc. Dissolve the Sodium Chloride in sufficient freshly Distilled Water to measure 1000 Cc. and filter. Then sterilize the filtered solution of Sodium Chloride, preferably in an autoclave, under steam pressure, at a temperature of from 115° to 120° C. for 15 minutes, or by boiling it during at least one hour. The solution should be freshly prepared before it is dispensed.

Liquor Sodii Hydroxidi.—Rubric changed from "about 5 percent." to "not less than 4.5 percent. of Sodium Hydroxide." Instructions for using Sodium Hydroxide of other than official strength omitted. Added test: Weigh accurately about 20 Gm. of Solution of Sodium Hydroxide and titrate it directly with normal hydrochloric acid V. S., using methyl-orange T. S. as indicator. It should show not more than 5.5 percent. of alkalinity, calculated as sodium hydroxide (limit of carbonate). Modified assays: Weigh accurately about 50 Gm. of Solution of Sodium Hydroxide, transfer it to a 250 Cc. graduated flask, add 20 Cc. of barium chloride T. S. and fill the flask to the mark with distilled water, which has been previously boiled and cooled. Then thoroughly agitate the liquid and pass it through a filter which has not been previously moistened (rejecting the first 20 Cc.) and titrate 100 Cc. of the clear filtrate with normal hydrochloric acid V. S., using phenolphthalein T. S. as indicator. It should show not less than 4.5 percent. of Sodium Hydroxide when calculated to the amount of solution originally taken. Each cubic centimeter of normal hydrochloric acid V. S. used corresponds to 0.04001 Gm. of Sodium Hydroxide (NaOH).

Liquor Zinci Chloridi.—Added assay: Weigh accurately about 0.6 Gm. of Solution of Zinc Chloride, in a tared flask, add 20 Cc. of distilled water and 50 Cc. of tenth-normal silver nitrate V. S., shake the mixture well and then add 2 Cc. of nitric acid and 2 Cc. of ferric ammonium sulphate T. S. The residual

titration of this liquid with tenth-normal potassium sulphocyanate V. S. should show not less than 49 percent. of Ziinc Chloride.

EXTRACTS.

Powdered Extracts.—In the preparation of Powdered Extracts, it has been necessary to use solvents that will extract the active principles of the drugs, and only the minimum amount of the inert constituents. Where the drug contains an oily constituent that is extracted by the menstruum directed, it becomes necessary to adopt a method for the separation of this oil so that the product will retain a satisfactory pulverulent form. The concentration of the liquids should be started without delay and undue exposure to heat must be avoided. The limit of temperature as stated in the formulas, should not be exceeded and the use of apparatus for carrying on the concentration under reduced pressure is recommended. The final drying of the soft extract can be greatly facilitated by spreading it upon plates of glass or tinned metal and exposing it to currents of warm air. For the convenience of the prescriber, the standards of strength for the powdered extracts have been so adjusted that each bears a definite relation to that of its respective drug of the average strength and a statement of the standard precedes the formula. For these powdered extracts that can be reliably assayed, alkaloidal standards have been adopted and assay methods are directed for the determination of their strength and to provide for standarization. In standardizing powdered extracts, suitable inert powders must be selected as diluents. In the official formulas, dried starch and magnesium oxide are directed, but it is permissible for the manufacturer to select as inert diluents, sugar, sugar of milk, powdered glycyrrhiza, magnesium carbonate or the finely powdered drug or marc from which the respective extract is made. In completing powdered extracts they must be thoroughly dried, powdered, mixed with the diluent and passed through a fine sieve and should be preserved in tightly-stoppered, small, wide-mouthed, amber-colored bottles, and stored in a cool and dry place. Pilular extracts should be protected from exposure to sunlight and air by keeping them in tightly-covered glass or earthenware jars.

Extractum Aconiti Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Aconite. Practically exhaust 1000 Gm. of Aconite, in No. 60 powder, by percolation, reserving the first 1000 Cc. of percolate. Use the following menstruum: Menstruum I: Tartaric acid 5 Gm. and alcohol 500 Cc.; Menstruum II: Alcohol. Distil the alcohol first from the second percolate, afterwards adding the reserve and reducing the residue to about 100 Cc. Treat this residue with two successive portions of 250 Cc. each of purified petroleum benzin, discarding the benzin, then add 50 Gm. of dried starch and concentrate the mixture on a water-bath, with frequent stirring. Spread the thick extract on glass plates, dry it in an air-bath at a temperature not exceeding 80° C.; powder the product, assay it and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Belladonnæ Foliorum.—One Gm. of the Extract to represent 4 Gm. of average strength Belladonna Leaves. Powder changed from No. 40 to No. 60. Menstruum: Alcohol, 3 volumes, and water, 1 volume. Former menstruum:

Alcohol 2 volumes, water 1 volume. Evaporate percolate at a temperature not exceeding 70° C.; changed from 50° C. Add sufficient glucose, after assay, to make the finished Extract conform to the required alkaloidal standard. Sugar of Milk formerly used as a diluent.

Extractum Belladonnae Foliorum Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Belladonna Leaves. Practically exhaust 1000 Gm. of Belladonna Leaves in No. 40 powder, by percolation, reserving the first 1000 Cc. of percolate and using alcohol as the menstruum. Distil the alcohol first from the second percolate, afterwards adding the reserve and reducing the residue to a syrupy consistence. Evaporate this thick extract to a pilular consistence, at a temperature not exceeding 80° C., add 50 Gm. of dried starch and again heat at the same temperature, frequently stirring, until nearly dry. Then incorporate 20 Gm. of magnesium oxide and thoroughly dry the mixture in warm air. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Cannabis Indicae.—Temperature for evaporation of percolate limited to 70° C.

Extractum Cascarae Sagradae Pulveratum.—One Gm. of Powdered Extract of Cascara Sagrada to represent 3 Gm. of the drug. Practically exhaust 1000 Gm. of Cascara Sagrada in No. 20 powder, by percolation, using boiling water as the menstruum. Evaporate the percolate to dryness on a water-bath or steam-bath. Reduce the extract to a fine powder, weigh it, add 25 Gm. of magnesium oxide and enough dried starch to make the product weigh 300 Gm. Mix it thoroughly. Former menstruum: Alcohol, 125 volumes, and water, 875 volumes. Powdered glycyrrhiza formerly used as a diluent in making up the final weight.

Extractum Cimicifugae Pulveratum.—One Gm. of Powdered Extract of Cimicifuga to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Cimicifuga in No. 40 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate and evaporate the residue to dryness, with frequent stirring, on a water-bath, at a temperature not exceeding 80° C. Powder the extract, weigh it, add sufficient dried starch to make the product weigh 250 Gm. and mix thoroughly. Former extract prepared by evaporating the fluid-extract to complete dryness, powdering the product and using powdered glycyrrhiza as a diluent in making up the final weight.

Extractum Colchici Cormi Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Colchicum Corm. Practically exhaust 1000 Gm. of Colchicum Corm, in No. 60 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate, at as low a temperature as possible, until the residue measures about 150 Cc. Treat this residue with two successive portions of purified petroleum benzin, discarding the benzin. Evaporate this syrupy residue to a thick extract, in a dish, incorporate 50 Gm. of dried starch, spread the mixture on glass plates and dry it thoroughly in an air bath at a temperature not exceeding 80° C. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former Extract of pilular

consistence. Menstrua formerly used. Menstruum I: Acetic acid 350 Cc., and water 1500 Cc. Menstruum II: Water.

Extractum Colocynthis Pulveratum.—One Gm. of Powdered Extract of Colocynth to represent 4 Gm. of the drug. Practically exhaust Colocynth in No. 20 powder, by percolation, using diluted alcohol as the menstruum. Distil the alcohol from the percolate, evaporate the residue to dryness on a water-bath or steam-bath, powder the extract, weigh it, and add sufficient dried starch to make the product weigh 250 Gm. Mix it thoroughly. Former process called for combined maceration and percolation, and the end-product was not required to be of a definite weight.

Extractum Colocynthis Compositum Pulveratum.—Purified Aloes changed to Curaçao Aloes, 60 Gm. of whole Cardamom changed to 50 Gm. of Cardamom Seed and enough soap used to make 1000 Gm. The other ingredients remain the same, all being mixed by trituration and then reduced to a No. 60 powder.

Extractum Ergotæ.—Exhaust the Ergot with purified petroleum bezin and dry the drug; then practically exhaust this drug by percolation with the following. Menstruum I: Alcohol, 850 Cc., water, 150 Cc., and hydrochloric acid, 10 Cc. Menstruum II: Alcohol, 85 volumes, and water 15 volumes. Evaporate the percolate so obtained, at a temperature not exceeding 70° C., to pilular consistence. The acid is not neutralized as formerly and glycerin is not added to the evaporated extract.

Extractum Euonymi Pulveratum.—One Gm. of Powdered Extract of Euonymus to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Euonymus in No. 40 powder, by percolation, using alcohol 4 volumes and water 1 volume as the menstruum. Distil the alcohol from the percolate and evaporate the residue to dryness, with frequent stirring, at a temperature not exceeding 70° C. Powder the extract, weigh it, add sufficient dried starch to make the product weigh 250 Gm. and mix thoroughly. Former Extract prepared by evaporating the fluid-extract to complete dryness, powdering the product and using powdered glycyrrhiza as a diluent in making up the final weight.

Extractum Fellis Bovis Pulveratum.—To replace Purified Oxgall. One Gm. of Powdered Extract of Oxgall to represent 8 Gm. of Oxgall. Add 1000 Cc. of alcohol slowly and with agitation to 800 Gm. of Oxgall contained in a bottle, macerate for two days and then decant the liquid portion. Wash the residue in the bottle with an additional 500 Cc. of alcohol, decant the liquid portion, mix it with the liquid first separated and filter the mixture. Distil the alcohol from the filtrate and evaporate the residue to a thick extract at a temperature between 75° and 80° C. Spread this extract on glass plates and thoroughly dry in warm air, at a temperature not exceeding 80° C. Powder the extract, weigh it, and add sufficient dried starch to make 100 Gm. Mix it thoroughly.

Extractum Gelsemii Pulveratum.—One Gm. of Powdered Extract of Gelsemium to represent 4 Gm. of the drug. Practically exhaust 1000 Gm. of Gelsemium in No. 40 powder, by percolation, using alcohol as the menstruum. Distil the alcohol from the percolate until the residue measures about 500 Cc., transfer this to a dish and evaporate it to a soft extract with frequent stirring, at a temperature not exceeding 70° C. Add 50 Gm. of a mixture of 1 part of magnesium

oxide and 3 parts of dried starch, mix well, spread the mass in a thin layer on glass or tinned-metal plates or in a porcelain dish and continue the drying in an air-bath until thoroughly dry, at a temperature not exceeding 70° C. Powder the extract, weigh it, add sufficient of the mixture of magnesium oxide and dried starch to make 250 Gm., and mix thoroughly.

Extractum Gentianæ.—No change.

Extractum Glycyrrhizæ.—Added requirement: Ash not exceeding 6 percent.

Extractum Glycyrrhizæ Purum.—The menstruum is to be chloroform water instead of water after the ammonia has been used.

Extractum Hydrastis Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Hydrastis. Practically exhaust 1000 Gm. of Hydrastis in No. 40 powder, by percolation, using the following menstrua: Menstruum I: Tartaric acid 5 Gm. and alcohol 1000 Cc.; Menstruum II: Alcohol. Distil the alcohol from the percolate, and evaporate the residue to a soft extract, with frequent stirring, at a temperature not exceeding 70° C. Add 50 Gm. of a mixture of 1 part of magnesium oxide and 3 parts of dried starch, spread the mass in a thin layer on glass or tinned-metal plates or in a porcelain dish and continue the drying over an air-bath until thoroughly dry, at a temperature not exceeding 70° C. Powder the Extract, assay it and add enough of the mixture of magnesium oxide and dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Hyoscyami.—One Gm. of the Extract to represent 4 Gm. of average strength Hyoscyamus. Practically exhaust Hyoscyamus in No. 40 powder, by percolation, with the following menstruum: Alcohol 3 volumes, and water 1 volume. Evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C., and, after assay, add sufficient glucose to make the finished Extract conform to the required alkaloidal standard. Former Extract prepared by evaporating the fluidextract to pilular consistence, and adjusting the weight by assay, sugar of milk being used as the diluent.

Extractum Malti.—The temperature for maceration and evaporation not to exceed 60° C., changed from 55° C. Evaporate until of a specific gravity of not less than 1.350, nor more than 1.400 at 25° C.; formerly "to the consistence of thick honey."

Extractum Nucis Vomica Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Nux Vomica. Practically exhaust 1000 Gm. of Nux Vomica, in No. 20 powder, by percolation, using alcohol 3 volumes, and water 1 volume as the menstruum. Distil the alcohol from the percolate and reduce the residue to about 200 Cc. Treat this residue with a mixture of 150 Cc. of water and 200 Cc. of purified petroleum benzin, separate the benzin layer, again treat the residue with 100 Cc. of purified petroleum benzin and decant as before. Wash the separated benzin with three successive 100 Cc. portions of a mixture made by adding 10 parts of sulphuric acid to 100 parts of water. Collect these acid washings, make alkaline with ammonia water and shake out with three portions of chloroform, 20 Cc., 10 Cc., and 10 Cc. Add the combined chloroform solution to the Extract residue and evaporate the mixture to dryness on a water-bath. Powder the product, assay it, and add enough

of a mixture of magnesium oxide 1 part and dried starch 3 parts to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former menstrua: Menstruum I: Acetic acid 500 Cc., and water 1300 Cc.; Menstruum II: Water. Sugar of milk was used as a diluent in making up the final weight.

Extractum Opii Pulveratum.—One Gm. of the Powdered Extract to represent 2 Gm. of average strength Opium. Beat 100 Gm. of Opium in a mortar with 300 Cc. of hot water until a smooth paste is produced, add to this 100 Gm. of clean, white sand, mix it thoroughly and transfer the mixture to a percolator. Practically exhaust the Opium by percolation, using water as the menstruum and evaporate the percolate to dryness in a dish, on a water-bath. Powder the product, assay it and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly. Former process called for combined maceration and percolation. Sugar of milk was formerly used as a diluent in making up the final weight.

Extractum Rhei Pulveratum.—One Gm. of the Powdered Extract to represent 2 Gm. of average strength Rhubarb. Practically exhaust 1000 Gm. of Rhubarb in No. 40 powder, by percolation, using alcohol 4 volumes, and water 1 volume as the menstruum. Distil the alcohol from the percolate and continue distillation until a residue of syrupy consistence remains; transfer this to a dish and evaporate the mixture to dryness, with frequent stirring, at a temperature not exceeding 80° C. Powder the extract and add 50 Gm. of magnesium oxide and sufficient dried starch to make 500 Gm. Mix it thoroughly. Former Extract prepared by evaporating the fluidextract to pilular consistence.

Extractum Stramonii.—One Gm. of the Extract to represent 4 Gm. of average strength Stramonium. Practically exhaust Stramonium in No. 30 powder by percolating with the following menstruum: Alcohol 3 volumes and water 1 volume. Evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C. and, after assay, add sufficient glucose to make the finished Extract conform to the required alkaloidal standard. Former Extract prepared by evaporating the fluidextract to pilular consistence and adjusting the weight by assay, sugar of milk being used as the diluent.

Extractum Stramonii Pulveratum.—One Gm. of the Powdered Extract to represent 4 Gm. of average strength Stramonium. Practically exhaust 1000 Gm. of Stramonium in No. 40 powder, by percolation, reserving the first 1000 Cc. of percolate. Use alcohol as the menstruum. Distil the alcohol first from the second percolate and reduce it to about 100 Cc., afterwards adding the reserve and reducing the residue to a syrupy consistence. Evaporate this residue in a dish to a soft extract, with frequent stirring, at a temperature not exceeding 70° C., add 50 Gm. of dried starch and continue the heating at the same temperature, with frequent stirring, until the mass is nearly dry. Now incorporate 20 Gm. of magnesium oxide and thoroughly dry it in a current of warm air. Powder the product, assay it, and add enough dried starch to make the finished Powdered Extract conform to the required alkaloidal standard. Mix it thoroughly.

Extractum Sumbul.—Practically exhaust Sumbul in No. 30 powder, by percolation, with the following menstruum: Alcohol 4 volumes and water 1 volume,

and evaporate the percolate to a pilular consistence at a temperature not exceeding 70° C. Former Extract prepared by evaporating the fluidextract to a pilular consistence.

Extractum Taraxaci.—No change.

FLUIDEXTRACTS.

Introductory Statements.—Fluidextracts are concentrated liquid preparations of vegetable drugs, containing alcohol either as a solvent or as a preservative, and bearing a uniform relation to the drug used so that 1 Cc. of the fluidextract approximately represents the activity of 1 Gm. of the air-dried powdered drug. The fluidextracts of this Pharmacopœia, with few exceptions, may be classified according to the menstruum used in the extraction of the drug and the process of manufacture employed. Several drugs require special manipulation to obtain satisfactory fluidextracts, and for these appropriate formulas have been devised and are printed in full in the text. The following type processes are described, and in each formula the process to be used is designated by reference to the type process: Type Process A: In this class are included those fluidextracts that are made with a menstruum of alcohol or a mixture of alcohol and water by the usual process of percolation. Type Process B: In this class are included those fluidextracts in which glycerin or an acid is used in the extraction and two menstrea are successively used. Menstruum I contains the glycerin or acid in definite proportion to the amount of the drug, and Menstruum II, a mixture of alcohol and water intended for completing the exhaustion of the drug. Type Process C: The process of Fractional or Divided Percolation. This is especially recommended for drugs containing volatile ingredients of constituents injured by exposure to heat. This process may likewise be used as an alternative process in the formulas in which Type Process A is directed. Type Process D: In this class are included those fluidextracts in which extraction is effected by infusion and percolation with boiling water, alcohol being added to the concentrated extract as a preservative.

PROCESSES.

Type Process A.—Moisten 1000 Gm. of the powdered drug which is directed with a sufficient quantity of the prescribed menstruum to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for forty-eight hours. Then allow the percolation to proceed slowly, gradually adding more menstruum until the drug is practically exhausted. Reserve the first 850 Cc. of the percolate (unless otherwise specified in the formula); recover the alcohol from the remainder and concentrate to a soft extract at a temperature not exceeding 60° C.; dissolve this in the reserved portion, mix thoroughly and finally add a sufficient quantity of the menstruum to obtain 1000 Cc. or the proper volume determined by the assay standard.

Type Process B.—Moisten 1000 Gm. of the powdered drug, which is directed,

with a sufficient quantity of the prescribed Menstruum I, to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container; pack it in a cylindrical percolator, add the remainder of Menstruum I, and when this has just disappeared from the surface, gradually add Menstruum II, constantly maintaining a stratum of liquid above the drug. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for 48 hours, and then allow the percolation to proceed slowly, gradually adding Menstruum II, until the drug is practically exhausted. Reserve the first 850 Cc. of the percolate (unless otherwise specified in the formula); recover the alcohol from the remainder and concentrate to a soft extract at a temperature not exceeding 60° C.; dissolve this in the reserved portion, mix thoroughly and finally add a sufficient quantity of Menstruum II to obtain 1000 Cc. or the proper volume determined by the assay standard.

Type Process C.—Divide 1000 Gm. of the drug, which is directed, into three portions of 500 Gm., 300 Gm., and 200 Gm., respectively. Moisten the first portion of the drug (500 Gm.) with a sufficient quantity of the prescribed menstruum to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and add enough of the menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice, and, having closely covered the percolator, macerate for 48 hours and then allow the percolation to proceed slowly, gradually adding more menstruum. Reserve the first 200 Cc. of percolate and continue the percolation until 1500 Cc. of additional percolate have been collected in successive portions of 300 Cc. each. Moisten the second portion of the drug (300 Gm.) with a sufficient quantity of the percolate collected in the preceding operation immediately after the reserved portion, to render it evenly and distinctly damp and to maintain it so after macerating for 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and macerate and percolate in the same manner, using as menstruum the several portions of percolate from the preceding operation in the order in which they have been collected and, if this be insufficient, follow with some of the original menstruum. Reserve the first 300 Cc., continue the percolation and collect the weaker percolate in successive portions of 200 Cc. each. Moisten the third portion of the drug (200 Gm.) with a sufficient quantity of the percolate collected in the preceding operation immediately after the reserved portion, to render it evenly and distinctly damp and to maintain it so after macerating 6 hours in a tightly covered container. Then pack it in a cylindrical percolator and macerate and percolate in the same manner, using as menstruum the several portions of percolate from the preceding operation in the order in which they have been collected and, if this be insufficient, follow with more of the original menstruum. Collect 500 Cc. of percolate and mix this with the two portions previously reserved so as to make 1000 Cc. of finished fluid-extract. When Type Process C is directed for fluidextracts which are adjusted by assay to a definite alkaloidal standard, collect only 420 Cc. of percolate from the third portion of drug instead of the 500 Cc. directed in the Process.

Mix this percolate with the two portions previously reserved, assay a sample of the mixture and then adjust its volume, by the addition of the menstruum directed, so that each 100 Cc. of finished fluidextract will contain the prescribed amount of alkaloid.

Type Process D.—To 1000 Gm. of the ground drug add 5000 Cc. of boiling water, mix thoroughly and allow to macerate in a covered container for 2 hours in a warm place. Then transfer the moist drug to a tinned or enameled metallic percolator and allow percolation to proceed, gradually adding boiling water until the drug is practically exhausted. Evaporate the percolate on a water-bath or steam-bath to the volume specified and when cold add the alcohol directed and mix thoroughly. In the preparation of fluidextracts by either Process A, B, or C, the rate of percolation must be carefully controlled and for the quantities directed in the formulas of the Pharmacopœia, the flow should not exceed ten drops per minute until the reserved percolate is collected and 20 drops per minute thereafter. With careful percolation, most drugs will be practically extracted when 3000 Cc. of percolate have been obtained from each 1000 Gm. of the drug. Fluidextracts should be kept in tightly-stoppered containers for one month and then, if perfectly clear, stored in amber-colored bottles protected from sunlight and extremes of temperature. If sedimentation has occurred, the clear portion should be decanted, the remainder filtered and both liquids thoroughly mixed before storing. The quantity of alcohol in finished fluidextracts is less than the amount of alcohol in the menstrua employed, this is due to loss by evaporation during manufacture, variations in the amount of water in air-dried drugs and the absorption of moisture from the air, hence if the percentage of alcohol in the finished product is desired, it may be determined by the process for Alcohol Determination.

Fluidextractum Aconiti.—Powder changed from No. 60 to No. 40. Prepare by Type Process C, modified as directed for alkaloidal drugs. Menstruum: Alcohol 3 volumes and water 1 volume.

Fluidextractum Apocyni.—Powder changed from No. 60 to No. 30. Prepare by Type Process B. Menstruum I: Glycerin 100 Cc., alcohol 600 Cc., and water 300 Cc. Menstruum II: Alcohol 3 volumes, and water 2 volumes.

Fluidextractum Aromaticum.—Aromatic Powder 1000 Gm. Prepare by Type Process C. Menstruum: Alcohol.

Fluidextractum Aurantii Amari.—Powder changed from No. 40 to No. 20. Prepare by Type Process C. Menstruum: Alcohol 3 volumes and water 1 volume. Former menstruum: Alcohol 2 volumes and water 1 volume.

Fluidextractum Belladonnæ Radicis.—Powder changed from No. 60 to No. 40. Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc., as there directed. Menstruum: Alcohol 5 volumes and water 1 volume. Former menstruum: Alcohol 4 volumes and water 1 volume.

Fluidextractum Buchu.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Cannabis Indicae.—Prepare by Type Process A. Menstruum, alcohol.

Fluidextractum Cascarae Sagradae.—Prepare by Type Process D; evaporate to 750 Cc. and add 250 Cc. of alcohol. Former menstruum: alcohol 2 volumes and water 4 volumes.

Fluidextractum Cimicifugae.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol.

Fluidextractum Cinchonae.—Powder changed from No. 60 to No. 40. Prepare by Type Process B, modified for alkaloidal drugs. Menstruum I: glycerin 100 Cc., diluted hydrochloric acid 100 Cc., and alcohol 800 Cc. Menstruum II: alcohol 4 volumes and water 1 volume. Former menstruum I: glycerin 100 Cc., alcohol 800 Cc. and water 100 Cc.

Fluidextractum Colchici Seminis.—Powder changed from No. 50 to No. 40. Remove the fat by percolation with purified petroleum benzin and then proceed by Type Process A, modified for alkaloidal drugs. Menstruum: alcohol 2 volumes and water 1 volume.

Fluidextractum Digitalis.—Powder changed from No. 60 to No. 30. Prepare by Type Process A. Menstruum: alcohol 5 volumes and water 1 volume. Former menstruum: diluted alcohol.

Fluidextractum Ergotae.—Powder changed from No. 60 to No. 40. Prepare by Type Process B. Menstruum I: hydrochloric acid 20 Cc. and diluted alcohol 980 Cc. Menstruum II: diluted alcohol. Former menstruum I: acetic acid 20 Cc. and diluted alcohol 980 Cc.

Fluidextractum Eriodictyi.—Powder changed from No. 60 to No. 30. Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Eucalypti.—Powder changed from No. 40 to No. 30. Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Gelsemii.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume. Former menstruum: alcohol.

Fluidextractum Gentianae.—Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Glycyrrhizae.—New process: Practically exhaust the Glycyrrhiza with a menstruum made in the proportion of ammonia water, 1 volume and chloroform-water, 9 volumes, after moistening and macerating 48 hours. Reserve the first 500 Cc. of percolate, evaporate the remainder on a water-bath to a soft extract, dissolve it in the reserved portion, add water to make 750 Cc. and a few drops of ammonia water, if necessary, for solution. Then gradually add 250 Cc. of alcohol, allow it to stand for 7 days, decant the clear liquid, filter the remainder and wash the filter with a mixture of alcohol, 1 volume, and water, 3 volumes, to make 1000 Cc.

Fluidextractum Granati.—Prepare by Type Process B. Menstruum I:

glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum I: glycerin 100 Cc. and diluted alcohol 900 Cc.

Fluidextractum Grindeliæ.—Prepare by Type Process A. Menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Guaranæ.—Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water 1 volume. Former menstruum: diluted alcohol.

Fluidextractum Hydrastis.—Powder changed from No. 60 to No. 40. Prepare by Type Process B, modified for alkaloidal assay. Reserve the first 750 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 200 Cc. Menstruum II: alcohol 2 volumes and water 1 volume. Former menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 300 Cc.

Fluidextractum Hyoscyami.—Powder changed from No. 60 to No. 40. Prepare by Type Process A, modified for alkaloidal drugs. Menstruum: alcohol 3 volumes and water 1 volume. Former menstruum: alcohol 2 volumes and water 1 volume.

Fluidextractum Ipecacuanhæ.—Powder changed from No. 80 to No. 60. Prepare by Type Process B, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: diluted hydrochloric acid 100 Cc., alcohol 200 Cc., and water 200 Cc. Menstruum II: alcohol 2 volumes and water 3 volumes. Former menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Lobeliæ.—Powder changed from No. 50 to No. 30. Prepare by Type Process B. Menstruum I: acetic acid 50 Cc., alcohol 500 Cc., and water 450 Cc. Menstruum II: diluted alcohol. Former menstruum: acetic acid 275 volumes and water 725 volumes.

Fluidextractum Nucis Vomicae.—Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 3 volumes and water 1 volume. Former menstruum I: acetic acid 50 Cc., alcohol 750 Cc. and water 250 Cc. Former menstruum II: alcohol 3 volumes and water 1 volume.

Fluidextractum Pareiræ.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum I: diluted alcohol. Former menstruum I: glycerin 100 Cc., alcohol 600 Cc. and water 300 Cc. Former menstruum II: alcohol 3 volumes and water 2 volumes.

Fluidextractum Pilocarpi.—Powder changed from No. 40 to No. 30. Prepare by Type Process A, modified for alkaloidal drugs. Reserve the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 2 volumes and water 1 volume. Former menstruum: diluted alcohol.

Fluidextractum Podophyli.—Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Rhei.—Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Sabal.—Sabal, in No. 20 powder. Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume.

Fluidextractum Sarsaparillæ.—Powder changed from No. 30 to No. 20. Prepare by Type Process A. Menstruum: diluted alcohol. Former menstruum: alcohol 1 volume and water 2 volumes.

Fluidextractum Sarsaparillæ Compositum.—Sarsaparilla powder changed from No. 30 to No. 20. Glycyrrhiza powder changed from No. 30 to No. 20. Mix the powders and prepare by Type Process B. Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum I: glycerin 100 Cc. and diluted alcohol 900 Cc.

Fluidextractum Senegæ.—Powder changed from No. 40 to No. 30. Practically exhaust the Senega with a menstruum made in the proportion of alcohol, 2 volumes, and water, 1 volume, after moistening and macerating the drug for 48 hours. Reserve the first 800 Cc. of percolate, evaporate the remainder to a soft extract, and dissolve this in the reserve. Add ammonia water until the liquid is faintly alkaline and then enough of the menstruum to make 1000 Cc. Former menstruum I: solution of potassium hydroxide 30 Cc., alcohol 600 Cc. and water 300 Cc. Former menstruum II: alcohol 2 volumes and water 1 volume.

Fluidextractum Sennæ.—Prepare by Type Process A, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum: alcohol 1 volume and water 2 volumes. Former process: The drug was exhausted with alcohol, the percolate being discarded. The fluidextract was then prepared with a menstruum of diluted alcohol.

Fluidextractum Spigeliæ.—Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Staphisagriæ.—Powder changed from No. 40 to No. 20. Prepare by Type Process A. Menstruum: alcohol. Former menstruum: alcohol 4 volumes and water 1 volume. Remove the oil from the freshly prepared fluidextract by adding 20 Gm. of purified talc and filtering the mixture.

Fluidextractum Stillingiæ.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: diluted alcohol.

Fluidextractum Sumbul.—Prepare by Type Process A. Menstruum: alcohol 4 volumes and water 1 volume. Former menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Taraxaci.—Prepare by Type Process B. Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former process: Menstruum: diluted alcohol; 5 percent. of solution of sodium hydroxide was added to complete the fluidextract.

Fluidextractum Tritici.—Prepare by Type Process D. Evaporate to 800 Cc. and add 200 Cc. of alcohol.

Fluidextractum Uvæ Ursi.—Prepare by Type Process B, reserving the first 800 Cc. of percolate instead of 850 Cc. as there directed. Menstruum I: glycerin 100 Cc., alcohol 300 Cc. and water 500 Cc. Menstruum II: alcohol 1 volume and water 2 volumes. Former menstruum I: glycerin 300 Cc., alcohol

200 Cc., water 500 Cc. Former menstruum II: alcohol 2 volumes and water 5 volumes.

Fluidextractum Veratri.—Powder changed from No. 60 to No. 40. Prepare by Type Process A. Menstruum: alcohol.

Fluidextractum Viburni Prunifolii.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: alcohol 2 volumes, water 1 volume.

Fluidextractum Xanthoxyli.—Powder changed from No. 40 to No. 30. Prepare by Type Process A. Menstruum: alcohol 3 volumes and water 1 volume.

Fluidextractum Zingiberis.—Powder changed from No. 50 to No. 40. Prepare by Type A. Menstruum: alcohol.

RESINS.

Resina Podophylli.—Added test: On adding 0.4 Gm. of Resin of Podophyllum to 3 Cc. of 60 percent. alcohol, introducing 0.5 Cc. of potassium hydroxide T. S., and gently shaking the mixture, it should not gelatinize (difference from Resin of Podophyllum obtained from P. Emodi). Ash not exceeding 1.5 percent. changed from "1 percent."

Resina Jalapæ.—Modified tests: "Not more than 12 percent. of Resin of Jalap should be soluble in ether," changed from "15 percent." Added test: The requirement that the ammonia water solution should not become gelatinous on standing has been added to the test for rosin, guaiac and other resins. Melting point omitted. Added tests: Water triturated with the Resin should not have a bitter taste (aloin). Dissolve 0.02 Gm. of Jalap in 2 Cc. of glacial acetic acid and add a few drops of sulphuric acid; the mixture should not acquire a pink color (resin). Modified test: Shake 0.02 Gm. of Resin of Jalap with 5 Cc. of ether, filter and evaporate the ethereal solution on a piece of filter paper. No greenish-blue color should be produced by the addition of a drop of ferric chloride T. S. to the filter paper (guaiac). Test for limit of saponifiable substances omitted.

Resina Scammonii.—Modified tests: "Not less than 95 percent. should be soluble in ether (distinction from resin of jalap and resin of false scammony)," changed from "almost completely soluble in ether and chloroform." When triturated with water, it does not alone form an emulsion. Percolate Scammony Root, in No. 30 powder, until the percolate produces only a slight turbidity when dropped into water. Distil the alcohol from the percolate, reducing it to the consistence of thin syrup, and pour it slowly with constant stirring into 1000 Cc. of hot water. Decant the supernatant liquid, wash the precipitated Resin twice, by decantation, with fresh portions of 1000 Cc. each of hot water and dry the Resin on a water-bath. Added tests: Its solution in alcohol does not give a blue color with ferric chloride T. S. or with solution of hydrogen dioxide (guaiac). Sulphuric acid should not gradually turn red when stirred in a porcelain dish with an equal weight of Resin of Scammony (rosin).

TINCTURES.

Tinctura Aconiti.—Powder changed from No. 60 to No. 40. Continue the operation until the percolate measures 950 Cc., assay it, and add enough men-

struum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Aloes.—"Purified Aloes" changed to "Socotrine Aloes."

Tinctura Arnica.—Moisten 200 Gm. of Arnica with 500 Cc. of diluted alcohol, and, without pressing the powder, allow it to stand in a well covered percolator for 24 hours, then pack it with moderate pressure and allow the percolation to proceed slowly, adding diluted alcohol until the percolate measures 250 Cc. Now stop the flow, macerate the drug for an additional twenty-four hours, and then continue the percolation until the total percolate measures 500 Cc. Again interrupt percolation, macerate the drug for another twelve hours and afterwards collect an additional 250 Cc. of percolate. Again macerate the drug for twelve hours and then percolate slowly, pouring on sufficient diluted alcohol to make 1000 Cc. of Tincture. The former process required maceration, expression and filtration.

Tinctura Asafetida.—No change.

Tinctura Aurantii Amari.—No change

Tinctura Aurantii Dulcis.—The Sweet Orange Peel is to be "grated from the fresh fruit" instead of "in thin shavings and cut into narrow shreds from the fresh fruit."

Tinctura Belladonnae Foliorum.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Benzoini.—No change.

Tinctura Benzoini Composita.—"Purified Aloes" changed to "Socotrine Aloes."

Tinctura Calumbæ.—No change.

Tinctura Cannabis Indica.—No change.

Tinctura Capsici.—No change.

Tinctura Cardamomi.—150 Gm. of Cardamom Seed replaces 200 Gm. of Cardamon (U. S. P. VIII, fruits and seeds).

Tinctura Cardamomi Composita.—20 Gm. of Cardamon Seed replaces 250 Gm. of Cardamon (U. S. P. VIII, fruits and seeds).

Tinctura Cinnamomi.—Use the proportion of glycerin, alcohol and water as a menstruum throughout, which was used in the former process for the first 1000 Cc. There the percolation was completed with a menstruum of alcohol 675 volumes, and water 250 volumes.

Tinctura Colchici Seminis.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Ferri Chloridi.—Rubric changed from "not less than 13.28 percent. of the anhydrous salt, corresponding to 4.6 (4.58) percent. of metallic iron" to

"not less than 13 percent. of anhydrous Ferric Chloride corresponding to 4.48 percent. of iron." Specific gravity changed from "about 1.005" to "about 1.000" at 25° C. Modified assay: Weigh accurately about 5 Gm. of Tincture of Ferric Chloride in a tared weighing-bottle, and evaporate it to dryness in a porcelain dish on a water-bath, add 2 Cc. of hydrochloric acid and 5 Cc. of solution of hydrogen dioxide to the residue and again evaporate the mixture to dryness. Dissolve this residue in 25 Cc. of distilled water, mix it with 3 Cc. of hydrochloric acid and about 1 Gm. of potassium iodide in a 250 Cc. glass-stoppered flask, and allow the mixture to stand for 45 minutes at a temperature of 40° C. The resulting solution, when cooled, diluted with 100 Cc. of distilled water and titrated with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator, should show not less than 4.48 percent. of iron.

Tinctura Gambir Composita.—No change.

Tinctura Gelsemii.—No change.

Tinctura Gentianæ Composita.—Cardamom Seed replaces Cardamom (U. S. P. VIII, fruits and seeds). Menstruum I: glycerin 100 Cc., alcohol 500 Cc. and water 400 Cc. Menstruum II: diluted alcohol. Former menstruum alcohol 3 volumes and water 2 volumes.

Tinctura Guaiaci.—No change.

Tinctura Guaiaci Ammoniata.—No change.

Tinctura Hydrastis.—Menstruum changed from alcohol 65 volumes and water 35 volumes to alcohol 2 volumes and water 1 volume. Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Hyoscyami.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Iodi.—Modified assay: Evaporate 10 Cc. of Tincture of Iodine in a tared, porcelain dish on a water-bath and gently heat the residue over a Bunsen flame to volatilize the Iodine; it should leave a residue weighing not less than 0.45 Gm., which should correspond to the identity tests given under Potassii Iodidum. Mix 5 Cc. of Tincture of Iodine with 25 Cc. of distilled water and titrate it with tenth-normal sodium thiosulphate V. S., starch T. S. being used as indicator; it should show not less than 6.75 Gm. nor more than 7.25 Gm. of Iodine in each 100 Cc. of Tincture.

Tinctura Kino.—Pour 500 Cc. of boiling water on 100 Gm. of Kino in a capacious flask, agitate the mixture thoroughly and then heat it on a water-bath, containing boiling water, for one hour, shaking it frequently. Cool, add enough recently boiled water to make 500 Cc. and then add 500 Cc. of alcohol. Stopper the flask, set it aside in a cool place for 24 hours and decant the mixture through cheese cloth. Preserve it in a cool and dark place, in small bottles, tightly

corked. Former Tincture contained 5 Gm. of Kino for 100 Cc. Former menstruum contained 15 percent. of glycerin and 65 percent. of alcohol by volume.

Tinctura Lactucarii.—No change.

Tinctura Lavandulae Composita.—No change.

Tinctura Limonis Corticis.—The Lemon Peel is to be "grated from the fresh fruit" instead of "in thin shavings and cut into narrow shreds from the fresh fruit."

Tinctura Lobeliae.—No change

Tinctura Moschi.—No change.

Tinctura Myrrhae.—No change.

Tinctura Nucis Vomicae.—Percolate Nux Vomica in No. 40 powder, with a menstruum of alcohol 3 volumes and water 1 volume until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was prepared by dissolving 20 Gm. of the Extract in enough of a mixture of alcohol 3 volumes and water 1 volume to make 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Opii.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough menstruum to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Opii Camphorata.—No change.

Tinctura Opii Deodorati.—Wash the residue on the filter with enough water to make the filtrate measure 950 Cc., assay it, and add enough water to make the finished Tincture conform to the required alkaloidal standard. The residue on the filter was washed with enough water to make 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Physostigmatis.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Pyrethri.—No change.

Tinctura Quassiae.—Menstruum: alcohol 1 volume and water 2 volumes. Former menstruum: alcohol 35 volumes and water 65 volumes.

Tinctura Rhei.—30 Gm. of Cardamom Seed replaces 40 Gm. of Cardamom (U. S. P. VIII, fruits and seeds). Menstruum I: glycerin 100 Cc., alcohol 500 Cc., and water 400 Cc. Menstruum II: diluted alcohol. Former Menstruum I: no change. Former Menstruum II: alcohol 5 volumes and water 4 volumes.

Tinctura Rhei Aromatica.—Menstruum I: glycerin 100 Cc., alcohol 500 Cc., and water 400 Cc. Menstruum II: diluted alcohol. Former Menstruum I: no change. Former Menstruum II: alcohol 5 volumes and water 4 volumes.

Tinctura Scillae.—Prepared by percolation, changed from maceration.

Tinctura Stramonii.—Continue the operation until the percolate measures 950 Cc., assay it, and add enough diluted alcohol to make the finished Tincture conform to the required alkaloidal standard. The former Tincture was percolated to 1000 Cc. without the adjustment of the final volume by assay.

Tinctura Strophanthi.—Powder changed from No. 60 to No. 40. Percolate the 100 Gm. of *Strophanthus* with purified petroleum benzin until the percolate no longer leaves a greasy stain when evaporated from filter paper. Then dry the drug so treated and afterwards percolate it with a menstruum of alcohol to obtain 1000 Cc. of Tincture. The former Tincture was prepared by percolating with a menstruum of alcohol 65 volumes and water 35 volumes to make 1000 Cc. of Tincture.

Tinctura Tolutana.—No change.

Tinctura Valerianæ.—Powder changed from No. 60 to No. 40.

Tinctura Valerianæ Ammoniata.—Powder changed from No. 60 to No. 40.

Tinctura Vanilla.—Macerate 100 Gm. of Vanilla, cut into small pieces, with 500 Cc. of alcohol in a stoppered container, in a moderately warm place, for 2 days, with frequent agitation; then transfer it to a plain filter and reserve the filtered liquid. Dry the drug on the filter by exposure to air until all of the alcohol has evaporated, then grind the Vanilla and 200 Gm. of coarse sugar to a uniform powder, pack this in a percolator and slowly percolate it first with a mixture of the reserved filtrate and an equal volume of water and then with sufficient diluted alcohol to make 1000 Cc. of Tincture. Former Menstruum: alcohol 65 volumes and water 35 volumes. Formerly prepared by macerating 100 Gm. of Vanilla in 500 Cc. of the menstruum during 12 hours, draining off the liquid, reserving it and beating the Vanilla and 200 Gm. of sugar in a mortar to a uniform powder. Then percolate the mixture with the reserved liquid and enough of the menstruum to make 1000 Cc.

Tinctura Veratri.—"Veratrum" (U. S. P. VIII, *Veratrum Viride* or *Veratrum album*) changed to *Veratrum Viride*.

Tinctura Zingiberis.—Powder changed from No. 50 to No. 30. Added tests: Tincture of Ginger should yield not less than 90 percent. of absolute alcohol by volume when tested as described under Alcohol Determination. Evaporate 10 Gm. of Tincture of Ginger to dryness, in a tared dish on a water-bath; the yield of residue should not exceed 2 percent. When treated with 20 Cc. of cold distilled water, not more than 15 percent. of this residue should dissolve. Evaporate 10 Cc. of Tincture of Ginger to dryness in a small flask. Add 5 Cc. of half-normal alcoholic potassium hydroxide V. S. and boil the mixture gently for 30 minutes under a reflux condenser. Remove the condenser and evaporate the alcohol on a water-bath. Then add 50 Cc. of distilled water to dissolve the residue, transfer this aqueous solution to a separatory funnel and shake it out with 25 Cc. of ether. Evaporate the separated ether solution spontaneously by adding it, a few drops at a time, to the center of a watch glass and cautiously apply the tip of the tongue to the dry residue. The taste should be slightly camphor-

aceous but not sharp or biting-pungent (capsicum or similar pungent substitute for ginger).

MISCELLANEOUS GALENICALS.

No material change to be made in the Eighth Revision text for the following articles:

Acetum Scillæ	Oleoresina Cubebæ
Emulsum Amygdalæ	Pilulæ Aloes
Emulsum Asafœtidæ	Pilulæ Asafœtidæ
Gelatinum Glycerinatum	Pilulæ Catharticæ Compositæ
Glyceritum Amyli	Pilulæ Ferri Carbonatis
Glyceritum Boroglycerini	Pilulæ Ferri Iodidi
Glyceritum Phenolis	Pilulæ Phosphori
Infusum Sennæ Compositum	Pilulæ Rhei Compositæ
Linimentum Belladonnæ	Potassii Citras Effervescens
Linimentum Calcis	Pulvis Cretæ Compositus
Linimentum Chloroformi	Pulvis Effervescens Compositus
Massa Ferri Carbonatis	Sodii Phosphas Effervescens
Mistura Cretæ	Triturationes
Mucilago Tragacanthæ	Trituratio Elaterini

Caffeina Citrata Effervescens.—No change in formula and process. Rubric added: It should contain not less than 1.9 percent. of anhydrous Caffeine, as determined by the method given below. Assay: Dissolve about 5 Gm. of Effervescent Citrated Caffeine, accurately weighed, in 10 Cc. of hot distilled water. When effervescence has ceased, add an excess of sodium hydroxide T. S., cool the mixture and shake it in a separator with three successive portions of 20 Cc., 10 Cc. and 5 Cc., respectively, of chloroform, or more if necessary to complete the extraction. Evaporate the combined chloroform extracts on a water-bath and dry the residue to a constant weight at 80° C. The weight obtained is that of the anhydrous Caffeine in the weight of Effervescent Citrated Caffeine taken. The Caffeine so obtained should respond to the identity tests and have the melting point given under Caffeina.

Collodium.—No change in formula. Modified directions: Add the alcohol to the pyroxylin in a suitable bottle, shake the mixture thoroughly, then introduce the ether, and again shake the mixture until the pyroxylin is dissolved. Formerly the ether was added to the pyroxylin, the mixture allowed to stand 15 minutes, the alcohol added and the bottle shaken until solution resulted. Added description and tests: A clear, or slightly opalescent, syrupy liquid; colorless, or slightly yellowish; having the odor of ether and highly inflammable. Exposed to the air in a thin layer it leaves a transparent, tenacious film. Specific gravity 0.765 to 0.775 at 25° C. When mixed with an equal volume of distilled water, a viscid, stringy mass separates; the mixture should not show an acid reaction with litmus. Assay: Weigh accurately about 10 Cc. of Collodium in a well-stoppered flask, warm it on a water-bath and add 10 Cc. of distilled water, drop by drop, with constant stirring. Evaporate the mixture on a water-bath and dry the residue to constant weight at 110° C. The pyroxylin so obtained should correspond to

not less than 5.1 percent. of the Collodion taken, equal to about 4 Gm. of pyroxylin in 100 Cc. of Collodion at the standard temperature. The pyroxylin obtained should burn rapidly, with a yellow flame.

Collodium Cantharidatum.—No change in formula. No material change in directions.

Decocta.—Added directions: "Decoctions shall be freshly prepared from the drug, etc."

Emulsum Olei Morrhuae.—No change in formula. No material change in directions.

Emulsum Olei Terebinthinæ.—New formula. Rectified Oil of Turpentine 15 Cc.; Expressed Oil of Almond; 5 Cc.; Syrup, 25 Cc.; Acacia, in fine powder, 10 Gm.; Water, a sufficient quantity to make 100 Cc. Mix the Rectified Oil of Turpentine with the Expressed Oil of Almond; rub the Acacia, contained in a dry mortar, with the oils until uniformly mixed; then add at once 15 Cc. of water and triturate lightly and rapidly until a thick homogeneous emulsion is produced; to this add the Syrup, with enough water to make the product measure 100 Cc. and mix thoroughly.

Glyceritum Acidi Tannici.—No change in formula. Modified directions: Weigh the glycerin into a suitable tared, wide-mouthed bottle, place it in a water-bath of cold water and apply heat until the water boils for a few minutes. Discontinue the heat, add the Tannic Acid to the hot glycerin in small, successive portions, and agitate the mixture until the Tannic Acid is dissolved. Former directions required trituration of the Tannic Acid with glycerin, followed by heating in a dish on a water-bath until dissolved.

Infusa.—Added directions: "Infusions shall be freshly prepared from the drug, etc."

Infusum Digitalis.—Added requirement: "Infusion of Digitalis should be freshly prepared."

Linimentum Ammoniacæ.—Ammonia Water, 250 Cc., Oil of Sesamum, 750 Cc.; to make 1000 Cc. Agitate the Ammonia Water with an equal volume of the Oil until a uniform mixture is obtained, then gradually add the remainder of the Oil and mix well. Ammonia Water changed from 350 Cc. to 250 Cc. Oil of Sesamum replaces the alcohol, cotton seed oil and oleic acid.

Linimentum Camphoræ.—No change in formula. The directions require to heat the Oil in a suitable flask or bottle on a water-bath, add the Camphor, stopper the container and dissolve the Camphor by agitation without further heat. The Camphor was formerly dissolved in the Oil in a loosely-stoppered flask, on a water-bath with occasional agitation.

Linimentum Saponis Mollis.—No change in formula. No material change in directions.

Linimentum Terebinthinæ.—Added directions: "If thickened by cold, the Liniment should be warmed sufficiently to render it fluid before dispensing, otherwise no change in formula or directions."

Massa Hydrargyri.—The Mercury is added to 1 Gm. of Oleate of Mercury in a warm mortar, a small amount of Honey of Rose added and the Mercury extin-

guished in the mixture. The other ingredients are subsequently incorporated to make a uniform product. The Oleate of Mercury was not in the formula of the Eighth Revision.

Mistura Glycyrrhizæ Composita.—No change in formula. The Extract and Acaciâ are directed to be dissolved in warm water; the former text did not specify that it should be warm.

Mucilago Acaciæ.—The amount of Acacia is changed from 340 Gm. to 350 Gm., the lime water omitted and distilled water directed to make 1000 Gm. No material change in the directions.

The former solvent acetone is changed to ether in the following:

Oleoresina Aspidii

Oleoresina Zingiberis

Oleoresina Capsici

Oleoresina Piperis

Pulvis Aromaticus.—No change in formula or directions. Added microscopic descriptions: Light reddish-brown; with a strong, distinct, aromatic odor; consisting chiefly of the characteristic starch grains of Ginger, being ellipsoidal or ovoid, slightly beaked and from 0.005 to 0.060 mm. in diameter; numerous yellowish-brown, brownish-red and occasional blackish fragments, the cellular structure of which is not distinct; occasional stone cells, the lumen being filled usually with a reddish-brown amorphous substance or containing air; occasional fragments with sclerenchymatous fibers; calcium oxalate crystals; short raphides few.

Pulvis Glycyrrhizæ Compositus.—No change in formula or directions. Added microscopic description. Greenish-yellow to greenish-brown with an odor suggesting that of fennel; when mounted in water or hydrated chloral T. S. and examined under the microscope Compound Powder of Glycyrrhiza shows fragments of Glycyrrhiza with their characteristic yellow fibers associated with crystal-fibers, large tracheæ with elliptical, bordered pores and cells containing numerous, spherical starch grains varying from 0.002 to 0.020 mm. in diameter; also fragments of Senna as shown by their characteristic, more or less bent, unicellular, non-glandular hairs from 0.100 to 0.350 mm. in length; fragments of epidermis with elliptical stomata and their 2 neighboring cells and fragments with crystal-fibers; upon the addition of potassium hydroxide T. S. to aqueous mounts of the powder, some of the fragments are immediately colored a yellowish-red, changing to a reddish-brown. Add 0.100 Gm. of Compound Powder of Glycyrrhiza to a test-tube, moisten it with 2 Cc. of alcohol and then add 10 Cc. of water and boil, allow it to cool and then filter, the filtrate should be of a pale yellowish-brown color, which changes immediately to a yellowish-red on the addition of a drop of potassium hydroxide T. S. Compound Powder of Glycyrrhiza should be free from an odor of hydrogen sulphide.

Pulvis Ipecacuanhæ et Opîi.—No change in formula or directions. Added microscopic description: Grayish-white or very light brown; consisting mostly of coarse, angular, frequently more or less cone-shaped, colorless fragments from 0.030 to 0.400 mm. in length; very slowly soluble in water and hydrated chloral T. S., and which strongly polarize light with a strong display of colors (fragments of sugar of milk); numerous starch grains of Ipecac, their presence con-

firmed by the addition of iodine T. S., and varying from 0.003 to 0.017 mm. in diameter; occasional fragments of tracheids of Ipecac; and occasional fragments with the more or less tabular, characteristic stone cells of the capsules of the Opium Poppy, with their light brown, porous and strongly lignified walls.

Pulvis Jalapæ Compositus.—No change in formula or directions. Added microscopic description: Very light brown; consisting of numerous, sharp-angular, colorless fragments mostly somewhat rectangular and with straight edges varying from 0.030 to 0.300 mm. in length, slowly soluble in water or hydrated chloral T. S. and which strongly polarize light with a strong display of colors, (fragments of crystals of potassium bitartrate); numerous starch grains of Jalap, readily distinguished without the use of iodine T. S., usually single, occasionally 2- to 3-compound, and varying from 0.003 to 0.035 mm. in diameter; occasional fragments of laticiferous vessels and parenchyma with yellowish-brown walls, or tracheæ with bordered pores, and rosette aggregates of calcium oxalate from 0.010 to 0.035 mm. in diameter, that occur in Jalap.

Pulvis Rhei Compositus.—No change in formula or directions. Added microscopic descriptions: A pinkish-white, mobile powder, becoming darker on exposure to air; consisting of fine particles of magnesium oxide, numerous starch grains and characteristic fragments of vegetable tissues; starch grains of Ginger, more or less elliptical or ovoid, frequently with a prominent beak, from 0.005 to 0.060 mm. in diameter; starch grains of rhubarb, single or compound either spherical or polygonal, often with a central cleft, from 0.002 to 0.020 mm. in diameter; mounts made with hydrated chloral T. S. show a strong effervescence and more clearly, the fragments of reticulate trachea, the reddish-brown parenchyma of rhubarb with numerous small starch grains or rosette-aggregates of calcium oxalate, varying from 0.050 to 0.100 mm. in diameter; with solutions of the alkalies many of the fragments become of a deep red color.

Suppositoria.—Added general directions: If the process of cold compression is preferred, mix the medicinal substance in a suitable mortar with about an equal weight of grated Oil of Theobroma, as above directed, then thoroughly incorporate it with the remainder of the Oil of Theobroma, previously finely grated, chilling the mortar, if necessary, to preserve the pulverulent form of the mixture. Insert the powdered mass into the cylinder of an appropriate suppository compressor and by the use of this apparatus prepare the desired number of compressed suppositories.

Suppositoria Glycerini.—No change in formula. Add to the directions that the dish in which the reaction occurs be thoroughly immersed in the boiling water of the bath with the contents protected as much as possible from the steam.

A COLORIMETRIC METHOD FOR THE DETERMINATION OF CITRAL IN EXTRACTS OF LEMON AND IN OIL OF LEMON.

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There have been various methods suggested and worked out for the assay of Citral in Extract of Lemon and for Oil of Lemon, gravimetric as well as colorimetric. Of the methods so far suggested, the Hydroxylamine, Fuchsin Sulphite, Sulphanilic Acid, Phenylhydrazine, Metaphenylenediamine methods, all seem to have some objectionable or uncertain features which make them not uniform in results in the hands of many operators.

The Fuchsin Sulphite method of Dr. Chace, (Jour. Amer. Chem. Soc., 28, 1472, 1906), has received the most attention by chemists working with citral extracts.

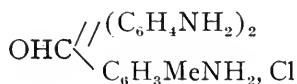
The Metaphenylenediamine method of Mr. Hiltner, (Jour. Ind. & Eng. Chem, 1906), which is generally preferred at the present time has good features for convenience and rapidity in manipulation, and can be conducted at room temperature.

As is well known to chemists working with citral, it possesses the characteristics of the aldehydes, and as it combines with phenylhydrazine, with ammonia and with hydroxylamine, upon these all colorimetric methods have been based. The following have been suggested:

The fuchsin sulphite reagent which was primarily used for the determination of acetaldehyde in alcohol, etc.; and metaphenylenediamine hydrochloride which is used in the fuchsin method for the decomposition of acetaldehyde in the alcohol used in the Chace method; therefore the two methods may give higher results in an extract of lemon containing acetaldehyde, which would be calculated as citral, while with the diaminophenol hydrochloride reagent only the citral is estimated, as this compound does not react with acetaldehyde and, as far as I have been able to determine, does not react with other compounds present in oil of lemon, except that in the presence of citronellal a violet coloration is produced proportionate to the amount of citronellal present. Of the various reagents suggested for the colorimetric estimation of citral aldehyde they bear a similarity in containing an "amino" group which combines with the citral.

In phenylhydrazine C_6H_5, NH_2, NH, HCl we have one amino and one imino radical.

In fuchsin



we have three amino groups.

In metaphenylenediamine hydrochloride, $C_6H_4(NH_2)_2, 2HCl$ there are two amino groups.

In hydroxylamine hydrochloride, NH_2, OH, HCl there is one amino group while in diaminophenol hydrochloride, $C_6H_3(NH_2)_2 OH, HCl$ there are two

amino groups, which appear to combine readily with citral and evidently form a definite compound, the product of which I have not fully worked out but have under investigation.

The following colorimetric method I have used for the past year in making Citral determinations parallel with other methods, with concordant results.

The method is of easy manipulation and can be conducted at room temperature:

Reagent: Dissolve .200 gram diaminophenol hydrochloride, (commercially known as Amidol) in 100. cc. of 65 percent by volume alcohol, preferably distilled over potassium hydroxide. The use of aldehyde-free alcohol does not seem to make any difference in the results, as acetaldehyde has no apparent effect upon the reagent. I find in making a large number of assays for citral the use of Mallinckrodt's recently distilled absolute alcohol to be sufficiently exact, as the reagent remains clear and colorless for several hours. The reagent is very readily soluble in 65 percent alcohol.

Standard Citral Solution: A solution of pure citral in fifty percent alcohol, containing .001 gram per cc.

Solution of Extract of Lemon: Weigh any quantity of the extract for examination, 15 or 25 grams, and dilute to 30 or 50 cc. with 50 percent alcohol, if a terpeneless extract, making a 50 percent solution.

Manipulation: Similar to the Chace method, except that it can be conducted at room temperature.

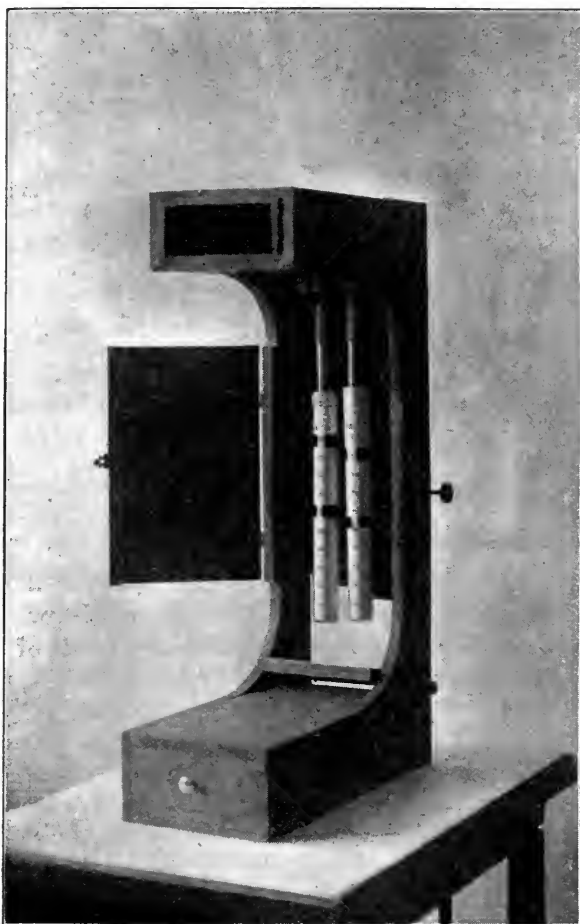
Place 2 cc. of the standard citral solution measured from an accurately graduated pipette, in a 250 mm. colorimeter tube, (using preferably an O. Schreiner colorimeter) add 20 cc. of 65 percent alcohol, and 15 cc. of diaminophenol reagent and make up to 50 cc. with 65 percent alcohol. Place 2 cc. of the extract in the other tube with 15 cc. of the reagent and make up to 50 cc. with 65 percent alcohol as before, mixing the contents of both tubes thoroughly and allowing both tubes to remain for 5 to 10 minutes at room temperature, when the maximum color is reached in both the citral tube and the extract under examination. The reading and calculation are made at once or a reading can be made at the expiration of fifteen or twenty minutes in duplicate. The calculation of percentage of citral content in the extract is made by placing the standard citral tube at the 30 mm. mark and adjusting the tube containing the extract under examination so that the two small disks of color as observed through the two immersion tubes are similar in tint.

Assuming that the extract tube was at 40, the calculation of percentage is made as follows: $30 \times 2 \div 40 = 0.150\%$.

The form of colorimeter which I have used is a modification of the O. Schreiner Colorimeter, which has some conveniences in manipulation over the ones obtainable from the instrument supply houses. The two immersion tubes are placed in the holders about 13/16 inch apart and adjusted parallel with each other, and the two mm. graduated tubes are attached to two movable slides at the back of the instrument, and movable upwards or downwards by a rack and pinion adjustment which moves them in a parallel position. In front of the

frame, covering the tubes while under observation, is a hinged front inclosing the tubes in a black box open at bottom, thus excluding all side lights or reflections.

The observation mirror at top instead of being made with a flat plane surface is divided in the center and mounted backwards at center, at an angle of about 3° or about 1/12 inch for each two -inch piece, making the mirror four inches in length, which converges the rays of light through the tubes and brings both images within the line of optical axis.



For the assay of oil of lemon the following is suggested as giving very good and comparative results. Dissolve 1 gram of the oil in sufficient 85% alcohol to make 20 cc. of solution and filter clear. Eighty-five percent alcohol will have about the same density as the oil. Make a 50% solution. Weigh out 15 grams and dilute to 30 cc. with 85% alcohol, or make a solution of 1 gram of the oil with sufficient 85% alcohol to make the volume 40 cc., and assay.

In the following tables I give the results of examination of both terpeneless extracts and extracts made from oil of lemon, covering a period of two years,

in parallel with Chace and the Hiltner methods and with diaminophenol hydrochloride:

TABLE No. 1.

		Chace Method.		Diaminophenol Method.
No.	1	Ext. Lemon.....	.196	.196% citral
"	2	" .....	.187	.200
"	3	" .....	.176	.176
"	4	" .....	.187	.176
"	5	" .....	.166	.166
"	6	" .....	.181	.181
"	7	" .....	.227	.232
"	8	Concentrated		
		Ext. Lemon.....	.830	.835
"	9	" .....	.785	.830
"	10	" .....	.880	.880
"	11	" .....	.704	.748
"	12	" .....	.875	.875
"	13	" .....	.790	.770

TABLE No. 2.

		Hiltner Method.		Diaminophenol Method.
No.	1	Ext. Lemon.....	.176	.182% citral
"	2	" .....	.1304	.1428
"	3	" .....	.1668	.1714
"	4	" .....	.1578	.1578
"	5	" .....	.1394	.143
"	6	" .....	.105	.111

TABLE No. 3.

		Hiltner Method.		Diaminophenol Method.
No.	1	Oil Lemon.....	4.20%	4.28%
"	2	"	4.00	4.14
"	3	"	4.28	4.28
"	4	"	3.16	3.14
"	5	"	4.61	4.68

While extreme accuracy is not claimed for the above method it is submitted with the hope that it may be of assistance to the pharmacist or chemist in making a comparative estimate of value or citral content of Extract of Lemon or Oil of Lemon for which it is given.

THE DETECTION OF ADDED METHYL SALICYLATE.*

WITH SPECIAL REFERENCE TO A NEW COLOR TEST AND THE CLAIM OF UNITED STATES GOVERNMENT CHEMISTS TO HAVE DEVISED A METHOD.

The article which appeared in the Record of January, 1914, page 4, on the above subject has brought us so many inquiries and communications that we think it well to make further reference to the matter, especially as considerable interests are involved.

It will be recollected that it was claimed that the "specialists" of the Bureau of Chemistry are able to detect the addition of synthetically manufactured methyl salicylate in the natural product. We pointed out the importance of this, especially in view of the difficulties which previous workers had experienced in the task.

*Reprinted from Perfumery and Essential Oil Record, Feb., 1914, p. 60.

We are informed that all applications to the United States Department of Agriculture for particulars of the test have been met with the statement that the test used is under further investigation, and will be communicated by the Department in due course. We presume that there is some reticence, as the test has been used in connection with legal proceedings under the Food and Drugs Act.

We have been experimenting continuously since our last publication, and suggest that a test which may be eventually found to be useful is a color test, which so far as our observations have gone appears to be of some reliability. We have employed the test upon what we have every reason to believe to be true oil of *Gaultheria procumbens*, true oil of *Betula lenta*, oils, about which we have certain suspicions, and upon methyl salicylate. As, however, is usual with all color tests, they must be accepted with reserve, and it is absolutely essential that identical conditions should obtain in every test.

The application of the test as we have made it has been on the following lines:

"To five drops of the oil in a test tube add five drops of a 5 percent alcoholic solution of vanillin and 1 cc. of alcohol. Shake well and add 2 cc. of concentrated sulphuric acid and mix thoroughly."

The following table indicates the results of our examination of typical samples, which we have described above:

Oil of <i>Gaultheria procumbens</i>	Intense crimson
Oil of <i>Betula lenta</i>	Deep blood red
Doubtful (a)	Reddish brown
Doubtful (b)	Reddish brown
Methyl salicylate (synthetic)	Yellow

By this intensity of coloration there can be no question that one can see a difference between oils that are pure and oils that are grossly adulterated, but whether it can be made into a colorimetric test is, of course, difficult to say. One remembers only too well how that the intensity of color produced by the action of sulphuric acid on cod liver oil, namely, the dark violet coloration, was used by a public analyst as an indication of the freedom or otherwise of the cod liver oil from certain other added fish oils.

We make no further comment until we are favored with full particulars of the "official" test, but, at the same time, one can see that it is important that a publication should be made as promptly as possible, especially if the test is to be thoroughly investigated before its inclusion in the new United States Pharmacopœia.

INFECTION AND IMMUNITY—A REVIEW.

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1. CONDITIONS OF INFECTION. Infection is the successful invasion of the body by living parasites. The broader sense of the term, however, conveys to our minds, not only the process of invasion and multiplication of the micro-organisms, but also the results of their specific functions upon the tissues of the body, the pathological process. Infection, therefore, results from the entrance into the body of living, pathogenic micro-organisms, and its symptoms or manifestations depend upon influences relative to invading micro-organisms as well as the body which they invade. Anything modifying either the micro-organisms or the host must necessarily have its effect upon the final result. There are, therefore, many conditions, some of which are recognized, that control, to a certain extent, infectious or diseased processes.

Infecting Agent. The conditions which modify infection, as regards the infecting agent, are *virulence*, the *number of micro-organisms gaining entrance to the body* and the *mode of entrance*.

Virulence may be defined as the power of micro-organisms to multiply within the body and produce disease. If the virulence is increased, if in some way the power of a certain micro-organism to produce a specific disease is intensified, then the dose or the number of invading micro-organisms need not necessarily be so large to produce a like infection. We have, at present, very little knowledge of Nature's way of modifying the power of micro-organisms to produce disease, although in the laboratory, under experimental conditions, we may increase and decrease their virulence by several methods. The most common methods of increasing the virulence, are by passing a pure culture of a pathogenic micro-organism through an animal, growing the organisms upon culture media containing unheated body fluids, such as blood, serum or ascitic fluid, or in a collodion sac within the body cavity of an animal. The value of these methods depends upon the fact that the micro-organisms, while developing, come in contact with some of the properties derived from the living animal, and, therefore, approach Nature as closely as possible. The virulence of the virus of rabies is increased by passing it successively through rabbits, as is also the case of many known bacteria, as the pneumococcus, streptococcus and others. The virulence of the glanders bacillus, the diphtheria bacterium and other micro-organisms are strengthened by passage through guinea pigs. On the other hand, the virulence of micro-organisms may be decreased by removing them from their natural environment and regular source of food supply and growing them on artificial culture media. It is found, as a rule, that under these conditions the growth of the micro-organisms will gradually become more luxuriant at the expense of their virulence.

There are occasions, however, when the virulence of an organism or virus is decreased on passing through an animal. While the virus of rabies will increase

on passing through rabbits, it decreases on being passed through monkeys. This is well illustrated by the smallpox virus, which presumably decreases its virulence by passing through a heifer, and we have as a result a much milder infection. We cannot state this as an absolute fact, as the nature of the virus of smallpox or cowpox is unknown. By making use of the cowpox virus, or the smallpox virus in its altered state, we have a means of protecting against the disease in its natural state, as the smallpox vaccine will immunize against either smallpox or cowpox.

Under ordinary conditions, given the dose large enough, and the organisms virulent enough, to produce a specific infection, the results will depend, in a large part, on the path taken by the invading micro-organisms. The portals of entry, or the paths by which micro-organisms gain entrance to the body, are the broken skin, the digestive tract, the respiratory tract, the genital tract and the conjunctiva. Many of the causal organisms of the acute infections are very selective in their methods, producing their specific diseases only when allowed to enter the body by certain paths. The typhoid bacillus as well as the cholera spirillum have chosen the alimentary tract as their portal of entry, and will infect the individual in no other way. The gonococcus elects the urogenital mucous membrane, or the conjunctiva, and there is no evidence at hand to prove that specific symptoms may be produced through the skin, alimentary tract or respiratory tract. The tetanus bacillus produces its deadly results through the broken skin or mucous membrane, while the diphtheria bacterium prefers the mucous membranes of the pharynx, and is seldom found in any other situation.

Subject of Infection. Pathologic bacteria are rather underhanded in their methods of warfare for, although they are ever present, they rarely attack the body unless its natural defenses and protections are disabled or broken down; or, as we say, the resistance is lowered and the individual is susceptible. In this case, the normal equilibrium being in some way disturbed, the dormant but virulent micro-organisms, taking advantage of the situation and rapidly increasing in number, produce the infection. Susceptibility or lowered resistance, or in other words, imperfect or impaired reactive powers, are, as a rule, brought about by one or more of the following conditions: fatigue, exposure to cold, heat or dampness, poor hygiene, noxious gases, drugs, trauma and operation, other diseases, improper diet, thirst and age. How these various conditions affect the normal defenses of the body we are at a loss to explain.

2. VARIETIES OF INFECTION. The results of the growth of pathologic bacteria within the body manifest themselves in an infinite variety of ways. After the micro-organisms gain entrance to the body, they may remain at or near the point of entrance, or may find their way—by means of the blood stream, lymph channels or contiguous tissues—to some remote spot; in either situation they may multiply and produce an infection. This form of infection is termed local, and may be either acute or chronic, depending upon the length of time the morbid process has continued. Cerebrospinal meningitis, diphtheria, tetanus, the early manifestations of gonorrheal infection, as well as the ordinary pus infections, are typical local infections.

A general infection, on the other hand, is one in which the micro-organisms are found disseminated throughout the entire system. This is termed a bacteremia

or a septicemia. Typhoid fever and pneumonia are typical general infections. The primary focus of the infection is to a certain extent localized (in the lungs in pneumonia and in the intestines in typhoid), but the bacteria may be isolated, in the majority of cases, from many of the internal organs as well as from the blood stream. This condition must be distinguished from that of diphtheria and tetanus (the toxemias), in which case, although the infection is localized, the toxins and not the bacteria are found diffused throughout the system, the symptoms resulting from the action of these toxins alone. It is impossible to draw a sharp line between the local and general infections, or the bacteremias and toxemias, for in many of the local infections blood cultures may show the casual organism in the circulating blood stream, and in all infections, both local and general, there is always some general intoxication produced.

A primary infection is an original or initial infection, which is often followed by a secondary. It is, as a rule, the principal infectious process, invading the body at one time, although it may prove not to be the one to cause the death of the individual.

A secondary infection is a condition found when some other infectious process is implanted upon or associated with a primary infection. Secondary infections are usually caused by the pus organisms. When the susceptibility of the body, due to its lowered resistance, following the primary infection, is increased, the secondary organisms, which may have been present in the normal body in a quiescent state, begin to multiply, and cause symptoms typical to themselves.

Mixed or concurrent infections occur when two or more different bacterial species are found associated. Acute rhinitis, an ordinary "cold in the head," as it usually manifests itself, is a typical example of a mixed infection.

Terminal infections are found in the chronic organic diseases; as, heart disease and Bright's disease. In such cases, one or more pathogenic micro-organisms gain entrance to the body, and, encountering no resistance, due to the already decreased vitality of the body, multiply with great rapidity and produce death within a short time. The primary disease might have resulted fatally in time, but it is the secondary infection which terminates the case. Pneumonia is one of the most frequent terminal infections. The terms "mixed" and "secondary," or "secondary" and "terminal" are often used interchangeably, for there is no hard and fast line of distinction between them, except that a terminal infection always results in death.

3. MODES OF BACTERIAL ACTION. It is generally believed that in all infections the chief symptoms are due to the injurious nature of the products formed by the bacteria, and not to the invasion of the bacteria alone. In many cases, however, the intoxication is absolutely dependent upon the invasive power of the micro-organisms, and unless this is strong enough to overcome the resistance of the body, infection will not result. On account of the poisonous nature of these products they are termed toxins. These toxins are presumably of two classes, the extracellular or exotoxins (diphtheria, tetanus), and the intracellular or endotoxins (typhoid, pneumonia and others). A few bacteria, such as the tetanus bacillus and the diphtheria bacterium, with very limited invasive powers, eliminate highly active specific toxins, which produce typical symptoms of the disease, even when separated from the bacteria. These toxins may be found in solution

in the liquid culture media containing the growing micro-organisms, or in the body, after being formed by the bacteria; in which case they enter the circulation and act upon parts of the body remote from the bacteria themselves. The symptoms of the diseases are due to the toxins. Unlike ordinary chemical substances, most of the true toxins act only after a definite length of time, or incubation period. Other varieties of micro-organisms, with invasive powers less limited than the former, may be found growing in some localized area, but exciting actively destructive reactions in the tissues with which they come in contact. These are the staphylococci, streptococci, gonococci, meningococci, and others. Still another variety may be found either in a limited invasion, or in a general infection where the severe symptoms are also due to toxins, as in pneumonia, typhoid fever, and cholera. Lastly, we have a variety of micro-organisms that depend entirely upon the general invasion before the toxin can produce the injurious symptoms, as with the anthrax bacillus. The toxins, however, in all of the last three varieties are endotoxins. They are not found in the culture media in which the organisms grow, are isolated with difficulty from the micro-organisms, and then only after their death, and do not produce symptoms of the specific disease if injected subcutaneously or otherwise, although they may produce severe symptoms and even death. The toxic power of these bacteria is intrinsic, and is dependent in great part upon their invasion.

4. NATURAL DEFENSES OF THE BODY AGAINST THE INVASION OF MICRO-ORGANISMS. Nature, with its unlimited resources, has endowed the human body with many wonderful and varied devices and means for defending and protecting itself against the invasion of micro-organisms, and for neutralizing the deadly poisons as they are formed during the growth of these bacteria within the body.

The External Defenses. For preventing the bacteria from entering the body we have the skin and mucous membranes. On those parts most exposed to injury, such as the soles of the feet and palms of the hands, we find the epidermis or cuticle much thicker and tougher than in other parts. The bacteria gain entrance through these parts only by means of an injury to them. For those parts of the body that are not so much exposed to external influences, and, on account of their situation it is necessary that their surfaces rub together continually, nature has provided a lubricant to prevent them from erosion. The lubricants are the products of the secretions from the salivary, the gastric, the lacrimal, the mucous, and the serous glands. Aside from the protection afforded by the lubrication of the surfaces, as well as an aid in washing away the bacteria, these fluids have, to a certain extent, germicidal or at least antiseptic properties. Under normal conditions, the pathogenic micro-organisms, if not killed, are checked in their growth, and often prevented from multiplying and producing disease. We are still in the dark as to the nature of these antiseptic properties. We do know, however, that although we are unable to use any of the ordinary disinfectants on these surfaces, operations upon the eye, mouth, stomach or anus are rarely followed by infection due to entrance of bacteria at the field of operation. The respiratory tract, which is constantly invaded by foreign particles, as dust, coal and other debris, carrying many hundreds of bacteria with them, is protected, not only by the mucous of the lining membrane, but also by little hair-like processes called cilia. These are continually moving in one direction,

making it possible for any foreign particles, which may lodge upon the surfaces, to be gradually swept away from the lungs toward the exterior of the body.

The Internal Defenses. A study of the internal defenses of the body brings us at once to the subject of immunity. Immunity is that condition of the body whereby it resists the development of infectious or morbid processes. The external defenses oppose the entrance and retard the invasion of micro-organisms; while the internal defenses resist their development, or protect the body tissues against their poisonous products, if, by chance, the micro-organisms manage to find their way past the external defenses. As we are dealing with the products of bacteria (toxins) as well as the bacteria themselves, we must distinguish between an antimicrobial and an antitoxic immunity. One is an immunity to an infection, while the other is an immunity to an intoxication. An individual may possess an immunity to a certain micro-organism or to its toxin, or both, but the possession of one property does not necessarily imply the possession of the other. The inoculation of an animal with a large number of *Bacterium diphtheriæ* will not necessarily cause the appearance of unfavorable symptoms, although the injection of a very small quantity of toxin eliminated by the same strain of organisms invariably means death. On the other hand, an animal might be immunized against the endotoxin of a virulent strain of an organism such as the pneumococcus, and at the same time succumb to the injection of a small number of the live organisms.

From an early period in the history of immunity, there has been a tendency for investigators to be divided into two schools relative to the methods pursued by the body in protecting itself against the ravages of pathogenic micro-organisms; one dominated by the idea that the body fluids are chiefly concerned (the "humoral" view), the chief supporter of which is Ehrlich; the other, championed by Metchnikoff, attributing the most important role to certain cells of the body (the cellular view). More recent work has shown that these views are not necessarily antagonistic, but that both seem to have their part to play in the study of the processes of immunity, and one cannot be accepted to the exclusion of the other. Both have their faults, and yet both are founded on certain demonstrable facts.

The first attempt at an explanation which gave the slightest ray of hope to the solution of the problems of acquired resistance of the body against the invasion of foreign substances was suggested by that brilliant investigator, Metchnikoff. He studied the behavior of the white blood cells, and attributed the destruction of bacteria in the body to their activities. Others had previously noted that bacteria were at times found in these cells, but Metchnikoff made an exhaustive study of the fact, and upon this founded the Theory of Phagocytosis. The cells which took up and devoured or digested the bacteria were called phagocytes, and of these he recognized two groups—the small phagocytes or white blood cells, and the large phagocytes or cells derived from the endothelial and other tissues of the body. The small phagocytes or "microphages," as Metchnikoff termed them, seem to attempt to defend the body against the acute infectious diseases, while the large phagocytes or "macrophages" pay more attention to the animal parasites, and to the microorganisms which cause chronic infections.

Ehrlich's theory, the Side Chain Theory, on the other hand, is based on the idea

that the process of immunity is of a chemical nature; and that the antibody arises from the normal body cells, and has nothing to do with the phagocytes. He believes that the normal body cell consists of a central complex protoplasm, giving it definite and special properties. With the complex protoplasm are associated other combinations, similar to those in the benzol ring in chemistry, which have the function or property of combining with extracellular or outside material, and are called receptors or side chains. In performing the normal and every-day functions, as the assimilation and absorption of food after digestion, certain of these cells in the body have their part to play in the act. The assimilation is due to a chemical union between the receptors of the cell, on the one hand, and the nutrient material on the other, brought to them by the blood and lymph from the digestive apparatus. By means of this chemical union of a receptor and nutrient material, the protoplasm of the cell is fed. As in chemistry, in order for a certain molecule to enter the ring or to be assimilated by the protoplasm of the cell, it must be able to satisfy the affinity of some receptor; so in the every-day functions of the body the nutrient material must find its corresponding receptor, or side chain, before it can enter the cell. Ehrlich's theory, therefore, depends upon the supposition that toxins or poisons, like food or nutrient material, can combine with certain receptors and then enter the cell and destroy it. Ehrlich found that the property of the diphtheria toxin to combine with the antitoxin was constant, while the property of producing disease was variable, and from this was led to believe that the toxin molecule had two parts or groups—the toxic part or toxophore group, and the non-toxic part or haptophore group. He demonstrated, also, that the toxin molecule combined with certain cells, by means of this haptophore group attaching itself to the receptor of the cell. The haptophore group, therefore, is the link which attaches the toxic part of the toxin molecule to the receptor or side chain of the cell, and without it the toxin molecule would have no effect whatever upon the cell. The haptophore group, or combining group, is always constant; while the toxophore group, or disease-producing group, is variable. If the toxin, after attaching itself to the cell, damages it to any great extent, it causes the cell to die. If enough of the cells are thus damaged, the body as a whole is overcome by the poison and fatal results follow. On the other hand, if the cell is lightly affected, as is found in producing artificially active immunity, the cell in losing one receptor proceeds at once to generate and produce others. In this process of regeneration there is an overproduction of these receptors, which are cast off into the system, and find their way to the blood stream, lymph channels and possibly the tissue juices. Although these receptors are cast off from the cells, they are still able to combine with the toxin molecule. The cast-off receptors or side-chains are the antibodies or antitoxins, and by combining with toxin, either in another animal body or in the test tube, will neutralize it and produce a chemically inert substance. The receptor, therefore, becomes an antitoxin as soon as it is cast off, but not until then. These receptors may remain in the individual or animal in which they are formed, and continue to protect the body. This is the active immunity we see following infectious diseases and called naturally acquired immunity, or following forced immunity, as seen in an animal immunized against diphtheria toxin or the tetanus toxin, called the artificially acquired immunity. These receptors

may be transferred to another animal body, producing a condition recognized when an individual is injected with antitoxin, either for prophylactic or curative purpose, called passive immunity. In order to satisfy other conditions of immunity, Ehrlich found it necessary to distinguish three orders of receptors. The side-chain theory, in fact, is built up on such an ingenious plan that almost any condition imaginable in immunity may be accounted for by producing other orders of receptors. In the first order we find the simple receptor, which combines with the haptophore group of the toxin molecule. In this order are placed the anti-toxins. Agglutinins and precipitins are included in the receptor of the second order, and the cytolytins, including the bacteriolysins, are of the third order.

5. IMMUNITY. We will first divide immunity into Natural, Inherited and Acquired. Natural immunity is the inherent, innate insusceptibility to disease. It is difficult, therefore, according to our present knowledge, to discriminate between natural and inherited immunity. It is a well known and recognized fact that certain species, races and individuals, under apparently the same conditions, are very resistant to some infections, and that others are extremely susceptible to the same infections. Typhoid fever, cholera, diphtheria, scarlet fever, measles, whooping cough, mumps and other diseases occur in man only; animals are naturally immune. Some of the diseases which are found in animals alone are hog cholera (swine), contagious pleuropneumonia (cattle), equine influenza (horses and mules), and blackleg (sheep and heifers). Diseases common to both man and animals are tuberculosis, anthrax, glanders, pyemia, tetanus, plague, actinomycosis, cowpox and many others. There are also exceptions to these. The goat and dog are considered naturally immune to tuberculosis. While ordinary sheep are susceptible to anthrax, Algerian sheep are resistant. Rats are immune to anthrax, while most birds are susceptible. Snake venom is extremely poisonous to both man and animals, with one exception; hogs are immune. The field mouse is very susceptible to the glanders bacterium, while the white mouse is immune. Another very interesting fact which may be considered an example of natural immunity is found in the mosquito. The *Culex* does not harbor the parasite of malaria, while the *Anopheles* is its common host. The ability to transmit yellow fever is limited to one particular species of mosquito, the *Stegomyia calopus*. Individual differences in immunity, or the natural power of resistance under similar existing conditions, occur every day. In an epidemic of typhoid fever, due to a contaminated water supply, some individuals become infected while others do not; and this may occur in the same family. Again, with whooping-cough, scarlet fever, measles or any of the acute contagious diseases of childhood, one of the children in a family may become infected, while the others will remain well. The immunity is oftentimes carried through the lifetime of the individual.

Acquired Immunity. An acquired immunity is that form of immunity gained by a susceptible individual during the life of that individual. It differs from the natural immunity, in being less certain and having a variable duration. We have two varieties of acquired immunity—naturally acquired and artificially acquired.

Naturally Acquired Immunity. Naturally acquired immunity is established

as the result of the spontaneous cure of an infectious disease. This is termed by some accidental infection.

Recovery from some of the acute infectious diseases confers a lifelong immunity to the individual, while an attack of others results in a decreased resistance. Smallpox, scarlet fever, typhoid fever, measles, whooping-cough, mumps and other infections produce an immunity which is, as a rule, lasting; although a few cases are recorded of a second and even a third attack, as the length of the immunity does not depend upon the severity of the infection. On the other hand, pneumonia and influenza not only do not produce an immunity, but usually render the individual more liable to subsequent attacks. Some diseases, therefore, produce an increased resistance, while others an increased susceptibility.

Artificially Acquired Immunity. Artificially acquired immunity is produced by intentional inoculation. This may be either for experimental or therapeutic purposes, but always with some definite end in view. This sort of immunity may be active or passive.

Active Immunity. In the active form, the immunized individual gains its power of resistance by the unaided reaction of its own tissues, or in other words, it manufactures its own antibodies. In every case the immunity depends upon specific reactions on the part of the cells and tissues of the individual. The best example of this form of immunity is illustrated in the horse which has been immunized with diphtheria toxin to produce the antitoxin. The animal is injected with a dose of toxin not large enough to prove fatal, but toxic enough to produce a reaction. The horse becomes ill and recovers, the symptoms lasting but a few days. This process is repeated until the animal is able to stand an amount of toxin many hundred times the fatal dose. After the first injection something has changed in the animal, for it will not again react in the same way to the same dose. The cells or tissues of the body have acquired a new property by their own physiological activity, and this is termed active artificially acquired immunity. Such immunity is always gained at the expense, and often at the risk, of the individual acquiring it. There are many different ways of producing this form of immunity. It may be produced either by means of the bacteria themselves or their products. Experimentally we may use the live virulent, the attenuated, or the dead bacteria, but therapeutically the live virulent bacteria are not injected into the body on account of the danger attendant upon such treatment. Wherever possible, for prophylactic purposes, the attenuated organisms are preferable to the dead, because the symptoms are the result of a mild infection, calling forth more of a specific reaction on the part of the tissues and cells of the body, thereby resulting in a more lasting immunity. In preparing these attenuated organisms for the production of active immunity, the more of their natural characteristics they are allowed to retain, with safety to the patient, the more potent will be the result.

Micro-organisms may be attenuated by mechanical or natural means. The mechanical methods are heat, chemicals, desiccation and dialysis. The organisms are washed or scraped off the solid culture media, are thrown down by centrifugation from the liquid culture media or else are taken as they grow in the liquid culture media and are heated just enough to retard their growth or diminish their virulence. The tissues of the animal body in which the bacteria

are growing may be allowed to undergo the same treatment. A typical example of an attenuated product of this last sort is blackleg or symptomatic anthrax vaccine. Subjecting the bacteria in a similar manner to certain chemicals or their fumes may produce the same results. We may also attenuate bacteria, while still growing in the culture media, by subjecting them to heat or chemical influence as in the production of Pasteur Anthrax Vaccine. In growing under these artificial or unnatural conditions, some sort of a change takes place in the micro-organisms. They become less virulent, and when injected, the resulting symptoms are atypical of the disease. The Pasteur vaccine for rabies is attenuated by desiccation. Whether this is in fact an attenuation of the organism or merely a dilution of the virus caused by the death of many of the organisms is a question. We may also attenuate or modify a virus by dialysis. In this manner the immunizing substance, whatever it may be, is allowed to remain intact at the expense of the toxin part of the virus which is apparently dialyzable. The natural method of attenuation is by passing the micro-organisms through certain animals. This is rarely accomplished, but it has been done, as in the case of the passage of the rabies virus through monkeys. The gradual cessation of an epidemic after weeks or perhaps months of the most virulent types of infection is probably often the result of a natural attenuation of the causal organism.

In preparing dead bacteria for immunizing purposes, we strive to kill the micro-organisms, but not destroy their products. Among these products are the endotoxins. We heat the bacteria, or cause them to come in contact with certain chemicals in the form of solutions or gases, just to the point of stopping their growth. Heat has been the generally accepted agent for killing the bacteria used for therapeutic purposes, although suspensions of the bacteria may be made with dilute germicides, as the coal-tar products or other antiseptics, just strong enough to kill them, not to produce an injurious effect upon the therapeutic value of the vaccine or upon the patient receiving the treatment. Here again it must be borne in mind that the more injury to which we subject the organisms, one way or another, the less will be the production of immunity. Heat being recognized as antagonistic to those functions of bacteria which have to do with the production of immunity, it behooves us to use as little heat as possible in the process of devitalizing the organisms. Suspensions of dead bacteria, especially those intended for prophylactic purposes, prepared without the aid of heat, are being recognized more and more as superior to those treated according to the original method. Therapeutically these suspensions of dead bacteria are used in dilute form, and are called bacterial vaccines or bacterins. These vaccines may be used either prophylactically to prevent the invasion of bacteria, or curatively to assist nature in fighting an infection after the invasion of pathogenic bacteria has already been accomplished. It is claimed by some of the best authorities that the older the strain of organisms, the less will be their immunizing properties; therefore, those autogenetic micro-organisms isolated recently from a diseased process are considered preferable to those grown for a considerable length of time away from their natural environments. This is known not to be true for all organisms, especially the typhoid, and it may not hold for any. That the immunizing properties or toxin producing properties of bacteria do not go hand in hand with their disease producing properties is an already known fact. The best toxin

producing strain of the diphtheria bacterium with which we are familiar is known to be practically avirulent. If this holds true for the extracellular toxin producers, the same should pertain to the endocellular toxin producers. It is not necessary for an organism to be virulent and young in order to be a toxin producer, and therefore, why should it have to be freshly isolated and virulent to be an immunizer? It is also claimed that certain organisms which are allowed to remain for variable lengths of time in contact with their homologous antiserums will retain their immunizing properties while losing their pathogenic properties. The process of neutralizing the toxic properties of the organism with the antitoxin, termed sensitization, appears to attenuate the organisms without the aid of heat or chemicals.

The bacterial products, or the toxins, which are employed experimentally and practically, for the production of immunity in animals in the preparation of antisera, are the exotoxins and the endotoxins. Of the few exotoxins, only two are used to any great extent, the diphtheria and tetanus. We are unable to use these soluble toxins directly for therapeutic purposes, on account of their extremely harmful specific nature. Immunity is produced with them, as has already been explained in the case of the horse in the preparation of antitoxin serums, but this immunity is forced and at the risk of the individual immunized, so that for therapeutic purposes the treatment would be even more dangerous than the disease itself. A process somewhat analogous to sensitization of bacteria may be mentioned in this connection. It is known that active immunity may be produced by a soluble toxin as the diphtheria toxin, so long as it has been sensitized or even over-neutralized by its own antitoxin before injection. The toxic portion of the toxin molecule is neutralized or rendered inert without apparently modifying the immunizing properties. This principle, which has lately been applied by Behring to the active prophylactic immunization of the human against diphtheria, has been used in this country several years for the production of active immunity in animals, especially the horse, and was suggested several years ago by Smith for use in the human. The idea is not original with Behring. By far the greater number of pathogenic bacteria do not produce soluble toxins in the liquid culture media in which they are grown, but do liberate poisonous products, when the bacterial cells are disintegrated. These poisonous or toxic products are termed the endotoxins, and when injected into animals, immunize them to a certain extent against the invasion of the specific micro-organisms from which the endotoxins were obtained. The serum of the thus immunized animal has become antibacterial. Experiments have shown that it will kill the specific bacteria, by causing them to break up (a condition recognized as lysis) either in the animal or the test tube. It is termed a bactericidal serum with properties called bacteriolytic. Besides containing these substances which kill bacteria, the serum has been endowed with some properties which cause the bacteria to clump together or agglutinate, called agglutinins, and others which render the bacteria more readily ingested by the phagocytes, called the opsonins, and still others which produce a precipitate of the specific or homologous bacterial proteins by means of substances called precipitins.

Active immunity is produced artificially not only with bacterial toxins, but also with animal poisons, as snake venom, spider toxin and eel serum; and plant

poisons, such as those extracted from abrin, ricin, cotin and the poisonous mushrooms. From these poisons, which are soluble toxins, antitoxins may be obtained by immunizing animals with them. Of all these animal and plant poisons, snake venom is the only one used for therapeutic purposes. By means of this, an antitoxin is produced which has marked prophylactic properties against snake bites, and is used extensively in countries where the poisonous snakes abound.

Passive Immunity. Passive immunity is that form of immunity which depends upon defensive factors not originating in the animal protected, but artificially supplied to it. The protective material or antibody is furnished ready made at the risk of another animal, and, although the effect is secured at once, the immunity is only temporary. The best illustration is of that immunity produced by the injection of antidiphtheric serum. The diphtheria organisms are grown in bouillon to produce the diphtheria toxin. The horse is injected with this diphtheria toxin and becomes actively immunized to the toxin. The serum which contains the antibody, formed by the tissues of the horse, is injected into the patient suffering with the disease caused by the diphtheria organisms. The antibody is carried from the horse, by means of this serum, to the patient, who becomes immunized to the diphtheria toxin at once. The tissues and cells of the patient, therefore, are absolutely passive in the transaction, for the immunity is actually forced upon them. It is not the result of their physiological activity, hence the term passive immunity. The animal furnishing the defensive material must previously have been actively immunized. Passive immunity may be produced by injecting the following substances which contain defensive materials:

1. Blood serum of animals actively immunized by artificial methods.
2. Blood serum of animals actively immunized by natural methods.

Although the introduction, into susceptible animals, of blood serum of animals actively immunized by natural methods, such as those recovering from an infectious disease, raises their resistance to a certain degree, the immunity is not pronounced, nor is it lasting. The best results are obtained from those animals which are artificially immunized, especially in the production of diphtheria and tetanus antitoxin. The antitoxic serum is formed by the repeated injection of toxin during an extended period of time, while the quantity is pushed to the limit, so that the antitoxic strength or potency (antitoxin units per cc.) of the serum is as high as possible.

Passive immunity may be of two kinds, antitoxic and antibacterial, depending upon whether the individual was immunized with antitoxic or antibacterial serum. The antibacterial serums are not as specific as the antitoxic, and therefore, have not the same relative therapeutic value.

The antitoxic serums are the antidiphtheric and antitetanic. The antibacterial serums are antigonococcic, antimeningitic, antistreptococcic and antitubercular.

(To be continued.)

Papers Presented to Local Branches

THE LABORATORY EQUIPMENT OF THE PHARMACIST.*

HENRY B. FLOYD, WASHINGTON, D. C.

During the past six years and a half I have tried to make a study of the business methods employed by all of the pharmacists with whom I have come in contact. In addition to noting the general manner in which their business is conducted, the means each employs for the up-keep of his stock and for keeping his accounts, and how each handles his help, I have observed the facilities possessed for the carrying-on of the business in which he is engaged.

I do not wish to dwell upon what I have believed to be insufficient accounting systems or poor store methods, but will confine my remarks to the equipment and lack of equipment I have noted.

Let it be understood from the beginning, however, that I am not broaching this subject with malice or with the idea of exposing to criticism any pharmacist with whom I may have been associated.

It would seem logical, from the very nature of the business in which the pharmacist is engaged, to believe that he would possess a Pharmacopœia and a National Formulary, yet my observations lead me to assert that but two in five drug stores in the District of Columbia possess the eighth revision of the Pharmacopœia, and but one in every five can boast of the last edition of the National Formulary.

And with the conviction that I am absolutely right, I will say that but one in eight of the local pharmacies possesses both the latest Pharmacopœia and National Formulary.

This deficiency is infrequently partially made up by a dispensatory, but, as each of you well know, a dispensatory is not a pharmacopœia. Again, many druggists appear to accept Remington's Pharmacy as a substitute for the Pharmacopœia, the Formulary, and the dispensatory combined. With its peculiar arrangement, its brevity, and many necessary omissions, it makes a somewhat unsatisfactory reference work, and certainly can not be accepted in lieu of any one of the books mentioned, much less all three.

Only recently I was called upon to do some relief work in a store where the only reference books were a Remington, second edition, which I think was printed fifteen years ago, and a District Formulary, which, if I remember correctly, was published in the year 1870. And in one store in which I have visited within the past year there were no books whatever.

I did not venture to ask the proprietor of either of the last-mentioned stores

*Read before the City of Washington Branch, February 18, 1914.

by what means he knew the ingredients and proportions of the preparations he had occasion to make, but I am sure they could not get all of this information from the labels of the fluid-extract bottles, to which each must refer for guidance in making tinctures and some syrups. One of these druggists recently made up eight fluid ounces of tincture of nux vomica from the fluidextract, for a food and drug inspector while the inspector waited. He followed the directions given by the manufacturer of the fluidextract very carefully, and when questioned as to what process he had employed in its manufacture, he informed the inspector (in absolute good faith) that it had been made strictly according to the official process. Further comment is unnecessary.

Scales of many varieties and weights of every character, I have seen in use.

Whether the inspector of weights and measures has control of the prescription balances of a pharmacy I do not know; but if he has, I do not believe he exercises such control to the proper extent.

Some of the balances I have been forced to use actually were not sensitive to a grain, while others required a decided overweight before they would operate at all. Such instruments are not found in every store, but they are not rare.

It has not been unusual to discover a piece of tin foil or other substance on the pan-supports of scales for the purpose of making them balance, and I have actually found one pharmacist who boasts of using for the past twenty years an army prescription balance, original value about \$3.75, with which it is necessary to fasten the pan supports with string.

Conditions of a similar nature with regard to weights have been observed. Any number of pharmacists have no way of weighing less than one grain, and some not less than five. It behooves the proprietors of such stores to use dispensary tablets or to divide quantities of powerful medicines with a spatula.

Weights have not been found to be wholly accurate. For example, some have been allowed to corrode and collect dirt until, in one instance, a drachm weight actually weighed 71.6 grains. The reverse condition frequently occurs when the weights have been polished with a wearing material. Mr. Bradbury, too, has had at least one similar experience. In a store where a new set of balances had just been installed at a cost of \$35.00, he discovered that some of the weights ran 3 to 15 percent over-weight and others correspondingly under-weight. Twice, too, I have had to stop junior clerks from cleaning weights with a strong solution of nitric acid.

Glassware, especially that of a less expensive manufacture, is frequently inaccurate. Since the last meeting I dispensed a two-ounce mixture which could not be gotten into any two-ounce bottle in the store. Yet all of these bottles were graduated for drachms and centimeters, were of good quality glass, and had been made by a reputable firm.

Much has been said in favor of British and German graduates. Yet, few druggists stop to consider that these vessels are graduated for British or Imperial measure, which differs radically from the Apothecary's measure. Repeatedly inaccuracies arise from this cause.

At this point I wish to state that I have on several occasions seen the *avoirdupois* and apothecary's ounces used interchangeably without regard to their difference of $42\frac{1}{2}$ grains. The average druggist does not possess an apothecary's

weight heavier than two drachms, and it must seem logical to him to use the ounce weights which he possesses, namely, avoirdupois, wholly forgetting that they belong to a different system of weights. Not long ago a most conscientious local druggist was found selling camphorated oil below standard. A discussion of its manufacture showed that he had used avoirdupois ounces for troy when weighing his camphor.

Repeatedly, too, I have been in stores with one and two spatulas, one mortar, one graduate, and no percolators, each condition named certainly being a most marked and unquestioned deficiency. Yet, I have heard proprietors of such stores complain that they were not getting their share of the prescription business. Does any one understand why they should get any prescription business whatever?

I do not attribute these delinquencies to anything but thoughtlessness and a desire to spend as little money as possible in the conduct of the business. But should such negligence and carelessness be tolerated?

It can not be prevented under the present laws governing the practice of pharmacy in the District of Columbia, and never will be corrected until we have an adequate pharmacy law.

New York regulates the equipment of a pharmacy to a limited extent, the following being the rules in force:

a. Every pharmacy and drug store shall own and have on file at all times the eighth decennial revision of the Pharmacopœia and the latest edition of the National Formulary, and no registration certificate shall be issued to a pharmacy or drug store until it complies with this rule.

b. Every registered pharmacy and drug store is required to have the following minimum equipment of utensils:

One base scale capable of weighing one grain or less.

One set of accurate troy weights from one grain to two drachms.

One set of metric weights from 50 milligrams to 20 grams.

A set of graduated glass measures, two or more in number, capable of measuring from 10 minims to 16 fluid ounces.

A set of glass graduated measures from 5 cubic centimeters to 500 cubic centimeters.

Why were these regulations promulgated? Because they were necessary for the welfare of the public and for the good of pharmacy.

It would be impracticable to embody all the regulations necessary for the control of the practice of pharmacy into one or several laws, but the formation of a Board of Pharmacy composed of practicing pharmacists, five, seven, or nine in number, whose rules and regulations would completely govern local pharmacy conditions, appeals to me. Such a board, with its legal advisor, and aided by two or three inspectors, who should be pharmacists, could enforce remedial regulations which would raise the standard of our pharmacies to the proper plane. I know of no other way in which this can be done.

THE PATENT MEDICINE PROBLEM.*

M. I. WILBERT, WASHINGTON, D. C.

The patent medicine problem, as it presents itself to American pharmacists today, is neither novel or popular and its continued growth has long since been recognized as a menace to the development of pharmacy as a desirable occupation. The business itself has developed as the joint off-spring of cupidity and credulity and from a very early period has been the one object regarding which members of the various branches of the drug trade have differed on more frequently and more widely than on any other.

While it is generally recognized that the manufacture, sale and use of so-called patent medicines should be considered primarily as a public health problem, the business from the drug trade point of view also involves economic questions which cannot well be ignored and which have at times at least, quite overshadowed all public health considerations. That the economic feature of the problem is on the increase rather than decrease is evidenced by an editorial in the *National Druggist*, (1912, v. 42, p. 414), which asserts that the number of establishments engaged in the manufacture of patent and proprietary medicines in 1899 was 2,154 and in 1909 was 3,642. The value of the products at the factories in 1899 was \$88,791,000 and in 1909 was \$141,942,000, an increase of approximately 70 per cent in ten years.

Whether the public health or the economic side of the problem is to be given the preference in the near future is a question that is well worth considering, and one which by the recent action of the American Pharmaceutical Association is once more set squarely before the American pharmacists for reply or action.

The patent medicine problem as it is now before the members of the American Pharmaceutical Association for discussion, was outlined in an editorial by the general secretary of the Association, in the *Journal* for April, 1913, (p. 425-428). This editorial points out that the duty of the pharmacist to himself and to the public, in connection with patent medicines, is to define, if possible, the legitimate status for remedies of this kind and to differentiate between acceptable and non-acceptable preparations.

This proposition was presented to the Council of the American Pharmaceutical Association at the Nashville meeting and after considerable discussion it was agreed to appoint a Commission on Proprietary Remedies to consider the following general propositions:

1. To inquire into and report to the Council from time to time upon the general subject of proprietary medicines, in their relations to pharmacy, medicine and the public health.

2. To inquire whether any of the proprietary medicines, commonly known as patent medicines, contain alcohol or narcotic drugs in sufficient amount to

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render them liable to create a drug habit, or to satisfy such habits where otherwise created.

3. To inquire whether, or to what extent, the commonly advertised patent medicines contain potent drugs in sufficient amount to render them dangerous in the hands of the laity.

4. To inquire into the extent to which patent medicines are fraudulently advertised, or differ in properties or origin from the claims made for them, and the extent to which they are advertised for the cure of diseases generally recognized by the medical science as at present being incurable." (J. Am. Pharm. Assoc., 1913, v. 2, p. 1195.)

As the Commission has so far as known, made no report to the Council of the American Pharmaceutical Association, there is as yet, no indication as to what will or will not be the attitude of this Commission toward the preparations now on the market or to be marketed in the future. Some idea of the stand that must be taken by the members of the Commission, if they desire to make for progress rather than retrogression is evidenced by what has already been accomplished, not alone by the American Pharmaceutical Association, but also by other related organizations, particularly the American Medical Association.

Not to go too extensively into the history of the agitation relating to the manufacture and sale of patent medicines, more popularly designated as nostrums, we may well confine ourselves to the published records of the two national associations directly interested; the American Pharmaceutical Association and the American Medical Association, both organized over sixty years ago.

The American Medical Association almost annually, from the time of its preliminary meeting in the city of New York in 1846, to its reorganization at Saratoga Springs in 1902, adopted resolutions condemning nostrums and secret remedies of all kinds and pointed out objectionable features connected with them. Previous to the reorganization of the Association on the present basis, however, little or nothing of practical value was accomplished.

The American Pharmaceutical Association has also devoted considerable time and space to the discussion of problems connected with the manufacture and sale of patent and proprietary remedies. A cursory review of the proceedings of the Association suggests the rather interesting fact that this agitation appears to have developed in cycles and to have been markedly acute in decennial waves; the maximum height of the agitation being evidenced in the early years of the decennium. Thus, beginning with the Proceedings for 1853, the second meeting of the Association, we find the following resolution, which was on a motion of Joseph Laidley, substituted for one previously offered by C. B. Guthrie, and adopted by a majority of the members present:

"Resolved, That the American Pharmaceutical Association believes that the use and sale of secret or quack medicines is wrong in principle and is in practice attended with injurious effects to both the profession and the public at large, and believes it to be the duty of every conscientious druggist to discourage their use."

"Resolved, That this Association earnestly recommend to our pharmaceutical brethren to discourage by every honorable means the use of these nostrums; to

refrain from recommending them to their customers; not to use any means of bringing them into public notice; not to manufacture or to have manufactured any medicine, the composition of which is not made public; and to use every opportunity of exposing the evils attending their use, and the false means which are employed to induce their consumption." (Proc. Am. Pharm. Assoc., 1853, p. 17.)

The agitation in the next decennium was largely centered about the manufacture of fluidextracts and the development of proprietary rights in preparations of this type, and ten years later we find a similar line of activity developing in connection with elixirs, which at that time were so popular. At the end of another decennium, however, the attention of members of the Association was again directed to patent medicines of the nostrum type by a resolution offered by Prof. A. B. Prescott, of Ann Arbor, to the effect that a committee of three members be appointed to agree upon the most feasible and suitable legislation to secure a sufficient statement of the composition of proprietary medicines on the package of the same, and that more feasible and efficient action be taken by the Association in regard to the matter. The committee appointed consisted of Albert B. Prescott, Frederick Hoffmann and Charles Rice. This committee at the succeeding meeting of the Association presented a lengthy report on the nature of desirable legislation regarding the manufacture and sale of proprietary remedies, and also a draft of an act regulating the sale of proprietary medicines. The committee in its report offered a resolution which was subsequently adopted by the members of the Association present, to the effect "that it is the deliberate opinion of this Association that labels of proprietary medicines ought to carry a statement of their constituents." (Proc. Am. Pharm. Assoc., 1885, v. 33., pp. 394-398.) As evidence of the need for action along these lines the committee said in part:

"All medicines, and articles used as such, concern the health of those who use them and put dependence upon them. By action or failure of action, a medicine is liable to prove hurtful when misapplied. Therefore it is the right of a purchaser of a medicine to receive information of its constituents, their names and proportional quantities. And it is a legitimate act of the State—so far as it deems expedient—to see to it that such information, in printed form, is placed upon each package of articles of medicines, as a condition of their legal sale.

"Moreover, legislation requiring the composition of medicines to be given to the consumer is entirely in accord with the spirit of the institutions of the United States, because it is legislation to secure to him the means of self-preservation. If the purchaser of a medicine is provided with a record of its constituents, given in terms defined by published standards: now he may guide himself, in his own discretion or with professional aid, by the information given in the record of constituents, or he may neglect to so guide himself, and depend upon advice given on the wrapper of the medicine, in the exercise of his personal responsibility. The State has done its duty, and given the individual the opportunity for the exercise of discretion. The opportunity has an educational value to the individual."

The following year the Committee on Legislation, in its report of progress,

(Proc. Am. Pharm. Assoc., 1886, v. 34, pp. 10, 154-155) included a resolution to the effect that:

"Whereas, All medicines concern the health of those who use them; and

"Whereas, The purchaser of a medicine selected by himself has the right to receive information of its constituents and their quantities; and

"Whereas, The report and the draft of a law regulating the sale of proprietary medicines, which was accepted by the American Pharmaceutical Association at its meeting held in September, 1855, embraces a method whereby the above mentioned object may be secured; therefore be it

"Resolved, That the President and other officers of the Association be authorized and instructed to present printed copies of the reports and of the action had in this Association upon said reports, to the Governors, to the Speakers of the Senates and Houses of Representatives, and to the State Boards of Health, of the different States of the United States; also to offer any services wherein these authorities may consider the co-operation of this Association desirable or useful."

This preamble and resolution were vigorously discussed and a motion that they be stricken from the minutes of the Association was defeated. The report of the Committee was then on motion accepted, and finally on motion of C. Lewis Diehl, seconded by C. S. N. Hallberg, the preamble and resolution were adopted.

Despite the endorsement given the report of the Committee of Legislation, little or nothing of a practical nature appears to have been done. During the early years of the succeeding decade a few isolated papers on patent medicine abuses, from a public health point of view, were presented but their readers found no following and the resolutions they offered appear to have been overlooked or ignored while much of the time of the Association was devoted to the discussion of a plan or plans to remedy the "cutting of prices." The seriousness with which time was wasted on the discussion of the several plans that were suggested at that time serves well to illustrate the comparative importance that has been accorded the purely economic side of this problem by various branches of the drug trade.

At the semi-centennial meeting of the American Pharmaceutical Association, in 1902, several papers were again presented, bearing on existing abuses in connection with patent and proprietary remedies. These papers dealt principally with the abuse of so-called proprietary medicines and their use by physicians and, perhaps, contributed somewhat at least to the renewed interest on the part of the American Medical Association in matters relating to the use of secret or semi-secret remedies by medical practitioners.

At the meeting of the American Medical Association in New Orleans in 1903 a number of papers were presented criticizing medical journals for the nature and kind of advertising carried by them, and a resolution adopted by the then Section on Materia Medica and Pharmacy condemned much of the advertising then carried in the Journal of the Association itself. At this meeting of the Association provision was also made for pharmaceutical membership in the American Medical Association and at the meeting in Atlantic City the following

June a number of pharmacists were elected and the discussion on materia medica subjects, with the resolutions adopted at Atlantic City in 1904, no doubt were directly responsible for the inauguration of a Council on Pharmacy and Chemistry, the object of which was to endeavor to differentiate between good and bad proprietary remedies used by or offered to physicians.

A preliminary meeting of persons interested was held in Philadelphia on December 29, 1904, and the Council itself was organized in Pittsburg on February 11, 1905. This Council was immediately set to work and by June of the same year the comprehensive and at that time startling report on the acetanilide mixtures was published in the Journal of the American Medical Association and, as was expected, precipitated the wrath, not alone of pharmaceutical manufacturers, but also of medical journals that depend so largely on their advertising pages for existence. The so-called acetanilide report served, however, to arouse the better class of medical men to an appreciation of their duty as professional men and the endorsement thus secured has contributed much to maintain the Council despite the attacks of moneyed interests within and without the membership of the Association.

The work of the Council was later in the year efficiently augmented by the series of articles originally published in Collier's Weekly by Samuel Hopkins Adams, on the "Great American Fraud," and subsequently reprinted in pamphlet form by the American Medical Association. The Food and Drugs Act of June 30, 1906, also contributed its share in support of the work of the Council. These several agencies have been further augmented by the stand taken by the Commissioner of Internal Revenue in regard to alcohol-containing nostrums and by the assistance given by various state officials entrusted with the enforcement of local food and drug laws, so that at the present time there is considerable evidence to show that the efforts of the Council on Pharmacy and Chemistry have made a distinct impression on thinking laymen as well as on the more progressive members of the American Medical Association.

Following the inauguration of the Council on Pharmacy and Chemistry, the American Medical Association organized a chemical laboratory in the Association building and this laboratory in addition to the work on "Proprietary Remedies," has devoted considerable time to the examination of so-called "patent medicines" or "nostrums." The resulting analyses are usually published in the Journal and have been in part at least, compiled in book form in a volume entitled, "Nostrums and Quackery."

This book has recently been reprinted in enlarged form and its increasing circulation among well informed laymen will contribute much to a better understanding of the patent medicine problem from a public health point of view and should serve to prevent any possible retrogressive action on the part of the American Pharmaceutical Association as an Association.

In summing up this brief and admittedly incomplete survey of recent accomplishments to solve the "patent medicine" problem, it would appear that the questions involved are not to be considered as being answered until they are answered correctly and that from the point of view of the public the influence of "patent medicines" on the health and welfare of the individual is the only factor deserving of consideration. Bearing this latter fact in mind, it would appear de-

sirable that all branches of the drug trade give the patent medicine problem renewed and serious consideration and make an honest effort to adjust their interests in accord with the interests of the public and thus effectually counteract the frequently made assertion that the economic questions involved must outweigh all others so far as the drug trade may be concerned.

PETROLATUM LIQUIDUM, U. S. P. VIII.*
(Paraffinum Liquidum. White Mineral Oil.)

S. L. HILTON, WASHINGTON, D. C.

The U. S. P. VIII provides that this substance shall conform to the following description:

"A mixture of hydrocarbons, chiefly of the methane series, obtained by distilling off most of the higher and more volatile portions from petroleum and purifying the liquid residue.

"A colorless, or very slightly yellowish, oily transparent liquid without odor or taste but giving off, when heated, a faint odor of petroleum."

Sp. G., .870 to .950 at 25° C. Tests are given for solubility, acid impurities, fixed oils or fats, either animal or vegetable and readily carbonizable impurities.

It is proposed for the U. S. P. IX, to change the official title to Paraffinum Liquidum, which seems to be wise and in conformity to modern standards. The description, allowing a very slight yellow color, is a mistake as there is no difficulty in obtaining a colorless oil, except the oils of this kind that are produced in this country. The new requirement that it shall be free from fluorescence is proper and not necessarily exacting.

From a careful study of a number of samples of White Mineral Oil, obtained from various sources, the appended table shows that the official requirements can be met without much difficulty, it is further demonstrated that an oil that is usually above the Sp. G. .870 will show more or less solid paraffin when subjected to a temperature of -4° C., yet in the table two samples, each of the Sp. G. of .875 remained perfectly clear after being subjected to this temperature for eight hours. It is therefore evident that in the process of purification chilling was not thorough or carried on for a sufficient length of time and the final filtration was not performed at the same temperature. The desire to have as heavy oil as possible for internal administration as recommended by Dr. Lane, of London, is no doubt accountable for such a large number of samples with a specific gravity lower than .875, becoming opaque or milky at this temperature.

With proper manipulation and care an oil of the Sp. G. .8755 should show no separation of paraffin on chilling; some standard covering this point should be provided, that is, a minimum specific gravity that will show no separation of paraffin when the oil is subjected to a temperature of at least 0° C.

None of the samples showed an admixture of fixed oils or fats, either animal

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or vegetable; the test is one that must be carefully applied; the neutralizing of the alkali with strong sulphuric acid, after digestion, is violent unless it is added very slowly.

The results of the Sulphuric Acid Test are most interesting, showing almost every shade of brown, and in several cases the oily layer became opaque and colored, and not conforming to the requirements of the U. S. P., the British Pharmacopœia or the German Pharmacopœia.

As to the internal administration of Paraffin Oil, a number of specialists of this city have used it for several years. The principal method followed by them is to administer from 15 to 60 cc. at bed-time; in obstinate cases of constipation 15 cc. administered about one hour before meals, so as to avoid interfering with digestion. With these methods of administration good results have been produced; there are however, many cases of complaints that the oil will pass out of the intestinal tract involuntarily very much to the discomfort of the patient, even when given in very small doses. This trouble seems to be more frequent with the administration of one of the popular brands of the market which shows a specific gravity of less than .860.

Paraffin oils of a specific gravity of .880 or more are rather more difficult of administration than those of .870 to .875. They adhere to the mouth very closely and to some are disagreeable and suggestive of Castor Oil.

An oil aromatized or flavored with some essential oil or combination of oils seems to be growing in demand. I submit ten samples, any of which no doubt would be agreeable to some. Personally, peppermint seems to be the most pleasant and agreeable, cardamon a close second; no doubt many would prefer spearmint, owing to the chewing gum craze.

The flavoring of paraffin oils must be done with care; from 5 to 25 drops of an essential oil will be found sufficient for 500 cc. While this small amount may not give a pronounced odor, it must be remembered that the dose administered, 15 to 60 cc., will be sufficient to give a fairly pronounced taste. The samples submitted contain in each 500 cc. the following amounts of essential oils: almond 15 drops; clove 10 drops; anethol 10 drops; cinnamon 5 drops; peppermint 15 drops; spearmint 15 drops; sweet birch 25 drops; wintergreen 25 drops; and aromatic, using the oils constituting spirit aurantii comp. 15 drops.

Another interesting phase of the examination is the various prices charged for these paraffin oils, those with fancy coined names commanding very much more than other oils on the open market and all or nearly all coming from the same source and possibly from the same importer. As pointed out by Mr. Wilbert, the better or finer grades come from Russia, hence the name Russian Mineral Oil. The American oil usually has a fluorescence, is slightly yellow in color and has a more pronounced petroleum odor when heated. The best grades of Russian oil can be purchased for about 80c a gallon, while those with trade or coined names will cost from 40c to 60c a pint.

Pharmacists are able to supply physicians and their patients with an oil of high quality, reasonable in price and should avail themselves of the present opportunity. An oil of at least Sp. G. .8750, that is colorless, tasteless and free from fluorescence, that will not show more than a pale brown color with the sulphuric acid test, free from admixture with animal or vegetable oils and

remains clear when subjected to a temperature of 0° C. for four hours seems to be the oil most desired, and if demanded, can readily be obtained.

EXAMINATION OF WHITE MINERAL OILS.

Brand.	Price Gal.	Color and Taste.	Odor.	Sp.G. 23° C.	Saponif. Test.	H ₂ SO ₄ Test.	Freezing Test—4° C.
Amalie Gloria, Grade "A"	85c	Colorless and tasteless	None	.87893	Nil	V. P. B.	Slightly opaque
Amalie Gloria, Grade "B"	75c	Colorless and tasteless	None	.86752	Nil	V. P. B.	Slightly opaque
Amalie Gloria, Grade "C"	65c	Colorless and tasteless	None	.85884	Nil	V. P. B.	Clear
Amalie Russian, Grade "A"	53c	Colorless and tasteless	None	.85953	Nil	Brown	Clear
Amalie Russian, Grade "B"	50c	Sigt. fluores	None	.85992	Nil	Brown	Clear
Liq. Albolene	40c pt.	Colorless and tasteless	None	.85979	Nil	Brown, oil layer colored	Clear
Zinkeisen, Russian	90c	Colorless and tasteless	None	.87688	Nil	V. P. B.	Quite milky
National Aniline Co. No. 2	80c	Colorless and tasteless	None	.87546	Nil	Brown	Clear
National Aniline Co. a2138	80c	Colorless and tasteless	None	.88154	Nil	Brown	Slightly opaque
S. K. & F. Co., Russian	..	Colorless and tasteless	None	.87599	Nil	Pale brown	Clear
"Squibbs"	40c pt.	Colorless and tasteless	None	.87519	Nil	Pale brown	Slightly opaque
"Olo"	34c pt.	Yellow cinnamon	Slight cinnam.	.87976	Nil	Brown, oil layer brown	Slightly opaque
Teralbolia	..	Fluorescent, tasteless	None	.85535	Nil	Red brown, oil layer dark bwn. & opaque	Slightly opaque
Freeman's Russian Min. Ol.	50c pt.	Colorless and tasteless	None	.88257	Nil	Pale brown	Quite milky, ropy separation in layer at top
Petrolax	..	Colorless and tasteless	None	.88165	Nil	.....	.....
Unknown No. 1	..	Slight fluor.	None	.86812	Nil	Dark brown	Clear
Unknown No. 2	..	Colorless and tasteless	None	.87765	Nil	Pale brown, oil layer silty. col.	Slightly opaque
White Liquid Vaseline	..	Very decided fluorescence	None	.85360	Nil	Red brown, oil layer dark brown opaque	Quite milky
Barrett & Co., Russian	\$1.00	Colorless and tasteless	None	.8840	Nil	Pale brown	Quite milky
Wilson's Sons White Min. Ol	70c	Sample dirty, very yellow in color, no examination.					

Prices stated are wholesale.

ABBREVIATIONS, ETC.

V. P. B. Very pale brown.

Amalie Brands, from L. Sonneborn Sons, Inc., New York.

"Olo" American Olo Co., Llanerch, Pa.

Teralbolia, Robert C. Cadmus, Philadelphia, Pa.

Freemans Russian Mineral Oil, Aseptic Chemical Co., Chicago, Ill.

Barrett & Co., Importers, Chicago.

Zinkeisen, National Aniline & Chemical Co., E. R. Squibb & Sons, New York.

S. K. & F. Co., Smith, Kline & French Co., Philadelphia, Pa.

THE RENEWED INTEREST IN PARAFFIN OIL.*

M. I. WILBERT, WASHINGTON, D. C.

Within recent years renewed interest is being taken in paraffin oil for internal administration in the treatment of intestinal stasis or chronic constipation. This renewed interest is largely due to the fact that a noble English surgeon, Sir W. Arbuthnot Lane, in his experimental work to prevent the formation of adhesions after surgical interference in the intestinal tract found that paraffin oil served as an intestinal lubricant and was of material assistance in overcoming persistent constipation.

This use of paraffin oil is by no means new, however, and dates back many years to the introduction of refined petroleum products by Chesebrough and others about 1872.

Previous to this date the residues in petroleum stills had little or no commercial value and were used almost exclusively as lubricants, more particularly axle grease. The possibility of producing an odorless and practically colorless oil and heavier fat by comparatively simple methods, presented the peculiar problem of establishing a market for products of this kind and for some years at least the substances were used largely, if not exclusively, for the adulteration of other fats and oils and it is this use of vaseline and of vaseline oil as adulterants that later led to experiments to demonstrate their possible food value and the presence or absence of harmful or toxic ingredients. Experiments carried on by N. A. Randolph, Philadelphia, about 1884, not only demonstrated that the heavier petroleum products were not absorbed from the intestinal tract but also showed that they served to act somewhat in the nature of foreign material and might have some value in the treatment of certain forms of constipation. It was also thought that these products appeared to inhibit fermentation and would, therefore, be of value in the treatment of certain forms of diarrhoea. Some fifteen years later Robert Hutchison, of England, reported practically the same observations and this led to the then quite extensive use of petrolatum and of paraffin oils for various intestinal disorders.

The at one time widespread use of purified petroleum products in the treatment of pulmonary disorders is, to some extent, traceable to the administration of the naturally occurring petroleum products in various countries and at various times. Crude petroleum has been used from time immemorial as a medicine and perhaps largely because of its disagreeable odor was from very early times used in the treatment of diseases of the respiratory tract. In this country Seneca oil had considerable vogue from time to time and was frequently put out in the form of proprietary or "patent preparations" for the treatment of various diseases. After the introduction of purified petroleum products these were offered as substitutes for the formerly used crude oil and even at the present time the advertising matter put out in connection with some of the popularly exploited prepa-

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tions of petroleum do not satisfactorily designate whether or not the crude or the purified product is being advocated.

During the past three or four decades, purified petroleum products have been marketed under scores if not hundreds of proprietary names and the misleading claims and statements made in connection with these several preparations are far from being a credit to the owners or to the persons who act as distributors for the several articles. That there is some element of truth in the claims that have been made for petroleum products is evidenced by the fact that the use of petroleum, crude and refined, has persisted in all parts of the world and has at times, like the present, reached amounts that were quite considerable.

With the renewed interest in paraffin oil that is in evidence at present, the time appears to be particularly opportune for pharmacists who are willing to assist in making for true progress to do missionary work and to point out to physicians in a rational and sensible way that paraffin oil and other petroleum products, while they may be useful, must have limitations, that the claims made for the proprietary articles are unfounded and not based on fact, that in the event that the physician does wish to experiment with the product, non-proprietary oils of high quality are readily available and finally, that these non-proprietary products can be sold to the patient at a very much lower figure than can the proprietary article and still yield the retail druggist a more satisfactory profit.

As intimated above, the products that are available at the present time are many, or at least appear to be numerous because of the varied trade names under which they are offered. On studying the nature of these products, however, it appears that there is no very great difficulty in establishing certain, at times perhaps arbitrary, lines of demarcation between them and identifying them as belonging to one or the other class of commercially available oils readily obtainable by any pharmacist.

The bulk of the available supply of heavy mineral oil comes from two sources and the products differ materially in chemical composition. The American oil is obtained from paraffin base petroleum and consists essentially of hydrocarbons of the methane series having the general formula C_nH_{2n+2} .

The so-called Russian oil, obtained largely, if not entirely, from the oil wells in the Baku district, consist chiefly of monocyclic polymethylenes or naphthenes having the general formula C_nH_{2n} . These latter products have been described as hydrated aromatic hydrocarbons and while they behave with reagents very much in the same way as do the hydrocarbons of the methane series, they are more readily purified and generally occur in commerce as water white oils that are quite free from fluorescence or odor. The American paraffin or methane oils usually have a distinct color and are seldom quite free from fluorescence or a peculiar dichroic effect that is particularly noticable when the preparation is viewed by reflected light. Apart from the appearance, however, there is no evidence that the two products differ in their effect on the animal organism and one has perhaps as many advocates and users as the other.

The density of the commercially available products also varies and the fact that it is proposed to extend the present U. S. P. limits of specific gravity, 0.9870 to 0.940 at 25°, to read 0.845 to 0.940 at 25°, clearly indicates that the members

of the present Committee of Revision are themselves not convinced as to the properties that should be inherent in a mineral oil for medicinal use.

The paraffin oil official in the Pharmacopœias of the Continent of Europe are usually of the denser variety, 0.875 or higher at 15°, but this is probably due to the fact that there the oil is largely used as a basis for ointments and the various other uses are only now being developed.

In this country paraffin oil or, as it is better known, liquid petrolatum, has long been in use as a basis for oil sprays in the treatment of affections of the nose and throat and for this purpose the lighter and more limpid oil appears to be preferred. For internal administration Sir A. W. Lane prefers the heavier, European type of oil and this is now available in this country and is being introduced by a number of manufacturers and dealers, under proprietary titles, to be sold at fancy prices. Even for internal use, however, there appears to be a definite limit to the solid paraffin that an oil can hold in solution and be palatable or readily taken. At comparatively low temperatures some of these oils are nearly solid and even at ordinary temperatures they are so viscid that they do not readily leave the mouth when taken internally.

I will not undertake to discuss the various commercially available products in detail or to point out to you the reasons why these heavier oils are objected to by many. Mr. Hilton has made a comparative study of a number of products which he promises to report on and he will also have something to say in regard to methods of administration and the possible flavoring of the oil to make it more palatable.

One further question that may be discussed briefly is the dose. One firm, the owner of the product most widely used in this country, says:

"Excellent results are obtained by giving the oil in small doses. In mild cases a tablespoonful at night gives prompt relief. In longer standing cases make it almost a part of the diet and give one or two teaspoonfuls just after meals."

Dr. Lane and many of his followers, on the other hand, give the oil in much larger doses and insist that it be given shortly before meals so as not to interfere in any way with the digestion of food which it probably would if as proposed above it were given with or immediately after meals and thereby intimately mixed with the stomach content.

Bastedo, in his book on materia medica, pharmacology, therapeutics and prescription writing, states that the oil is only mildly laxative and should be given in doses of 30 cc. two or three times a day. Other authorities advise even larger doses, and Robinson (Medical News, 1900, v. 77, p. 56), reports that he frequently administered nearly a pint in a few hours without any indications of discomfort and no untoward results of any kind. Robinson also asserts that he was able to duplicate the experiments reported by Randolph and reclaim all of the oil that was ingested. Some recent German experimenters, however, appear to believe that a part, at least, of the oil is changed or absorbed in the intestinal tract, and while the bulk of it passes through unchanged it is not possible to reclaim absolutely all of the oil as taken. At the present time, the preferred dose is from one to two tablespoonfuls one hour before meals or from two to four tablespoonfuls on retiring. The oil may be flavored to make it less objectionable,

and several authorities appear to prefer administering the product in the form of an emulsion, though others claim that the emulsion is not so satisfactory and does not give the same uniform good results.

In addition to its use internally as a lubricant or laxative, paraffin oil is also given in the form of rectal injections, and is being exploited more recently as a dressing for wounds, both recent and chronic. In connection with chronic ulcers it is being extolled as a dressing to protect the skin around the focus of suppuration. The oil in these cases not alone protects the skin against irritation from oozing, thus warding off eczema, but also keeps the dressings from sticking.

The use of liquid petrolatum as a soothing application in the form of a spray to inflamed membranes of the nose and throat is well-known, as is the use of the same product in cosmetics, such as skin creams or pomades, and the use of this product for these several purposes need not be discussed.

In conclusion then, the object of this communication is to call attention to the renewed interest that is being manifested by medical men in paraffin oil for internal administration, and as an adjuvant dressing for wounds, and to suggest to pharmacists that they acquaint themselves with the properties of the available material for the purpose of pointing out to physicians the nature and the kind of material that is available as well as the limitations that probably exist.

NEW EQUIPMENT.

A Baltimore druggist had a fine set of black walnut fixtures, twenty years old and good for fifty. His counters were three feet wide and he had six feet of floor space between them. His store was long, dark, narrow, and looked not unlike a tunnel. His wall cases were deep and massive. Everything about the place was gloomy and ponderous. He was persuaded to scrap the whole outfit and put in complete new equipment. In place of the old, heavy black walnut fixtures, new fixtures of a light color were installed. Three-foot counters gave way to counters eighteen inches wide; wall cases were made narrower. He gained six feet of sorely needed floor space. This gave plenty of room for soda-water tables, something he had never been able to use before.

The new store looked 50 percent lighter and had a roomy effect greatly different from that of the old tunnel. The druggist had been urged by the fixture salesman to keep statistics, and did so to the best of his ability. Soda business increased about 100 percent the first month, and was still showing a steady increase at the end of the first year. The general business showed an increase of 60 percent at the end of three months, when the first balance was figured, and an increase of 110 percent at the end of the first year. The equipment this druggist threw away was all fairly good, some of it in prime condition, but it was out of date. It didn't fit in with the times, and here is an important reason why new equipment does increase business.—W. S. Adkins in *The National Druggist*.

Of General Interest

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The joint meeting of the Executive and Advisory Examination Committees of the National Association of Boards of Pharmacy was opened at the Tampa Bay Hotel, Tampa, Fla., February 20, at 11 a. m. At the meeting of the Executive Committee President Berger occupied the chair and, in the absence of Mr. Sala on account of illness, Mr. C. E. Zinn was elected temporary secretary.

Mr. Ben Freer, of the Tampa Druggists' Association, welcomed the members of the National Association in a cordial address, to which Mr. Zinn responded. Mr. J. C. Burton, chairman of the Executive Committee, reported that the committee had secured incorporation for the association; that the Kansas State Board had affiliated with the association and detailed the activities of the committee during the past year. The secretary was instructed to mail to all members of boards of pharmacy in the U. S. a copy of the report of the Executive Committee. The Advisory Examination Committee was directed to take up the work of visiting boards of pharmacy during the examinations of such boards. The secretary was instructed to call in all reciprocal blanks and to reimburse the amounts paid for same. It was also ordered that new blanks be immediately printed and that they should be obtained of the national secretary and that a fee of \$5 must accompany order for same.

At 10 o'clock on February 21 the meeting of the Advisory Examination Committee was called to order by Chairman Christensen. An interesting discussion took place upon the variance of examination-questions of Boards of Pharmacy, and Chairman Christensen presented two examination papers to show the wide difference between these questions. One he characterized as too elemental and the other as too technical, both "entirely lacking in balance or distribution and practically use-

less in so far as to determine the fitness of the candidate." He said that much work had been done looking toward the preparation of questions and it was voted expedient to hold a meeting at St. Louis that questions might be tabulated and methods of improvement devised. On the 23d a joint conference was held, with President Berger presiding. It was the sense of this meeting that many changes must be made by a number of state boards in order to produce that uniformity which should precede reciprocity, and the Advisory Examination Committee were instructed to meet at the earliest possible date to study that question and to notify members of Boards of Pharmacy of the completion of their work and that the questions were available upon request.

A vote of thanks was extended to President Berger, the druggists of Tampa, and to the daily press for courtesies extended the delegates to the Convention.

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NATIONAL FOOD TRADES CONFERENCE.

A very important conference was convened at the Waldorf-Astoria Hotel, New York City, on February 27, last, at the meeting of the National Food Trades Conference.

This Convention was called to consider subjects of general interest to those concerned in the manufacture, sale and use of food products, to encourage the greater uniformity of efficient food-control laws and to aid generally in attaining purer and better foods, honestly and properly labelled and advertised.

There were present at the meeting representatives from many national and state associations composed of those interested in food products, among them being the National Civic Federation, the National Wholesale Grocers' Association, the National Retail Grocers' Association, the National Coffee Roasters' Association, the American Spe-

cialty Manufacturers' Association, the National Confectioners' Association, the U. S. Brewers' Association, the National Association of Macaroni and Noodle Manufacturers, the Wholesale Grocers' Association of Pennsylvania, New Jersey and Delaware, the Association of Manufacturers of Products from Corn, the Cocoa and Chocolate Manufacturers' Association, the Millers' National Federation, the Oyster Growers' and Dealers' Association and also from many firms of national prominence, among whom were the Shredded Wheat Co., the Franco-American Food Co., the Pacific Coast Borax Co., the Welch Grape Juice Co., Borden Condensed Milk Co., and Merck & Co. In addition to these many persons of national prominence were in attendance.

The Convention was called to order by Mr. Louis Runkle, the President of the American Specialty Manufacturers' Association. In his opening remarks he said the purpose of the conference was to afford "a forum where our pure food laws might be considered by all interested, to the end that uniformity of these laws may be advanced and better food products be insured to the consumer." He said that the conference was originally called by the American Specialty Manufacturers' Association, for it was, and is, believed that through its medium a spirit of harmonious, cordial and sympathetic co-operation might be evolved to the great benefit of the American people. Uniformity of laws means a strengthening of all legislation, both federal and state, and more efficient administration to the end that a single and best standard would be provided for all, and that equal protection which all citizens of the country should receive and enjoy. He closed his remarks by saying, "Let us therefore confer together in common counsel, and by this conference accomplish a real work in aiding in bringing our laws and their enforcement to that highest point of efficiency throughout this entire nation, so that our national efficiency may be enhanced, both for ourselves and our posterity."

Communications expressing approval of the objects of the conference were read from John A. Wallace, New Castle, Pa., and from many others of national prominence in the movement.

The President of the Board of Health of Greater New York, Dr. S. F. Goldwater, welcomed the conference to the city. He

said that conference was particularly to be welcomed because it promised unity of effort in the direction of pure food legislation, a spirit of co-operation among manufacturers and the public and the representatives of the state law-making power and administrative power. He was encouraged to believe that the results of the conference would reduce the activities of the board of health to a minimum, if it asked the hearty and active co-operation of the manufacturers and producers to join hands in doing what the interests of the community demand.

Mr. George L. Flanders, counsel of the Department of Agriculture of New York, and President of the National Dairymen's Union, addressed the Convention and spoke of the great difficulties of attaining concordant opinions in regard to laws which should be passed and also as to their construction by courts when they were formulated into law. The same law had been declared constitutional in New York and unconstitutional in Pennsylvania, and in the States of Michigan and Minnesota the same disagreement had appeared. The Supreme Court of Minnesota had declared a law relative to the bonding of commission merchants constitutional, while the highest court of Minnesota decided the same law unconstitutional. This state of things might be attributed to the fact that the constitutions of these states were different, and from this fact would naturally result non-uniformity in legislation. Speaking of the difficulty of controlling the use of preservatives in food, he instanced the decision of the courts of New York that, "To preserve food products for the human family is a laudable purpose and any law that says you shall not preserve a food-product contravenes the fundamental principles of our constitution." He referred to the illegal delegation of powers by legislatures to boards and commissions, to make laws and condemned the practice as not only unwise, as tending to further a chaotic state and not a cosmic one, but also as one which would undoubtedly be declared unconstitutional by the courts. If you want standards, get them in the laws, he said, and then get decisions of your courts upon those laws, and if the laws are not right, change them.

The report of the Secretary giving an outline of the action leading to the conference was read and approved.

The report of the Executive Committee was

accompanied by several resolutions as follows, all of which were adopted by the Convention:

Resolved, That the National Food Trades Conference does hereby recommend the appointment of a competent Federal Commission by the President by and with the consent of Congress authorized and directed to investigate the pure food and drug laws of such foreign nations as may appear most advisable, and their administration and enforcement and to report fully the result of such investigation, which report shall include a statement of the existing laws, regulations, standards, methods and such other information as may be of interest, which report shall be published and made available for general use.

Resolved, That this National Food Trades Conference hereby earnestly urges that every effort be made to the end that such uniformity may be as fully realized as possible, in the interest of the general public welfare.

Resolved, That the National Food Trades Conference directs its duly appointed Committee on Collaboration to give this recommendation careful and thorough consideration and to confer with the National Food Control Officials and the Association of American Dairy, Food and Drug Officials and render a complete report thereon at the next meeting of this conference.

Resolved, That the National Food Trades Conference hereby records its warm approval of any changes in the administration of the Federal Food and Drugs Act of June 30, 1906, which may render the operation of that act more effective and extends to the Secretary of the United States Department of Agriculture and the officials co-operating with him in this work this expression of their confidence and best wishes and offers its heartiest co-operation.

Resolved, That the National Food Trades Conference earnestly recommends that the pure food laws of the several states not now so providing be amended so as to incorporate the amendment of the Federal Food and Drugs Act of June 30, 1906, requiring the statement of the net weight, measure or numerical count in the case of packaged food and providing that variations, due to natural or mechanical causes beyond reasonable control, shall be permitted and tolerances and exemptions as to small packages established by rules and regulations.

Resolved, That the National Food Trades Conference hereby recommends that an additional provision be inserted in such state law, if it is not already provided, to the effect that the rules and regulations permitting reasonable variations and establishing tolerances and exemptions as to small packages be in harmony with the similar rules and regulations established under the Federal law.

Resolved, That the Secretary of this conference be and he hereby is authorized and directed immediately to communicate this resolution to the proper officials of the sev-

eral states whose legislatures are now or will shortly be in session, and earnestly urge compliance therewith.

Resolved, That this conference hereby directs its duly appointed Committee on Collaboration to confer and co-operate with the officials of the several states and legislatures of which will be in session during 1915 and with the Association of American Dairy, Food and Drug Officials to the end that the purpose of this resolution may be most fully realized.

Resolved, That the National Food Trades Conference hereby extends to the National Civic Federation in the inception of this important work its very best wishes and suggests and directs its duly appointed Committee on Collaboration to offer its sincerest co-operation.

Resolved, That the National Food Trades Conference hereby strongly endorses an amendment of the Federal Food and Drugs Act of June 30, 1906, which will provide against such an exposure of food to contamination or insanitary conditions as would render it unwholesome and unfit for consumption and requests and directs its duly appointed Committee on Collaboration to confer with the Federal Food and Drug Control officials and with the Association of American Dairy, Food and Drug Officials, to the end that such an amendment may be accomplished at the earliest date and the laws of the several states amended in a similar manner.

Resolved, That the National Food Trades Conference does hereby earnestly endorse these efforts and directs its duly appointed Committee on Collaboration to co-operate with the above named officials to this end.

Resolved, That the National Food Trades Conference hereby offers to the Association of American Dairy, Food and Drug Officials its heartiest co-operation and requests and directs its duly appointed Committee on Collaboration to confer and co-operate with this above named association, in every way, so as to accomplish the most equitable, efficient and uniform food control laws and regulations and enforcement thereof, Federal and state.

Resolved, That the National Food Trades Conference hereby requests and directs its duly appointed Committee on Collaboration to confer with the Federal Food and Drug Control Officials and with the Association of American Dairy, Food and Drug Officials to the end that such action may be taken which may be necessary and proper to qualify, define or limit the use of the guaranty legend as will best fulfill the purpose and operation of the Federal Food and Drugs Act of June 30, 1906.

Mr. Fred R. Drake, of Easton, Pa., former President of the National Wholesale Grocers' Association, read a paper on "National Standards and the Metric System," in which he stated the position of the National Wholesale Grocers' Association to be strongly in favor

of "the compulsory adoption of the metric system in simplification not only of interstate but of international commercial transactions. Dr. Reichmann, Superintendent of Weights and Measures of the State of New York, spoke on "Weights and Measures." Mr. Charles T. Terry spoke of the work of the Commissioners on Uniform State Laws; Miss Mary Wood spoke for the New York State Federation of Women's Clubs in a very clever and interesting address, and Mr. Porter, the President of the Shredded Wheat Co., also spoke on "Uniformity of Legislation," and Mr. T. P. Sullivan spoke of the work of the Illinois Food Commission.

The Convention then adopted a code of rules and regulations based upon that of the National Drug Trades Conference, and elected the following officers:

President—Louis Runkel, American Special Manufacturers' Association.

First Vice President—H. W. Hoops, National Confectioners' Association.

Second Vice President—Theo. F. Witmarsh, National Wholesale Grocers' Association.

Third Vice President—W. M. McCormick, Flavoring Extract Manufacturers' Association.

Fourth Vice President—C. F. Mueller, Jr., National Association of Macaroni and Noodle Manufacturers.

Secretary-Treasurer—John A. Green, National Retail Grocers' Association.

EXECUTIVE COMMITTEE.

The above officers and Mr. A. P. Husband, Millers' National Federation; William B. Harris, National Coffee Roasters' Association; Representative of Oyster Growers' and Dealers' Association of North America.

COMMITTEE ON COLLABORATION.

The above officers and Charles Wesley Dunn, American Specialty Manufacturers' Association; Helen Louise Johnson, Chairman, House Economics Department, General Federation of Women's Clubs; Mary Wood, Chairman of the Legislative Committees, respectively, of the New York State Federation of Women's Clubs and the New York City Federation of Women's Clubs.

The Convention then adjourned, subject to the call of the Chair.



NATIONAL ASSOCIATION OF MANUFACTURERS OF ME- DICINAL PRODUCTS.

The third annual meeting of the Association was called to order at 10:30 a. m. on Tuesday, February 10, at the Waldorf-

Astoria Hotel, New York, by President Frank G. Ryan, of Detroit. After the calling of the roll, the reception of delegates from allied bodies occurred. Prof. Joseph P. Remington brought to the convention the greeting of the American Pharmaceutical Association in a very interesting and eloquent address. He said in part, that the American Pharmaceutical Association sent a warm greeting to her younger sister, and wished her "God speed," for both associations stood for the best in drugs and in medicines; both were a unit in desiring and standing firmly for "whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely and whatsoever things are of good report." He spoke of the particular work of the A. Ph. A. in bringing into common fellowship the members of the different branches of the trade and said that its "very catholicism had been one of its greatest assets." The spirit of union and co-operation shown in the work of the National Drug Trade Conference, which was born from this intimate association augurs well for the future of pharmacy. He expressed the earnest hope that the two associations should co-operate to even a much greater extent to advance and uplift pharmacy.

Mr. Frank E. Holliday spoke for the National Wholesale Druggists' Association, Mr. Harry B. Thompson for the Proprietary Association of America and Mr. George C. Hall for the American Association of Pharmaceutical Chemists. President Ryan responded to these addresses, referring particularly to the address of Prof. Remington.

Dr. A. R. L. Dohme occupied the chair during the delivery of the president's address, which comprised a great range of subjects of interest to the members. He referred particularly to the recently enacted tariff and currency bills and said that with these great questions settled we might look forward with confidence to the prosperity of all legitimate business interests. The other subjects discussed in the address were the indefiniteness with which laws were worded, both Federal and State, and the consequent difficulty of their interpretation; the attempt to repeal the "variation clause" of the Food and Drugs Act; the Harrison Bill, which he strongly approved; the Supreme Court decision in regard to the regu-

lation of prices by the manufacturers, which he criticized; the laws, Federal and State, which were not in harmony; international trade-marks; one cent postage, which he favored, and the remission of dues to the members for the coming year.

The Secretary, Charles M. Woodruff, reported a membership of thirty for the association, a net gain of one, and discussed both national and state legislation very exhaustively. The report of the Committee on Legislation commended the veto of the Governor of Maine of an "Act relative to Misleading Advertisements"; discussed uniform drug legislation, insecticide legislation, and the "variation clause," stigmatizing the effort to repeal the latter as one whose object was to destroy manufacturing pharmacy. It condemned the Sabath bill (H. R. 4653), and said it "should receive the earnest opposition of every well-wisher for pharmaceutical justice and progress," and that it was time to call a halt in all drug legislation. It advised the passage of the following resolution:

"Resolved, That the National Association of Manufacturers of Medicinal Products earnestly recommend that no new laws relating to the subjects be enacted during the present year, unless it be by State Legislatures for the purpose of bringing the State law into conformity with the present Federal law."

The report of the delegates to the National Drug Trade Conference was a very complete review and analysis of the work done by that conference in the framing and the passage of the Harrison bill. It touched on bichloride of mercury legislation, price-protection, the mailing of poisons and the proposed repeal of the "variation clause."

The Executive Committee's report discussed the operation of the laws relating to the licensing of establishments manufacturing viruses, serums, toxins and analogous products and the proposed incorporation of the association. On Tuesday afternoon Prof. Remington addressed the convention on "The Present Status of the Pharmacopœia." He said in part, "The work is going on rapidly now and a large number of the pages of the work are ready to go to press." There never has been a revision in the U. S. P. which has been so thorough and which has been so open. The Food and Drugs Act has been the cause of renewed interest, and "when one's pocket-book

is affected the talk becomes loud." He spoke of the impossibility of the introduction of copyrighted names into the Pharmacopœia and asked, "Will the manufacturers be willing to permit their preparations to be admitted to the Pharmacopœia, with tests for purity and identity under another name?" He spoke of the tests for volatile oils and said that plants at different seasons of the year, or gathered under different conditions of the weather and climate, produced products which vary greatly. Any one reading the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION will keep in touch with the new Pharmacopœia until the book is on the press. The question of including corrosive chloride of mercury tablets had been passed and some method should be devised for distinguishing them. He requested suggestions as to the form this should take. President Ryan spoke of the difficulty of wrapping these tablets and said that girls employed in such work were obliged to wear rubber gloves to prevent corrosion of the skin of the hands.

Ernest W. Bradford addressed the convention on the Kahn bill, now pending in Congress, which is intended for the protection of exhibitors from foreign countries at the San Francisco exhibition. This bill he criticized as defective and likely to make trouble for our people. He said that the Bulkley bill would eliminate the bad features of the Kahn bill.

The Executive Committee presented a memorial respecting the operation of the Federal serum laws and a resolution asking that the memorial be sent to the Secretaries of Agriculture and Treasury and to the Senate and the House of Representatives. The resolution was adopted by the convention.

Mr. Wayland Stearns called attention to the fact that Dr. Alsberg, the government chemist, had believed it possible that a board might be established to pass upon the labels and other printed matter of manufacturers, but that as yet nothing had developed along that line. In the State of Montana this was made the duty of the State Board of Health.

On Wednesday Mr. Samuel C. Henry addressed the convention as the representative of the N. A. R. D. In his address, after comparing the pharmaceutical products of a quarter century ago with those of today

much to the advantage of the latter, he sharply criticized the practice of selling supplies to dispensing physicians. This practice was not an injury alone to the druggists, but to the public and to the manufacturers also.

Resolutions were adopted urging the retention of "the variation clause" in future legislation of Federal and State Legislatures, approving the Harrison anti-narcotic bill, one-cent letter postage, the mailing of medicinal products containing poisons, and one giving approval and support to the National Drug Trade Conference. John F. Queeny, of the Monsanto Chemical Works, submitted a resolution concerning the ruling of the Referee Board in regard to the use of saccharin in food products and the resolution was adopted.

The following officers were elected:

President, Henry C. Lovis, of Seabury and Johnson, New York.

Vice-president, J. K. Lilly, of Eli Lilly & Co., Indianapolis.

Treasurer, Franklin Black, of Charles Pfizer & Co., N. Y.

Secretary, Charles M. Woodruff, Detroit, Michigan.

Executive Committee, A. R. L. Dohme, Adolph G. Rosengarten and the President, Secretary and Treasurer, *ex officio*.

The convention then adjourned *sine die*.

About seventy covers were laid at the Waldorf-Astoria on Wednesday evening for the annual banquet of the association. The after-dinner speakers were Hon. Herbert A. Metz, William F. Bennett, Judge Isaac F. Russell, and C. A. Mayo, the newly-elected President of the A. Ph. A. Ex-President Ryan acted as toastmaster.



CONVENTION OF THE AMERICAN DRUGGISTS' SYNDICATE.

The eighth annual convention of the American Druggists' Syndicate was held at Madison Square Garden the week of January 19 last, and was attended by about four thousand members. Tuesday morning the convention was formally welcomed by Dr. William C. Anderson, who delivered a forceful address in which he spoke of the wonderful growth of the organization in the eight years of its life, and likened its achievement to that of the fathers of the republic

in their struggle against unjust and inequitable conditions. He made a brilliant speech which was frequently interrupted with applause.

Mr. Henry W. Merritt responded to Dr. Anderson's address. In his remarks he strongly condemned those members who treacherously violated their agreements with the company, by which disloyalty the very life of the organization was threatened.

President Frailey, in his annual address, discussed the advantages of co-operation and said that abilities which were latent, were often stimulated into useful activity when occasion was presented for their use, and urged all to an active loyalty to the principles and policies of their co-operative organization in order that it might be developed into a combination of greater force and value.

The report of Secretary Goddard reviewed the work of the previous year and said that notwithstanding the general complaint of "dull business" it had been the "banner year" of A. D. S. history. He reviewed the accomplishments of the company, among the latter being the purchase of the real estate formerly occupied under lease, which comprised thirteen city lots in Brooklyn and the acquirement of a factory for the manufacture of absorbent cotton, sanitary napkins and goods of like nature. He advised also the purchase of the Blanchard Building, now occupied by the company under lease. He discussed the admission of other lines to the work of the company, and said it might find a profitable field in supplying grocers and stationers with their goods. While he favored such extension himself, he deferred to the opinion of the small number of the members (about 15 percent) who thought it unwise, and advised delay in deciding this matter. In an analysis of the condition of the drug trade, he said, there were forty-three thousand stores in the United States. Of these, nine thousand were owned by jobbers, ten thousand which were barely existing and one thousand controlled by the chain-store interests. Of the remaining twenty-three thousand the A. D. S. might expect to add to its stockholders not more than five or six thousand. There was need then of providing for new fields of work and suggested Canada, Central and South America as offering almost unlimited opportunities. He advised the establishment of a

Canadian laboratory. One of the most important of his recommendations was that the company should sell its supplies to physicians. He thought a business of five millions could be done by the adoption of this policy. He also suggested the manufacture of dental supplies by the company, and the acquirement by purchase of established patent medicines, instancing a certain proprietary children's cathartic, and analysing the value of such a purchase. He announced a favorable vote by the stockholders on the proposition to increase the capital of the company and recommended that it should be a \$10,000,000 issue. He suggested the adoption of the premium certificate plan by the company, similar to the coupon plan of the United Cigar Co. The general session on Thursday authorized the increase of capital stock and the issue of premium coupons. At this meeting Mr. Goddard announced that it was probable that the A. D. S. members would attend the San Francisco exhibition in one of the company's own steamships. The following gentlemen were elected as directors for three years: C. H. Goddard, G. W. Luft, W. C. Anderson, Otto G. Hottinger, Sidney C. Yeomans. Dr. Anderson presented resolutions against the illegal sale and distribution of cocaine and heroin, which were adopted. The entertainment features were many and elaborate. They comprised theatre parties, banquets, and a grand ball on Friday evening. At a meeting of the new board of directors the following officers were chosen for the coming year: President, Dr. William C. Anderson, Brooklyn, N. Y.; Vice-Presidents, E. L. Weston, Syracuse, N. Y.; G. W. Stevens, Detroit, Mich.; G. N. Cherrington and E. W. Stucky; Secretary and Manager, C. H. Goddard; Treasurer, G. W. Luft.

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RESOLUTIONS ADOPTED BY THE NATIONAL DRUG TRADE CONFERENCE RESPECTING PROPOSED DRUG LEGISLA- TION.

The National Drug Trade Conference is composed of delegates from the national organizations of those engaged and interested in the manufacture, wholesaling and retailing of the hundreds of pharmaceuticals prescribed or ordered by physicians, dentists and veterinarians.

The constituent members are:

The American Pharmaceutical Association, a scientific rather than a commercial body, organized in 1851.

The National Association of Retail Druggists, now some fifteen years old, representing the commercial side of retail pharmacy.

The National Wholesale Druggists' Association, organized thirty-eight years ago for the mutual benefit of the wholesale drug trade.

The American Association of Pharmaceutical Chemists, composed of some fifty or more manufacturers, most of whom deal directly with the medical profession; and

The National Association of Manufacturers of Medicinal Products, embracing practically all of the larger pharmaceutical manufacturing houses having close relations with the drug trade.

Few people, even in professional and legislative circles, realize how many millions are invested in the manufacture of drugs in various forms that are not offered to the public and are not intended to reach the consumer except as dispensed upon the prescription of or administered by the doctor, the dentist or the veterinarian.

Legislation in the past has been entirely without regard to the lawful business of those thus represented in the National Drug Trade Conference; and much legislation now proposed ignores the effect it would have upon interests not more important to the manufacturers and dealers themselves than to the public.

For example: In the legislature of one of the states there was recently introduced an inspection bill intended to prevent the sale of "patent medicines" until they had been analyzed and found to contain medicinal ingredients that warranted whatever therapeutic claims had been made for them. As worded it required the manufacturer of any medicinal compound not recognized in the United States Pharmacopœia or National Formulary to pay an annual inspection fee of \$25.00 for each such compound offered for sale in that state.

This meant nothing to the "patent medicine" proprietor, whose tax would have been \$25.00 multiplied by the few (in most cases but one) products he offered to the public.

The varying views of the medical profession require purveyors to furnish thousands of combinations in fluid, solid, pill or tablet form that are not mentioned in the United

States Pharmacopœia or National Formulary. Such a law would have imposed an annual tax upon the pharmaceutical manufacturer of thousands of dollars. They could not have complied and would have been compelled to supply doctors, dentists and veterinarians in interstate commerce, which would have resulted in untold loss to the drug trade of that state.

The work of the National Drug Trade Conference has been and will continue to be constructive. This is assured by its connection with the Harrison bill, intended to prevent the practical nullification of the anti-narcotic laws of the several states by the natural operations of interstate commerce. The work was commended by Congressmen Harrison and Mann in the discussion resulting in the passage of the bill by the House June 26, 1913; and it may well be said that never was a more orderly attempt made to effect reasonable legislation efficient for the purpose of minimizing a crying evil without injuring lawful interests. The organization and work of the Conference in this connection may well be studied as something unique and highly commendable in constructive legislation.

It is therefore urged that the views respecting pending measures in Congress and some state legislatures expressed in the accompanying resolutions deserve careful consideration, and no hasty legislation amending or additive to existing drug law be enacted during the considerable period necessary for studying and harmonizing the various statutes which now lack desired uniformity; especially in features more immediately concerning interstate commerce.

Federal Food and Drugs Act Should not be Amended Prior to Publication of New Revisions of United States Pharmacopœia and National Formulary.

WHEREAS, The Conference has been organized to secure uniformity in State and Federal laws relating to the adulteration and misbranding of drugs; and,

WHEREAS, Such uniformity is now being sought by the Commission on Uniform Laws and also by the American Bar Association; and,

WHEREAS, The American Bar Association has recommended that such uniformity be secured by the various States conforming their laws to the Federal act; and,

WHEREAS, Further hasty State and Federal legislation respecting the adulteration and misbranding of drugs will add to the confusion now existing; therefore, be it

Resolved, That this National Drug Trade Conference earnestly recommend that no new

laws relating to the adulteration and misbranding of drugs be enacted by any State during the present session of its legislature, unless its purpose be to bring the law in conformity with the Federal law; and be it further

Resolved, That this Conference recommend that the Federal law should not be amended prior to the publication of the new revision of the United States Pharmacopœia and National Formulary, lest greater lack of uniformity be effected.

On Bi-Chloride of Mercury and Other Poison Legislation.

Resolved, That in recognition of the power of suggestion upon morbid and unbalanced minds, the National Drug Trade Conference does hereby urge upon the newspapers of the country that in reporting suicides and murders, details with respect to poisons, instruments, weapons or other methods used be, so far as possible, omitted.

WHEREAS, The United States Pharmacopœia and National Formulary, both standards of Federal and State food and drugs acts, are now in process of revision, and whereas, the Committee of Revision of the said volumes are considering for inclusion therein suitable regulations for forms, shapes, methods of packaging and labeling of tablets of bichloride of mercury and other dangerously toxic substances in order to plainly distinguish them from tablets which do not contain dangerously toxic substances; and,

WHEREAS, It is greatly desirable that all laws regulating the sale of poisonous tablets should be uniform and consistent with each other; therefore, be it

Resolved, That it is the opinion of the National Drug Trade Conference that Federal legislation upon the subject of tablets of mercury bichloride and other poisonous substances should be deferred until after the Revision Committee of the United States Pharmacopœia and National Formulary shall have made their reports in order to lessen the liability of conflict between Federal legislation and the provisions of the said United States Pharmacopœia and National Formulary.

Resolved, That it is the opinion of the National Drug Trade Conference that the adoption of suitable regulations for the shapes, colors, methods of packaging and labeling of tablets of bichloride of mercury for inclusion in the next revision of the United States Pharmacopœia or National Formulary is a matter of vital importance to the practice of pharmacy, the practice of medicine and the public health, and that we heartily recommend to the Committee of Revision of the United States Pharmacopœia and National Formulary that they take steps to include such regulations in such next revision of the Pharmacopœia; and be it further

Resolved, That this Conference tender to said Committee of Revision any assistance

it may be capable of rendering in the construction of such regulations; and be it further

Resolved, That any Federal legislation regulating the sale of mercury bichloride tablets should be confined to regulations respecting the form and style of packages in which such tablets are shipped in interstate commerce, and should not include the shipment of the chemical substance mercury bichloride as such.

Respecting Price Protection.

Resolved, That the Conference go on record as in favor of any constitutional and sound legislation that will enable the manufacturer or dealer of any article or brand of an article in which such manufacturer or dealer has an industrial right by patent, trade-mark, trade secret, copyright, design, or otherwise, to fix, maintain and protect the selling price thereof to the consumer, and thereby maintain the quality and reputation thereof, which is the inherent value to the public as well as to the manufacturer or dealer of an article called for and purchased under a trade name, or because of the features protected by any such industrial right; provided, such legislation does not open the way to the monopolization of the sale of any other article of the same kind or class which might otherwise be open to proper competition.

On Regulation Respecting Mailing of Poisons.

Resolved, That this Conference recommend to the postmaster general the adoption of the following regulation respecting the mailing of poisons in lieu of the one now ruling:

"Poisonous substances intended for internal or medicinal administration when packed in a metal container bearing the address of the sender, together with a label bearing the word 'Poison,' may be admitted to the mails under first-class postage rates."

Resolved, That the Committee on Revision of the United States Pharmacopœia be requested to consider the desirability of inserting in the forthcoming revision of the United States Pharmacopœia a section defining the word "Poison."

Action of the National Drug Trade Conference on the Elimination of the "Variation Provision" of the Food and Drugs Act of June 30, 1906.

NOTE.—The Food and Drugs Act of June 30, 1906, incorporates the following provision which, for convenience, is hereafter referred to as the "variation provision":

"Provided, That no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated under this provision if the standard of strength, quality or purity be plainly stated upon the bottle, box or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or National Formulary."

Dr. A. R. L. Dohme moved the adoption of the following resolution:

"Resolved, That it is the sense of this Conference that it is opposed to all legislation tending to eliminate the 'variation clause' from the food and drugs act."

Motion seconded.

Mr. Charles M. Woodruff stated that his association, the National Association of Manufacturers of Medicinal Products, was most vitally interested in this question and most earnestly opposed to any elimination of the "variation clause"; but that in all fairness such summary action as Dr. Dohme's resolution, if adopted, would effect should not be taken. He believed there were many who were honestly in favor of the absolute elimination of the "variation clause" to remedy some evils that had, perhaps, sprung up under it; but these advocates could be made to see the greater evils that would follow the elimination of the "variation clause"; and he further believed in constructive work, and that if the Conference got together with the representatives of such advocates some way of meeting the situation might be discovered, and a plan agreed upon that would save much legislative contention and long and expensive litigation to preserve industrial rights that would follow any law absolutely eliminating the "variation clause." He therefore moved the whole matter be referred to the Executive Committee for the purpose of effecting such conference.

Mr. James F. Finneran supported the argument of Mr. Woodruff in some interesting remarks, and seconded the motion, which was put to vote and unanimously carried.

Dr. M. I. Wilbert suggested that the Executive Committee of the Conference get in touch with the National Association of Food and Drug Commissioners.



BRIEF IN BEHALF OF THE HUGHES-BACON BILLS.

Submitted to the House Committee on Military Affairs:

1. This bill provides for a slight increase in the salaries of the Army Hospital Corps, and it is believed it will be of great benefit to this service.

2. The pharmacists of the United States are behind this bill. It was introduced in the House and in the Senate by the friends of the pharmacists. It is indorsed

and asked for by all the big organizations of pharmacists, such as the American Pharmaceutical Association, the National Association of Retail Druggists, the National Association of Drug Clerks, and by every State Pharmaceutical Association throughout the Union. The pharmacists of the United States are prominent in every community, and are working hard in behalf of this legislation, and not one of them have received or are receiving or are to receive a single cent for his efforts in this matter. The men of the Army Hospital Corps are themselves in such a position that they can not do anything. They hold no commissions, and rules are so arbitrary in the army that unless a man holds a commission, no matter how near to the hearts of the people is the improvement of his service, he is not authorized to do anything but hold his tongue.

The pharmacists are all located in centers of population, large or small as the case may be, and their places of business are always nuclei around which centers the active interests of each community. They are professional men. They see the Hospital Corps entered by ignorant, incompetent men at \$16 per month, and after many, many long years of service under commissioned medical officers who have never studied pharmacy, they are slowly advanced, the whole pharmaceutical service of the United States army being handled in this way; and there not being a man in it of a higher grade than sergeant first class.

3. In civil life, in every State in the Union, every man who practices pharmacy is required to work under a licensed pharmacist three or more years, or to be a graduate of a college of pharmacy, before he is even permitted to be examined for license, which he can only secure after having successfully passed a thorough examination before a board of five or more licensed pharmacists provided by the law of the State. The spirit of every State pharmacy law is being violated by present conditions in the United States Army Hospital Corps.

4. The total increase asked for is only \$168,876, or less than the cost of the cigar stumps thrown into the gutters each day by the American people, and this increase is asked that the lives and the health of our people who may serve in a military capacity away from homes and friends may be better protected.

5. The Army Hospital Corps, in time of

war, are in the midst of the battles and near the skirmish lines, binding up the spouting arteries and saving lives where the slightest delay means death, and bringing the wounded on stretchers to the field hospitals; they work shoulder to shoulder with the medical officers, who bear commissions and to whom all the glory goes for commendable work. In battle their casualties may run high; in 1905 the Surgeon General's report shows that in the percentages of killed and wounded their ratio was twice as great as that of the regular fighting line. Strenuous are their duties in time of battle. Such work comes occasionally, as war is desperate and irregular, but their work is also a steady, daily fight in time of peace, fighting not only ordinary diseases, but the most deadly contagious ones. They are ever on their firing line, fighting pestilence and disease not only during the day, but in the night time. The sick do not differentiate between daylight and darkness, unless it is that the vital forces seem lowest at the small hours before dawn, when more than usual watchfulness is needed.

6. The Army Hospital Corps, in addition to its work on the battle-field, its assistance in surgical work, its giving anesthetics, its taking care of the sick, its dispensing of dangerous drugs and poisons, its handling of delicate static, galvanic and X-ray electrical apparatus, it also has charge of the tremendously important work of the sanitary conditions of the camps, which, if not handled properly can, at any time, cause an outbreak of disease which will cost the country many valuable lives.

7. In our American wars we have always lost many, many more men by sickness and disease than by the missiles of the enemy. There was no exception to this dreadful condition of affairs in our recent Spanish-American war. The pharmacists of the United States were pleading with Congress for better pharmaceutical service in the army for several years before this war began, but conditions were not improved. The handling of medical supplies in that war was a disgrace to our American civilization. In the recent Russo-Japanese war, the Japanese lost far less men by sickness and disease than they did from missiles of the enemy. The pharmacists in their hospital corps bear commissions as second lieutenants, and were sent ahead and selected the camping places and analyzed all the drinking water supplies that proper sanitary conditions should be secured

as far as possible. Congress guards the right to commissions in the United States army so closely that there are no commissioned pharmacists in the Army Hospital Corps, and the salaries of the Hospital Corps are so meager that there is no inducement to pharmacists to enter the service, and pharmacists do not enter it. They do enter the United States Navy and Public Health Service, as these departments offer much better inducements.

8. The men who enter the Hospital Corps service have to start at \$16 per month. After the second enlistment they are paid \$19 per month. Then there is a \$1 increase after each enlistment, and after many years in the service they may finally reach their highest grade of Sergeant First Class, with a salary of \$50 per month and an increase of \$4 after the second enlistment. This bill also asks for an increase of \$3 per month for privates first class; for Sergeants, an increase of \$6 per month; for Sergeants first class, \$15 per month, and for the new grade of Sergeants Major, \$75 per month. No increase in number is asked for any of the grades. The only additional men asked for are thirty in the new grade of Sergeants Major.

9. The new grade of Sergeants Major will make the service more attractive than at present, and with a salary of \$75 for only thirty of the highest salaried men in the service, it does not begin to compare with the service in nearly all other civilized countries, as they give commissions to their pharmacists. In France, pharmacists rank as high as General of Brigade; in Germany they rank as high as Colonel, and even in Japan they are Second Lieutenants.

The National Guard in every State are under the same regulations as the United States army, but before the passage of the Dick bill such was not the case, and in every State steps were being taken to make the pharmacists of the National Guard Hospital Corps Second Lieutenants. This legislation was passed in one or two States and was all arranged and provided for to pass in a number of States at the next meetings of their legislatures, when the passage of the Dick bill made it necessary for the pharmacists of the United States to take up the matter with Congress.

11. Competent drug clerks all over the country draw salaries on the average of about \$100 per month; many get much more. Com-

petent drug clerks who are as good executive men as Sergeants first class are expected to be, and Sergeants Major would be required to be, readily obtain from \$150 to \$200 in civil life. There is not an institution teaching pharmacy in the United States which ever recommends the Army Hospital Corps to a single student as a pharmaceutical career.

12. The Army Hospital Corps, with such small salaries, is not as attractive to men as the other branches of the army service, and hence the corps has much difficulty in securing and retaining competent men. Dentists in the army, who take care of the teeth, get salaries of \$150. The duties of pharmacists are matters of life and death, and in civil life their financial compensation is fully as great as that of the dentists. The army band musicians of the lowest, or third class, begin at \$30 per month instead of \$16 as in the Hospital Corps; and as grades and service increase, goes up to \$99, against the highest grade in the Hospital Corps, which finally reaches \$74. Even the men who look after the sick mules are better paid than those who look after the sick soldiers.

13. In behalf of better pharmaceutical service in the army, we appeal to you. In behalf of our great American citizenship, we ask for such improvement in salaries that not only pharmaceutical wrecks may be attracted to the service, but that men of some pharmaceutical competency can afford to enter it.

In behalf of the lives of American citizens we appeal to you.

As a matter of economical administration of the Government of the United States we know that you can but fully realize that improvement in the Army Hospital Corps means a saving of health and of lives, and that such saving of health and life means more continued happiness among our people and the saving of heavy pensions.

This is a non-political matter. Democrats and Republicans have united in the past in putting the pharmaceutical service in the United States Navy and in the United States Public Health Service in better shape, and have given commissions to the naval pharmacists. What we ask for the profession of pharmacy in the United States Army is very modest indeed.

The present condition of pharmacy in the United States Army is a national disgrace.

Respectfully submitted,

GEORGE F. PAYNE.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio

ERNEST C. MARSHALL, Associate Editor,
63 Clinton Building, Columbus, Ohio

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Postoffice the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.



REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

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Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co., Columbus, Ohio.

PROFESSOR RAUBENHEIMER RETIRES FROM EDITORIAL WORK.

Prof. Otto Raubenheimer has retired from the editorship of the Practical Druggist, and in future will devote himself to the practice of pharmacy and to his professorship in the College of Pharmacy of the University of New Jersey, and incidentally will continue to serve as a general bureau of information on matters pharmaceutical.

Like others of us, Prof. Raubenheimer has discovered that there is a limit to the quantity of work that can be disposed of in 24 hours.



CHAIRMAN OF THE SCIENTIFIC SECTION REQUESTS PAPERS.

Chairman E. A. Ruddiman, of the Scientific Section, desires it to be understood that he will welcome papers appropriate to his Section from any member of the Association.

In order to permit the proper arrangement of the program and the selection of papers for discussion, it is desirable that the papers be sent to the Chairman not later than thirty days prior to the meeting.

Dr. Ruddiman's address is 101 24th Ave., S., Nashville, Tenn.



WINNER OF THE BERGER PRIZE.

The Ernest Berger Prize consists of a nomination to membership in the A. Ph. A. and the first years' dues, and is awarded by Ernest Berger, of Tampa, Florida, to the candidate making the highest average in all branches before the Florida State Board of Pharmacy.

The latest winner of the prize is Mr. F. J. Collinson, of Gainesville, Fla. Mr. Collinson has our congratulations.



"PRESCRIPTIONS 3000 YEARS OLD."

The third of the special lectures at the College of Pharmacy of the University of the State of New Jersey in Jersey City was delivered February 27th by Dr. Felix Von Oefele of New York City, who is a recognized world-wide authority on medicine and pharmacy of Old Egypt, Babyolnia and As-

syria. Dr. Oefeled had received two stone tablets from Yale University containing cuneiform inscriptions which are probably some of the oldest prescriptions in the world. In his lecture, the speaker gave an outline of medicine and pharmacy in Egypt and especially in Babylonia, which was the seat of culture and science in that early period. Dr. Oefeled has made the study of cuneiform script as well as that of hieratics and hieroglyphs a specialty, and showed a number of records dating back to 1500 B. C.



ST. LOUIS COLLEGE MAKES CHANGES IN LIBRARY.

The St. Louis College of Pharmacy has placed its entire library in the Central Building of the St. Louis Public Library which is located very near the college building.

The college library has space to itself in the science reference room. The books and periodicals will remain the property of the college, but will be catalogued and cared for by the library as if the property of that institution.

Arrangements will be made for the students of the college to receive special drill in the use of pharmaceutical periodicals.

The pharmacists of St. Louis will be urged, through local organizations, to take advantage of the facilities which the library will offer under the new arrangements.

An effort will be made to complete files of the various pharmaceutical periodicals and also to bind the current volumes as they are completed.



DRUGGISTS' CIRCULAR CHANGES EDITORS.

Owing to an affection of the eyes, of constantly increasing severity, Frances B. Hays has been compelled to retire from the editorship of the Druggists' Circular, a position which he has occupied and adorned for many years.

For the present, he will reside at his old home, Oxford, N. C.

Dr. Harry Vin Arny, Professor of Chemistry at the New York College of Pharmacy, has been selected to succeed Mr. Hays as Managing Editor of The Circular.

While we regret the enforced retirement of Mr. Hays, it is a pleasure to know that his work has fallen into the capable hands of

Dr. Arny, who has a host of admirers throughout the country, and especially in Ohio, where he was formerly one of the most efficient workers in the pharmaceutical field.



THE QUALITY OF PRESCRIPTIONS.

Dr. Bernard Fantus, of the College of Medicine, University of Illinois, Chicago, lately undertook an investigation of this subject in the form of a questionnaire. Various pharmacists co-operated by the examination of one hundred consecutive prescriptions each, the total number examined being 10,000.

The results, in percentages, reported by Dr. Fantus are as follows:

To the question, Has the quality of prescription writing improved or deteriorated within the last ten years? 55 percent reported an improvement, and 20 percent a deterioration.

Thirty-six percent. of the prescriptions were written in English, 18 percent were in poor Latin, and 4 percent were barely legible or almost illegible.

Forty-six percent of the prescriptions called for less than three ingredients each and 11 percent for more than five ingredients each; 24 percent were for proprietary remedies, and 11 percent for other specified preparations; 2 percent contained incompatibilities, and 1 percent overdoses and errors.

An extremely small percent of the prescriptions were written in the metric system.



DR. WM. C. ALPERS UNITES WITH CLEVELAND SCHOOL OF PHARMACY.

Dr. William C. Alpers, Chairman of the Historical Section, and well known to the drug trade throughout the United States, has accepted the position of Dean and Professor of Pharmacy of the Cleveland School of Pharmacy, Department of Western Reserve University.

Dr. Alpers is exceedingly well fitted for the position, and all members of the Association will wish him abundant success.

He was born at Hanover, Germany, attended the High School in Hanover, then the School of Technology and later the University of Gottingen, studying Natural Sciences and Mathematics. Came to America and en-

gaged in teaching for nearly 10 years in the St. Matthews' Academy, New York. Attended the New York College of Pharmacy and later took a post-graduate course in chemistry at the University of New York. Was granted the degree of doctor of Science in Chemistry. In 1881 he opened a Pharmacy in Bayonne, N. J., where he staid till 1898. Joined the N. J. State Pharmaceutical So-



DR. WM. C. ALPERS.

cety and was President in 1896, also a member of the State Board of Pharmacy from 1893-98. Became member of the American Pharmaceutical Association in 1890, was Chairman of the Scientific Section in 1896, and Chairman of the Section on Pharmacy and Dispensing in 1905; is now Chairman of the Historical Section, was first Vice President in 1903. After leaving Bayonne, N. J., Dr. Alpers was for a number of years Manager of the Merck Pharmacy, N. Y., and afterwards conducted the Alpers Pharmacy on Broadway and 31st street. He withdrew from active business in 1905. In 1900 he was elected on the Executive Committee of the Revision of the Pharmacopœia and is Chairman of the Sub-Committee on Syrups and Elixirs. Was trustee of the New York College of Pharmacy for three terms till his removal to Cleveland. Contributed for many years to

pharmaceutical and chemical literature, and is now editor of the *Apotheker-Zeitung*, N. Y. Published many pamphlets and two books, "The Medicinal Plants of Staten Island," and "The Pharmacist at Work," Lippincott, 1896. Was appointed Professor of Pharmacy and Dean of the Cleveland School of Pharmacy in 1914.

Dr. Alpers was married to Miss Bertha Guden, who died in 1902, leaving six children, of whom, William H. and Otto, are pharmacists. He married again in May, 1913.

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REQUEST FROM THE HISTORICAL SECTION.

To Members of the American Pharmaceutical Association:

Your officers of the Section on Historical Pharmacy issue this appeal to you for contributions to that Section of papers dealing with the history of American pharmacy—personal, general or of some special feature of historic value. It is especially desired that papers on the early history of pharmacy in Michigan and the-Lake states be contributed by those members who have an intimate knowledge of the growth and development of pharmacy and pharmaceutical manufacturing in these states so that the history of the past may be adequately preserved. Detroit is the home of some of the largest manufacturing pharmaceutical firms and should be rich in history of the development of pharmacy and of the origin, study and perfection of many staple pharmaceutical products. Chicago is nearby enough to furnish interesting pharmaceutical history, so are many other cities of the states bordering on the Great Lakes. There are surely many old members who can contribute valuable historical data from their memories and enough younger members who have access to records and papers to make the Detroit meeting one of the richest in historical contributions to the archives of the Association.

It is the intention of the Historical Section to make a special effort to gather historical matter relating to that section of the country where our annual meetings are held. If those members who have helped to make pharmaceutical history would write up their recollections and experiences as contributions to the work of the Association, in a very few years the American Pharmaceutical Association would have in its archives invaluable

data for the future writer of the history of American pharmacy. Papers need not be lengthy nor confined to any one topic, just so that they aid in setting forth the history of some phase of pharmaceutical life and activity.

Your co-operation is earnestly asked in this plan for gathering historical material and its success depends entirely upon a generous response by members to this appeal. However, papers of historic value are cordially invited from members in every section of the country to round out the work of the Section on Historic Pharmacy as a complete presentation of historic data bearing on pharmacy and pharmacists in America. The time to begin writing your paper is *now*. Contributions may be sent either to the Chairman of the Section or to the Secretary, as may be most convenient, the only further favor asked being that they be sent as early as possible so that a programme can be made up for the Section's meetings.

Hoping for a generous response to the Association's request and assuring its thanks in advance to contributors,

Sincerely yours,

WILLIAM C. ALPERS, Chairman.

F. T. GORDON, Chairman.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or type-written, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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SAINT LOUIS BRANCH.

(February Meeting.)

The Saint Louis Branch of the American Pharmaceutical Association held a regular meeting in the Saint Louis College of Phar-

macy, 2110 Locust street, Tuesday evening, February 10, 1914, with President Wilkerson presiding. After the minutes of the previous meeting were read and approved and preliminary matters disposed of, the program was taken up.

Mr. Arthur C. Schulte read a paper entitled "Windows and Window Dressing," which was printed in full in the March issue of THE JOURNAL. Mr. Schulte's paper was discussed by J. A. Wilkerson, Dr. H. M. Whelpley, O. J. Cloughly, A. W. Pauley, C. T. Buehler, Professor Francis Hemm, Theodore Schwerdtmann, J. W. Mackelden, J. C. Bailey and Julius C. Hoester.

The subject for the next meeting will be a discussion of shorter names and synonyms for some U. S. P. and N. F. preparations.

JULIUS C. HOESTER, Secretary.

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NEW YORK BRANCH.

(February Meeting.)

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of February 12, 1914. President H. V. Arny presided.

The minutes of the previous meeting were read and approved. The treasurer's report was also read and approved.

The Membership Committee submitted the names of two applicants for membership in the parent association.

As Professor W. C. Anderson, chairman of the Committee on Legislation, was absent, Mr. Roemer reported for the committee, calling attention to the provisions of the Town-Blylan anti-narcotic bill, which he indicated if enacted would restrict the sale of all narcotics. He also referred to the Blauvelt Senate Bill No. 5, which confines the sale of bichloride of mercury to prescriptions. The bill also indicates that prescriptions are not to be repeated and no copies of prescriptions are to be given. The drug must be in cubes and colored green.

Dr. Geo. C. Diekman, chairman of the Committee on the Progress of Pharmacy, called attention to the adulteration of oleic acid with paraffin and fish oils. He also gave a method for the detection of oil of sesame in olive oil, an assay method of morphine in tablets and called attention to a false *nux vomica*, which contained no strychnine, as well as a false *buchu*. He also reported on a

sensitive reaction for bromine and on the water absorbing capacity of a mixture of oil of theobroma and yellow wax. The report was discussed by Messrs McElhenie, Raubenheimer, Horstmann and Mayer.

The Secretary announced that he had carried out the instructions given him at the previous meeting by writing the Madison Square Garden Drug and Chemical Exposition that the New York Branch of the American Pharmaceutical Association would not participate in their exposition and that the Madison Square Garden Drug and Chemical Exposition had acted without authority when indicating by advertisement and otherwise that the New York Branch of the American Pharmaceutical Association would co-operate and at the same time indicated that the Secretary of the above named exposition company had acknowledged the letter and complied with the Association's demands, which were to the effect that they immediately discontinue using the Association's name in connection with their exposition.

Dr. Jacob Diner indicated that this incident should prove a valuable lesson to the Association and its members. He stated that individual members should be careful not to involve the Association in commercial enterprises.

John Roemer presented a paper on "Value of Present Methods of Water Analysis in Relation to Disease." He called attention to its many uses as in commerce, manufacture, fisheries, its value and necessity to the existence of man, to the diversity of mineral waters, the disadvantage of hard water in manufacturing, the significance of the purity of our drinking water. The speaker emphasized the extreme sensibility of water tests, both chemical and bacteriological. He indicated that the chemical methods were being supplanted by the bacteriological methods and questioned if the latter gave the clue as to the contamination of water with the typhoid germ; since the test was for the bacterium *coli communis* rather than for the typhoid bacterium. Mr. Roemer referred to two general classes of water, rain water and surface water, and stated that the organic matter in water was of vital concern to the analysis. He described the ammonia and chlorine determination processes. In analyzing water its source should be considered, stated the speaker.

A discussion followed in which Messrs

Diner, Mayer, Niece and Horstmann participated.

Mr. Roemer was formally thanked by the Branch. The meeting then adjourned.

FRANK L. McCARTNEY, Secretary.



CITY OF WASHINGTON BRANCH.

The regular February meeting of the City of Washington Branch of the American Pharmaceutical Association was held Wednesday, February 18, 1914, at the National College of Pharmacy, George Washington University, 808 I street, Northwest, Washington, D. C.

More than thirty members and guests were present at 8:15 when President W. S. Richardson called the meeting to order, and this number was considerably augmented by late arrivals.

The reading of the minutes of the previous meeting was dispensed with, and as no new business was presented, Mr. Richardson introduced Mr. Martin I. Wilbert, of the Hygienic Laboratory, Public Health Service, whose subject was announced as "What the American Medical Association has Done, and What the American Pharmaceutical Association Proposes to do, with Regard to the Patent Medicine Problem."

Mr. Wilbert entered into a general and most enthusiastic discussion of his subject, outlining the history of the growth of the patent medicine business, the efforts of the American Pharmaceutical Association to curb this growth, the efforts of the press to control it, and the manner in which the American Medical Association has dealt with it.

It was pointed out that the American Pharmaceutical Association had, as early as 1853, recognized the evil of the growing patent medicine business and had then adopted resolutions for its suppression. Each passing ten years seemed to revive interest in this subject, but nothing more definite than a number of good resolutions has resulted to the present time.

Judging from the manner of appointment of the present committee, the conditions leading up to its selection, and the attitude of the Association, however, it was stated that it would be unfair to believe the present interest temporary, but, on the contrary, every indication points to the accomplishment of good.

The conditions under which the American

Medical Association undertook its work against patent medicines, and how this work is being carried on, Mr. Wilbert elaborately detailed. A number of the publications of that Association to enlighten the public in this crusade were exhibited and discussed. These were passed around for inspection.

Mr. S. L. Hilton, Mr. J. Leyden White, Dr. F. B. Campbell, Dr. Henry E. Kalusowski, and a number of others feelingly praised the American Medical Association for its stand and pledged themselves to heartily support our Association in its combat against this evil.

The Secretary, Henry B. Floyd, then read a paper covering his observations with regard to the laboratory equipment of local pharmacies. The scarcity of proper reference works, the inaccuracy of scales, weights, graduates, and containers, and the utter lack of sufficient laboratory equipment, was lamented, and the belief was expressed that the only remedy for these conditions rests in a new pharmacy law, by pharmacists, and for pharmacists. Numerous inaccuracies which have caused unthinking, but wholly conscientious, druggists, to be haled into court, were cited, and the avoidance of similar mistakes outlined.

A very vigorous discussion, lasting more than an hour and a half, followed, when the meeting adjourned.

The March meeting will be held March 18, at the College of Pharmacy.

HENRY B. FLOYD, Secretary.



DENVER BRANCH.

The February meeting of the Denver Branch of the A. Ph. A. was held Tuesday evening, February 17th, at the Albany Hotel, the usual dinner preceding the meeting. It had been planned to hold the meeting at Hover's this month and officially open our library, to be known as the Colorado Pharmaceutical Library, but some delay in a shipment of books for the library made it necessary to postpone this event to the March meeting.

Messrs. A. W. Clark, H. C. Washburn, R. H. McKenzie, C. J. Clayton, C. D. Charles, W. T. Hover, S. T. Hensel, L. A. Jeancon, S. T. Kostitch, L. L. Alkire, C. H. Skinner, A. Swoboda, B. F. Seymour, S. L. Bresler, W. W. Grant, W. A. Hover and F. W. Nitardy gathered at the hotel about 6:45 p. m. The

minutes of the January meeting were read and approved. The following resolution was offered:

"Be it Resolved, By the Denver Branch of the American Pharmaceutical Association in regular meeting assembled, that we most respectfully urge the speedy passage by Congress of the Federal anti-narcotic measure, H. R. 6282, known as the Harrison bill."

(Signed) W. A. HOVER, President.
F. W. NITARDY, Secretary.

Mr. A. W. Clark moved it be adopted and a copy forwarded to the United States senators from Colorado. The motion was seconded and carried.

The Branch membership recommendation made by the Secretary in his report at the last meeting was then taken up, the Secretary reading the section of the report referring to the matter, and after short discussion, Mr. Clark moved that the names of the members in question be submitted to the Membership Committee for action, and that the Secretary be guided by their report. The motion carried.

Mr. Nitardy then proposed the creation of an associate membership in the Branch, briefly explaining his objects. A lively discussion ensued, in which considerable opposition was voiced, seemingly on account of a misunderstanding regarding the scope of the proposed associate memberships. On further explanation and discussion, it was decided to create an honorary instead of associate membership, and on motion of Mr. Bresler, Messrs. R. S. Hiltner, chief of the U. S. Food and Drug Inspection Laboratory of Denver, and S. T. Kostitch, pioneer druggist of Denver, were proposed as honorary members. Mr. Hover suggested the inclusion of Dr. William W. Grant in this list and the motion so amended was carried, Messrs. Hiltner, Kostitch and Grant being declared honorary members of the Branch.

President Hover then announced the appointment of the following committees:

Membership Committee—L. L. Alkire, Chairman; L. A. Jeancon, W. T. Hover.

Program Committee—S. L. Bresler, Chairman; L. A. Jeancon, Victor Lagasse.

Committee on Education—Prof. James Seymour, Chairman; S. T. Hensel, Prof. H. C. Washburn.

Committee on Qualifications for Registered Pharmacists—A. W. Clark, Chairman; Emmett Powers, F. J. Lord.

Library Committee—F. W. Nitardy, Chairman; Prof. James Seymour, L. L. Alkire.

Committee on Fraternal Relations—A. W. Clark, Chairman; C. J. Clayton, F. J. Lord.

Committee on Permanent Quarters—Chas. J. Clayton, Chairman; S. L. Bresler, Prof. H. C. Washburn, Hugh SeCheverell.

President Hover then called on Prof. Washburn of Boulder for a few remarks. Prof. Washburn responded with a brief talk touching on the progress of the school of pharmacy and the outlook for the future. Prof. Washburn stated that in the first year of its existence the school had two students, the second year 11 and this year 23. Certainly an excellent showing.

President Hover, before introducing the guest of the evening, stated that he wanted to say a word in regard to the narcotic evil and its remedy and hoped that Dr. Grant would also touch on the subject in his address. He expressed the belief that with the proper co-operation between the medical and pharmaceutical societies and the city authorities the evil could be practically eliminated providing that the city would take steps to care for and treat the unfortunates now addicted to the habit. He believed a policy of this kind, while being at first an expense to the city, would in time mean a saving to the taxpayer, by eliminating a large element that now fills our jails and hospitals and at the same time relieving much suffering and doing humanity a real service. He then introduced Dr. William W. Grant, speaker and guest of the evening.

Dr. Grant responded with an eloquent address, touching at length on the development and objects of the American Medical Association, with special reference to its educational work, its Journal and its Council on Pharmacy and Chemistry. He also touched on the faults of certain members in both professions and some of the unethical practices which prevail. He believed that in time these would be eradicated. His association was working strongly towards that end and with the active co-operation of the pharmaceutical profession more could be accomplished. In regard to the narcotic evil he said he believed his association would be glad to co-operate with our Branch and the combined forces might be able to induce the city to take some action in the right direction. In regard to the pharmacist, he said he had always honored him and he believed that as

a whole our profession was made up of men just as honest, high-minded and sincere in purpose as those of the medical profession. He felt at home amongst them and enjoyed their company.

On closing, President Hover thanked Dr. Grant for his instructive talk, which he felt, would be an inspiration to all. He then asked the opinion of various members on the question of having a committee appointed to meet with or co-operate with the County Medical Society or a committee thereof, in an effort to bring the best influences of the medical and pharmaceutical professions to bear on the city authorities with the object of eradicating the narcotic evil and caring for its present victims.

Messrs. Clark, Clayton, McKenzie, Swoboda and Bresler expressed themselves on the subject, whereupon it was decided to delegate this work to the Committee on Fraternal Relations.

The discussion then turned to a controversy between Parke, Davis & Co. and Dr. Puckner of the Council on Chemistry and Pharmacy of the A. M. A. The majority opinion seemed to favor Dr. Puckner. Elixir Lactopeptin and similar preparations of questionable merit were then discussed. The discussion brought out the opinion that while such products were admitted to be of no therapeutic value, their only service being as a vehicle, their use and demand on prescriptions was nevertheless increasing. The hour being late the meeting adjourned.

F. W. NITARDY, Secretary.



NASHVILLE BRANCH.

On March 12th the regular meeting of the Nashville Branch was held at Furman Hall, Vanderbilt, with Dr. J. O. Burge presiding.

The Committee on A. Ph. A. Home reported that the resolutions adopted by the branch at the last meeting had been presented to the Council for consideration, with the endorsement of the business organizations of Nashville.

The members of the Branch congratulated Dr. J. H. Rogoff on his return from Washington with his bride. His marriage to Miss Fannie Harned took place in Washington, D. C., on February 22d. The ceremony, at the bride's home, being performed by the groom's father.

After a tour of Northern and Eastern cities

Dr. and Mrs. Rogoff came to Nashville, Tenn., their future home.

The bride is the daughter of one of Washington's most prominent citizens. Dr. Rogoff, who has owned several drug stores in Cleveland, O., is now Professor of Pharmacology at Vanderbilt University, Medical Dept.

Dr. E. A. Ruddiman entertained the Branch with the presentation of a number of difficult prescriptions, with criticisms which were freely discussed, a few of which follow:

R Sol. cocaine hyd. 4%.
Sol. adrenalin hyd. aa 1 dram.
Water, q. s., ad 1 oz.

M. Turns red and precipitates after a time. No explanation.

R Tr. iron $\frac{1}{2}$ oz.
Ichthyol 5 drams.
Elix. lact. pepsin q. s., 3 fl. oz.

M. A brown, sticky mass of iron ichthyol sulphate is formed.

R Pot. iod.
Aspirin.
Sod. bicarb.
Tr. iron, aa 5 drams.
Water q. s., 4 fl. oz.

M. Potassium iodide and the tincture of iron liberate free iodine and form some hydriodic acid. The sodium bicarbonate precipitates some ferric hydrate; a fruity odor was observed. CO₂ is liberated.

R Tr. card. co. 1 dram.
Sat. sol. sod. sulph. 4 oz.

M. Half of bottle is solid mass. Alcohol in the tincture throws out sod. sulph.

R Sod. phos. 2 oz.
Pot. bicarb. 2 drams.

M. Mixture becomes damp.

R Acid salicyl. $1\frac{1}{2}$ dr.
Pot. iod. 4 drams.
Water, q. s., 3 oz.

M. Hydriodic acid is formed and iodine is liberated.

W. R. WHITE, Secretary.

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NORTHWESTERN BRANCH.

The February meeting of the Northwestern Branch of the A. Ph. A. was held jointly with the Scientific Section of the Minnesota State Pharmaceutical Association in convention assembled at the College of Pharmacy of the University of Minnesota, on February 19, 1914.

After spending three-quarters of an hour inspecting the new building the joint meeting was called to order at 9:45 a. m. by Dean Wulling, chairman of the Scientific Section of the State Association.

Part 1 of the program was completed at the morning session, after which the joint meeting adjourned and the N. W. Branch convened at once to consider the report of the nominating committee for officers for the ensuing year. The following having been nominated were unanimously elected:

President, Mr. C. T. Heller, St. Paul.

Vice-President, Mr. A. D. Thompson, Minneapolis.

Secretary and Treasurer, Mr. E. L. Newcomb, Minneapolis.

Executive Committee, Mr. A. J. Kline, Minneapolis; Mr. F. M. Parker, St. Paul; Mr. W. S. Smetana, Hopkins; Mr. F. A. U. Smith, St. Paul.

Representative to the Council of the A. Ph. A. (for three years), Dean F. J. Wulling, Minneapolis.

Immediately after lunch an hour or more was spent in examining the various educational and scientific exhibits on display, including much of the new equipment of the college.

At 2 p. m. the Scientific Section of the State Association was called to order by Chairman Wulling and brief informal exercises dedicatory of the new buildings were held. At 4 p. m. the joint meeting again convened and part 2 of the scientific program carried out.

The program of the morning and afternoon joint sessions was as follows:

Morning Session.

1. Protect the Interests of the Unfortunate—Mr. John Nielson.

2. The Advantage of Dispensary Practice to Students of Pharmacy—Mr. Oscar J. Bloomo.

3. A New Lime Water Apparatus—Prof. G. Bachman.

4. A Practical Strainer and a Bottle Filler Contrivance—Mr. W. A. Frost.

5. Recreation for Pharmacists—Mr. A. J. Kline.

6. Importance of Food and Drug Chemistry in the U. S.—Mr. C. H. Rogers.

7. Should the Drug Store Experience now Required of Graduates be Dropped?—Mr. H. W. Rietzke.

8. Vegetable Drugs of the Future—Prof. E. L. Newcomb.

9. Historical—Dean F. J. Wulling.

Afternoon Session.

1. Specifications for Buying Chemicals and Drugs—Mr. C. R. Noyes.

2. Some Aromatic Chemicals—Dr. J. S. Brewer.

3. Reports of the College and the Building Committees—Mr. A. J. Kline.

In the first paper presented at the morning session Mr. Nielson made a plea for the better care of those unfortunates who have become addicted to the use of narcotics. He stated he believed that the present narcotic laws in the various large cities and the states were being enforced to a large degree and that the result had been to drive those addicted to the use of habit-forming drugs from the larger cities to the rural districts and hence the subject of narcotic legislation is fast becoming a matter of prime importance to pharmacists of the smaller cities and country districts. Mr. Nielson felt that a record should be kept by pharmacists and physicians of those addicted to the use of narcotic drugs and that the future care and treatment of such persons should be placed in the hands of the members of the State Board of Health. Attention was called to the danger of abruptly cutting off the supply of narcotics from those who are accustomed to their continual use.

Mr. O. J. Blosmo, instructor in charge of the hospital and dispensary drug rooms of the University of Minnesota, stated that both theoretical and practical training are necessary for the acquirement of skill and efficiency in pharmacy. Practical training should consist in part of practice in the manufacturing and dispensing of drugs, preparations and prescriptions to be taken by the patient. Dispensary practice by pharmacy students brings them in close touch with physicians, enabling the students to keep abreast of the rapid advances in the medical profession. From personal experiences Mr. Blosmo felt that a new era in pharmacy had been entered, physicians' prescriptions are written more specifically, fewer patents and proprietaries are used and doctors are more particular in respect to the quality and standard of drugs. Statistics were presented to show the large number of physicians with whom the dispensary student comes in con-

tact and also the number and variety of prescriptions, thus affording the widest possible range of experience. Manufacturing by the pharmacist is emphasized in dispensary practice and the small amount of apparatus usually required is pointed out, as well as the small amount of time required and the financial benefits to be derived. Dispensary practice affords many valuable opportunities which cannot be obtained in other college courses and such training should constitute a part of the instruction given by all colleges of pharmacy.

Prof. Bachman confined his remarks chiefly to the "Preparation and Preservation of Lime Water." From personal observations he stated that he had come to the conclusion that lime water was the most poorly prepared and preserved preparation the pharmacist makes. He stated he knew of a druggist who made his lime water by throwing a pound or more of commercial lime into a two-gallon bottle, filling with tap water and dispensing this for lime water; the bottle was not even provided with a syphon. To further illustrate the lack of care in making this preparation, Prof. Bachman called attention to the pharmacist who makes his lime water when called for, by throwing a tablet of lime into an eight-ounce or pint bottle of water, shaking and selling this cloudy mixture. He further stated that no matter how carefully the selection of lime is made or how well the lime water is prepared, if it is kept in an ordinary container it would soon deteriorate, due to the CO₂ gas in the air precipitating the calcium hydroxide, thus rendering the lime water worthless. A lime water apparatus made according to the drawings of Mr. F. W. Nitardy, of Denver, was fully demonstrated and recommended to the members of the Association as a practical outfit which would solve the lime water problem.

The paper by Mr. W. A. Frost on "A Practical Strainer and a Bottle Filler Contrivance" was listened to with exceptional interest. The use of each apparatus was demonstrated and the speaker stated he had found the appliances of great practical value. The strainer is especially suitable for the rapid straining of thick mucilaginous substances such as quince jelly, elm or flax seed mucilage. This apparatus consists of a rack about twenty inches in height, having a horizontal top provided with an opening in the

center to receive a conical glass percolator of from one and one-half to two gallons capacity. Over the lower orifice of the percolator a muslin bag with a capacity of about a quart is tightly tied. The substance to be strained is poured into the percolator and forced through the muslin bag by pressure with the hands. The advantages of the apparatus were stated to consist of rapid straining with a minimum loss, and a process whereby the preparation is to a large extent protected from contamination by dust, etc. The bottle filling device consisted of an ordinary spring stoppered funnel which was placed in the straining rack above described and over which was inverted the container with the liquid to be bottled. A second rack placed above the first held the inverted bottle in position. By this arrangement a large number of bottles of almost any size could be rapidly and accurately filled.

In discussing "Recreation for Pharmacists," Mr. Kline called attention to a number of activities from which not only pleasure but also profit may be derived. Among the diversions which Mr. Kline had found to be enjoyable and educational, he mentioned the culture of flowers, vegetables, mushrooms and poultry. From the last two hobbies mentioned the speaker stated that he derived a fair margin of profit in addition to the recreation.

Mr. Rogers, in his paper on "The Importance of Food and Drug Chemistry in the United States," pointed out the changes that had been wrought in articles of food and also in the drug trade since June, 1906. He also showed that food and drug chemistry had a direct bearing on the lives and happiness of American citizens. Several instances of note were cited to illustrate how beneficial had been the result of the application of this branch of chemistry. Attention was called to the myriad of remedies which have not as yet been taken up for analysis by the Bureau of Chemistry. The analyses of a number of familiar articles were given, which showed them to be fake preparations. In conclusion, Mr. Rogers heartily endorsed the movement to place upon the statute books of Minnesota an up-to-date pure drug law.

"Should the Drug Store Experience now Required of Graduates be Dropped?" was briefly discussed by Mr. Rietzke. He pointed out the wonderful development of practical courses of instruction in accredited colleges

of pharmacy and the woeful lack of professional experience which the apprentice now receives in many drug stores. The speaker felt, however, that the drug store experience is a most valuable asset, especially when received in a store which reflects the true progress of pharmacy. He believed that pharmacists should give more attention to instructing the apprentice, that the embryonic pharmacist should be encouraged to secure the very best pharmaceutical education possible and that time and help should be offered the student whenever possible.

Prof. Newcomb, in speaking of "Vegetable Drugs of the Future," called attention to the rapid changes for better drugs that have taken place during the last few years. In the past little attention has been paid to the proper methods of collection, packing, transportation, storage, etc., and even today little is known concerning the effects of variations in these factors upon the medicinal value of drugs. Many drugs today are packed in more suitable containers than heretofore used. The nature of the medicinally active principles of drugs was discussed and numerous references were given to show that many of these substances as they occur in the plant are quite unstable compounds and that changes in their composition brought about by fermentation, oxidation, enzyme action, etc., result in products of variable pharmacologic activity. These changes may or may not be desirable. In the proper drying of some drugs it was pointed out that there appears to be a fixation of the medicinally active principles with the protoplasmic constituents of the plant, and that such drugs not only yield to extraction processes readily, but that when preparations made from these are administered, absorption takes place more rapidly than from preparations not so prepared. Tables were presented showing the comparative action of various samples of digitalis as determined by the guinea pig and frog-heart methods, and it was shown that the absorption of the preparation made from carefully collected and dried leaves took place in about 25 percent less time than in any other preparation, and that the total action was above that of any commercial drug tested. Prof. Newcomb stated that if pharmacists are to prepare U. S. P. and N. F. preparations which will yield the action the physician has a right to expect, attention must be paid to all factors which affect even

the innermost nature of the drug. It was suggested that pharmacists give special attention to the twenty-two drugs unanimously passed upon by the U. S. P. IX Sub-committee on Scope. An exhibit of these twenty-two drugs was provided and mention made of the evident good quality of a number. The results of a large amount of work on the drying and packing of drugs was presented and the specimens exhibited.

Dean Wulling's paper dealt briefly with the history of the College of Pharmacy of the University of Minnesota, for whose new building and equipment the legislature and regents appropriated nearly \$110,000 a few years ago. The paper was a preliminary to the pharmacy building exercises which took place early in the afternoon. The paper was supplemented in the later afternoon scientific program by the usual annual college historical paper.

In speaking on "Specifications for Drugs and Chemicals for Medicinal Use," Mr. C. R. Noyes called attention to the numerous grades and varieties of drugs and chemicals which are used for technical purposes, where the requirements are frequently quite different from that of medicine. On account of the great multiplicity of forms and grades of drugs and chemicals, pharmacists should specify definitely what they desire. The speaker felt that drugs of inferior quality for medicinal purposes sometimes find their way to the retail pharmacist, not on account of the desire for cheap products, but through lack of the use of proper U. S. P. names and specifications. The best and safest thing for the retail pharmacist to do when ordering pharmacopœial articles is to specify U. S. P. on every article which is included in that book. Druggists should be cautious about dispensing for medicinal purposes articles bearing the label "for technical use only," and the "so-called" "chemically pure" articles represent a "super-excellence" which is often entirely unnecessary and wasteful for such uses. The Pharmacopœia is a thoroughly practical as well as scientific standard. The requirements in the Pharmacopœia are in almost every case especially suitable for medicinal purposes. U. S. P. chemicals frequently cost no more than technical bulk goods, the quality of which is unknown. On the whole, the pharmacopœial revision committee has laid down standards which are not expensive to comply with. Insist on chemicals labeled

U. S. P., refuse goods labeled with such specifications as "pure," "purified," "white," "medicinal," "redistilled," etc., unless, of course, they are to be used for some purpose other than medicinal. In concluding his paper, Mr. Noyes called attention to specific cases of drugs and chemicals where it is exceptionally important that the U. S. P. grade be used for medicinal purposes.

In introducing the subject "Some Aromatic Chemicals," Dr. J. S. Brewer stated that he was anticipating the requirements of the retail drug trade by two or three years, but many of the substances which he desired to call attention to were already in demand on account of the high price of natural raw materials. The magnitude of the synthetic perfume industry was illustrated with photographs of several Swiss and German factories showing both exterior and interior views which afforded an excellent idea of the expensive apparatus necessary to produce this class of oils. From a very small beginning and the production of a comparatively few articles, the manufacture of aromatic perfume materials has reached enormous proportions and now forms a very important part of the chemical industries of the world. The speaker gave a practical demonstration of the similarity of odor between the synthetic and natural products, showing samples of oil of rose, true and synthetic, oil of neroli, true and artificial, and the two varieties of oil of jasmine. Commercial varieties of these artificial oils are mostly mixtures of certain chemicals, and percentage composition formulas were given which would enable one to prepare, at a very reasonable cost, all three of the oils mentioned. In connection with oil of rose, it was stated that not a drop of the true article was now being brought into the country, that the ultimate consumer could not afford to pay the price that would have to be charged for a pure article and that the purchaser simply wanted what he paid for. Samples of so-called oil of rose were shown which contained a large percentage of geraniol and phenyl-ethyl-alcohol and which would still congeal at a reduced temperature on account of reinforcement with a stearopten. It was clearly shown that by clever manipulation the specific gravity, rotation and other characteristics of oils could be so adjusted as to make many of them answer to most of the prescribed tests. The chemistry of the manufacture of synthetic violet oil or

Ionone was discussed at some length and illustrated with samples of both the alpha and beta varieties. By reason of the expiration of certain patents and on account of new processes coming into use, the price of this article is now within the reach of all and the writer recommended its use in perfuming the ordinary toilet creams and in the manufacture of perfumes, toilet waters and lotions, such as are frequently made in the drug store. The following basic aromatic chemicals were discussed and samples shown to demonstrate the character and perfume strength: Alcohol Cinnamyl, Anisic Aldehyde, Benzyl Benzoate, Benzyl Acetate, Geraniol, Citronnellol, Citral, Jacinthe, Iso-Eugenol, Phenyl-Ethyl-Alcohol and Methyl-Heptin-Carbonate.

EDWIN L. NEWCOMB, Secretary.



CHICAGO BRANCH.

The March meeting of the Chicago Branch of the American Pharmaceutical Association was held on the evening of March 17th. An illustrated lecture on the "Production of Diphtheria Antitoxin" was delivered by Dr. H. M. Letton, of the Research Laboratory of Parke, Davis & Co. The meeting was well attended, about one hundred members and guests being present.

Dr. Letton displayed with the lantern fifty very fine views fully illustrating each important step in the process of preparing antitoxin. His lecture, remarkable for its clearness and interesting detail, was very favorably received.

The lecture was followed by a discussion which included not only diphtheria antitoxin but also the present therapeutic status of antitetanic serum, typhoid vaccine and other serum products.

The meeting adjourned with a hearty vote of thanks to Dr. Letton for his courtesy to the Branch.

F. N. GATHERCOAL, Secretary.



PHILADELPHIA BRANCH.

At the March meeting of the Philadelphia Branch A. Ph. A. the following officers were elected, to serve during the ensuing year:

President, Prof. E. Fullerton Cook; First Vice-president, Samuel C. Henry; Second Vice-President, Prof. J. W. Sturmer; Secretary, Dr. R. P. Fischelis; Treasurer, Mr. M. M. Osborne.

Committee on Practical Pharmacy: Prof. Charles H. LaWall, Chairman; Mr. W. W. McNeary, Mr. A. Hunsberger.

Committee on Professional Relations: Mr. W. L. Cliffe, Chairman; Mr. F. M. Apple, Dr. F. E. Stewart.

Committee on Membership: Mr. A. J. Staudt, Chairman; Mr. William E. Lee, Mr. Quintus Hoch.

The report of the Treasurer indicated a comfortable balance on hand.

The scientific program of the evening consisted of a contribution by Mr. Franklin M. Apple, entitled: "Indispensable Insurance for Pharmacists." Mr. Apple's paper brought out an interesting and lengthy discussion participated in by Messrs. LaWall, Cliffe, Cook, Henry, Osterlund, Sturmer, and others.

AMBROSE HUNSBERGER, Secretary.



PITTSBURGH BRANCH.

The meeting of the Pittsburgh Branch held Friday evening, March 13, was honored by the presence of Richard H. Lackey, of Philadelphia, president of the Pennsylvania Pharmaceutical Association, who was an interested participant in the proceedings.

President Lackey was given an opportunity to urge all those present who were not members of the state body to affiliate, especially would it be a fitting manner for the pharmacy students present to thus start their pharmaceutical career right by early identifying themselves with that useful, militant body of pharmacists.

The secretary suggested that the Branch invite Geo. B. Parker, Esq., whose handsome lantern slide exhibit and talk covering the wild flowers of Pennsylvania, was so entertaining a feature of our last meeting, to attend the 1914 meeting of the State Association and present his interesting and instructive entertainment for the benefit of those present from other sections of the state. A motion to that effect was made by Dr. J. A. Koch, and warmly supported by Dr. A. F. Judd, and the motion prevailed. The secretary was instructed to interview Mr. Parker and endeavor to have him accept the invitation.

Dr. Louis Saalbach in a review of the proposed changes with new standards and descriptions submitted by the Revision Committee of the U. S. Pharmacopoeia, criticized the method suggested for testing the purity

and genuineness of salicylic acid, which, he claimed, is not a good method for distinguishing the natural product from the synthetic, and looks as though it will result in putting a premium upon adulteration. It will be a very easy matter to so prepare the synthetic product as to have it respond to the test proposed to determine the genuine article.

Dr. Blumenschein said: It looks very much now as though the output of natural salicylic acid, so labelled, is greater by far than the supply of oil wintergreen can possibly produce, so one can draw his own conclusions.

The status of bichloride of mercury in the face of the deluge of proposed legislation that it is being subjected to, was discussed, the subject being opened by B. E. Pritchard, who presented numerous editorial comments from various leading pharmaceutical journals bearing upon the absurdity of the prominence that is being given to that one particular toxic drug, both by the press and the legislative bodies of many states and the United States.

Mr. Lackey said: The enormous sale all over the country of bichloride tablets for the plainly understood purpose of preventing conception demands some effective legal method for its being stopped. Do we as reputable pharmacists want to put ourselves on record as willful purveyors of the article for that purpose? It is our plain duty to use every means in our power to make it as difficult as possible for the public to obtain these dangerous tablets.

Dr. Saalbach submitted a specimen of leaves of absorbent paper saturated with a solution of bichloride of mercury and so graded as to make it possible to readily prepare a solution of bichloride of a definite percentage, which can be used to replace the widely sold tablets, and thus by curtailing their sale make both criminal and accidental use of the tablet less prevalent. On motion the Branch put itself on record as favoring the universal use of the saturated paper leaf form and as opposed to the continued use of the dangerous tablet form of bichloride of mercury. Dr. Darbaker suggested, and the suggestion was on motion adopted, that the sheriff and coroner be notified of the adoption of the resolution adopted.

Dr. Saalbach submitted a specimen prescription for the purpose of indicating how extremely careless some physicians are con-

cerning the dangerous character of bichloride, as follows:

℞ Hydrag. chlor. corros. one drachm.

Sodii chlor. one ounce.

Div into 12 powders. Sig—Use as directed.

Dr. Koch said, it was for the purpose of trying to reach some wise method to recommend in the securing of proper legislation that will not be too far reaching in character to restrict the distribution of bichloride tablets that had impelled the selection of the subject for discussion before the Branch.

The secretary called attention to the Act passed by the last session of the Pennsylvania legislature, hurriedly drafted and rushed through both houses in five days, that Governor Tener, at his request, had refused to sign, because it was so drastic in its provisions that it would have legislated the drug itself clear off the map, which would be a senseless thing to do.

The Pharmacist and the Law

ABSTRACT OF JUDICIAL DECISIONS.

SELLING WRONG MATERIAL—CONTRIBUTORY NEGLIGENCE. A dairyman sued a druggist for negligently delivering to the plaintiff five pounds of common salt in lieu of five pounds of Epsom salt, as ordered, which, as alleged, proximately caused the death of the plaintiff's cow to which he administered a dose of it—two pounds, as the evidence showed. The defendant pleaded contributory negligence. On appeal from a verdict and judgment for the plaintiff, it was held that whether or not the defendant was guilty of error or negligence in supplying the plaintiff with an article radically different in fact from the article ordered, and whether or not that negligence, if found, proximately produced the untimely demise of the plaintiff's cow, were disputed questions of fact to be determined by the jury. But that the plaintiff was himself guilty of the grossest negligence, which was immediately productive of the animal's death, was a clear conclusion of law from which there was no escape.

There is no confusing similarity in the appearance of common salt and Epsom salt.

Both are household articles in common use, and more or less familiar to all men of ordinary intelligence and experience. Moreover, the plaintiff was a dairyman of long experience, and quite familiar with the use of both articles in the course of his business. He was skilled in the art of bovine healing by a practice of 30 years upon his own animals, and he habitually administered to them Epsom salt for the relief of those digestive disorders to which they were frequently subject. He saw and intimately handled this salt, which was not labeled Epsom salt, and which was in a bag showing on its face that it came from the defendant's "seed and dairy" store, a separate and distinct branch of its business, from which the plaintiff customarily bought his butter salt for use in his dairy. It was not at all like Epsom salt, and on his cross-examination, the plaintiff demonstrated his ability to readily distinguish it from that article.

"The ordinary conduct of rational beings," said the court, "must be governed by common prudence and common sense, and he who fails in this to his own hurt cannot justly charge the ills that follow to the antecedent and remote fault of another, albeit such remote fault supplies the condition without which the injury would not have occurred. The result here complained of was plainly due to the inexcusable carelessness and folly of plaintiff, and to allow him to recover damages from defendant under the circumstances shown would certainly insult the common sense of mankind. The verdict of the jury was contrary to the law and the evidence, and should have been set aside by the trial court on the motion of defendant."

It was also held that the instance of a man who "swallowed a pound of salt in a pint of ale, and died in a few hours, with all the symptoms of irritant poison," read from a medical book, was fundamentally illegal and inadmissible as evidence in the case.—*Gorman-Gamili Drug Co. v. Watkins*, *Alabama Supreme Court*, 64 So. 350.

INTOXICATING LIQUORS—WRONGFUL SALE BY DRUGGISTS—SPECIAL PENALTY. On an agreed statement of facts in proceedings against a druggist for selling liquor without a West Virginia State license as a druggist, it was admitted that the accused had not a state license for the sale of intoxicating liquors; that he sold a person a pint of whiskey; that

he was then a licensed druggist, and that the purchaser of the whiskey had no prescription of a physician therefor. The accused maintained that he could not be prosecuted as an ordinary seller of intoxicating liquors without a state license, but only as a druggist, as to whom a lighter penalty is prescribed.

A druggist, said the court, is merely an accepted person under the general law prohibiting sales of intoxicating liquors without a state license. When he does not sell intoxicating liquors in the only way that the exception in his favor permits him to sell them, he is a violator of the general terms of the West Virginia statute which says that no one without a state license shall sell them. When in making a sale a druggist does not comply with the restrictions of the exceptions in his favor, he is simply one selling without a state license. By the exception he may sell alcohol for mechanical or scientific purposes, or alcohol, spirituous liquors, wine, porter, ale, beer, and other intoxicating drinks for medicinal purposes on the prescription of a reputable physician. But if he sells any of them otherwise, unless he had a state license therefor, he brings himself within the general terms of the statute which prescribes that no person without a state license shall sell them. He may then be indicted and proceeded against just as other persons selling without a state license. But the West Virginia Legislature has prescribed a lesser penalty for an unlawful sale of intoxicating liquors by a druggist than for such a sale by an ordinary seller. Code 1906, ch. 32, secs. 3 and 5. Formerly it was not so, but the reverse. *State v. Cox*, 23 W. Va. 797. Therefore, if the evidence establishes that the accused at the time of the sale was a druggist and unlawfully sold as such, only the lesser penalty imposed for such special offense can be inflicted.—*State v. Wills*, *West Virginia Supreme Court of Appeals*, 80 S. E. 783.

SUB-STATION ACCOUNTS. Marcus Sachs and his son, Simon Sachs, became partners in the drug business. This continued for a number of years when, it appeared, Simon Sachs sold the partnership and formed a corporation, doing the same business as had been done by the partnership. During the partnership Simon Sachs was appointed a deputy clerk for the sale of postal money orders, with a branch station in the firm's drug store. Each day he deposited the moneys re-

ceived from the sale of postal money orders in a bank. The checking account with the bank was in the firm name, but the deposits were made with two deposit slips, one showing the receipts from the sale of postal money orders, and the other the total amount of deposits of the drug store business and of sales of postal money orders. The account was kept by the bank in this manner, the deposits of postal order receipts being kept in a separate account under the heading "Station Receipts." Each day Simon Sachs made a report of the sales of money orders to the postmaster, and attached thereto a check to the postmaster's order on the bank for the money deposited as "Station Receipts" for the period covered by the report.

Marcus Sachs filed a bill alleging misapplication of the partnership funds by Simon Sachs, and obtained the appointment of a receiver of the corporation, who took possession of the funds deposited in the bank about April 12, 1911. Subsequently the postmaster filed a petition, setting forth, among other things, that Sachs made his daily report for April 10, 1911, showing sales of money orders to the extent of \$678.84, and delivered a check payable to the postmaster for that sum, dated April 11, and a daily report for April 11 showing sales to the amount of \$300.24, and a check for that sum dated April 12; and that, on presentation of these checks to the bank, payment was refused. He prayed for an order that the money represented by the checks be paid. Simon Sachs also presented a petition to the same effect.

At the hearing of the case it appeared that the receiver had taken possession of \$494.04 of the money on deposit in the bank. As stated by a witness, the bank had apparently peremptorily taken five or six hundred dollars of the balance of the deposit to apply on some note. The receiver was ordered to pay over to the postmaster the money turned over to him by the bank. There was no mingling of the money deposited from the sale of money orders and from the drug business. The bank kept the former in a separate account, designated as "Station Receipts." The bank's account was, in substance and essence, with the postmaster, and the adoption of a convenient method of checking it out under the firm name did not change the substance of the transaction.—*Sachs v. Sachs*, 181 Ill. App., 296.

IMPLIED WARRANTY OF MANUFACTURE. A manufacturer is liable only to his immediate vendee for breach of an implied warranty as to the merchandise manufactured by him, as his liability depends upon privity of contract; but exceptions exist where injury is caused by something noxious or dangerous, or where the manufacturer practices fraud or deceit, or is negligent with respect to the sale or construction of a thing not immediately dangerous. "Within one of the exceptions is to be found the reason for holding the manufacturer of patent or proprietary medicines to answer at the suit of the ultimate consumer. Direct actions are allowed in such cases because the manufacture of medicine is generally shrouded in mystery, and sometimes, if not generally, they contain poisons which may produce injurious results. They are prepared by the manufacturer for sale and distribution to the general public, and one purchasing them has a right to rely upon the implied obligation of the manufacturer that he will not put in ingredients which if taken in prescribed doses will bring harmful results. Reference may be had to the following cases which sustain, and in which many other cases are cited which sustain, this exception: *Thomas v. Winchester*, 6 N. Y., 397, 57 Am. Dec. 455; *Blood Balm Co. v. Cooper*, 83 Ga. 457, 10 S. E. 118; *Welsor v. Holzman*, 33 Wash. 87, 73 Pac. 797, 99 Am. St. Rep. 932."

Another exception, it is now said—the doctrine is comparatively recent—is referable to the modern method of preparing food for use by the consumer, and more general and ever increasing use of prepared food products. A manufacturer of food products under modern conditions, it is held, impliedly warrants his goods when dispensed in original packages, and such warranty is available to all who may be damaged by their use in the legitimate channels of trade, including those who purchase them for resale, as well as the ultimate consumers. The violation of the pure food law by a manufacturer of foods products is evidence of negligence in the preparation and sale of such food, and it is available in a suit by a middleman, as well as by a consumer.—*Mazetti v. Armour & Co.*, *Washington Supreme Court*, 135 Pac., 633.

SALE OF OLEOMARGARINE—SELLING OR GIVING AWAY COLORING MATTER. An inspector of the Agricultural Department purchased from a retail grocer in New York State a

one-pound print of oleomargarine, with which he was given a capsule of coloring matter, conceded to be a harmless vegetable compound. In an appeal from a conviction of a violation of the New York Agricultural Law, the sole question was the validity of Section 41 of the statute, providing that "no person selling any oleaginous substance not made from pure milk or cream of the same as a substitute for butter, shall sell, give away, or deliver any coloring matter" is valid. It was held by the Court of Appeals that the provision was a constitutional and valid enactment within the police power of the State. —*State v. Von Kainpen* (decided March 3, 1914).

Obituaries and Memorials

Persons having information of the death of members of the A. Ph. A. are requested to send the same promptly to J. W. England, 415 N. 33d St., Philadelphia, Pa. Information as to the age, activities in pharmacy, family, etc., of the deceased should be as complete as possible. When convenient a cabinet photograph should accompany data.



JAMES G. STEELE.

James Gordon Steele, pioneer of California and leader in pharmacy on the Pacific Coast, died at his home in San Francisco on Monday, February 2, 1914, at the age of 76 years and 38 days. His end was peaceful and wholly unexpected. On the morning of the second of February Mr. Steele arose cheerful and happy as usual. The day being beautiful, he took a long walk, returning refreshed, even expressing a desire to go for another stroll, but acting on the suggestion of his wife, he took a book on music, sat down in a chair, and when Mrs. Steele entered the room a few minutes later she found him dead, head slightly inclined, book still in his hands. Remarkably enough, Mr. Steele wrote his autobiography two weeks before his death, a portion of which is used in the preparation of this sketch.

Mr. Steele was born in Boston, Mass., December 25, 1838. He completed the studies of the grammar schools, and two years of high school. He came to California at the age of 15 and entered the employ of George

C. Shreve and later that of his uncle, Wm. W. Keith. He proved a trustworthy helper and Mr. Keith placed him in charge of one of his drug stores. He studied chemistry under Dr. Raymond, who had taught chemistry in the Cincinnati College of Pharmacy, and botany under Dr. Kellogg, the well-known curator and librarian of the California Academy of Sciences.

Mr. Steele was largely instrumental in organizing the California Pharmaceutical Society in the year 1868. In 1878 he gave up the retail drug business and devoted himself to supplying the Eastern and European market with California crude drugs, but in 1880 he again opened a retail store largely devoted to prescription work. In 1895 he was made city chemist of San Francisco, which position he held for two years. He became a member of the American Pharmaceutical Association in 1859, in which organization he was always active and contributed several papers to the proceedings, one on "*Grindelia robusta*" and one on the "Drug Market of San Francisco," which also contained a list of California medicinal plants; another paper was on "The Pines of California."

Mr. Steele was also an active member in the newly organized California Pharmaceutical Association, attending its meetings and contributing several pages of historical interest. A very full history of the California College of Pharmacy was completed shortly before his death. When the old California Pharmaceutical Society decided to establish a college of pharmacy in 1874, Mr. Steele, with W. T. Wenzell, W. M. Searby, J. W. Forbes, John Calvert, Mr. Simpson and Mr. Mayhew, were appointed a committee with power to incorporate such a college, becoming the first trustees of the California College of Pharmacy.

Mr. Steele was a most enthusiastic botanist, devoting much time to the study of the flora of California. In 1876 he sent 50 different species of California medicinal plants to the Philadelphia College of Pharmacy, at which time his intimate friend, Prof. Maisch, was instructor in materia medica in said college. Mr. Steele was essentially a student of books, of nature, of people. He was possessed of a most genial nature and a kindly disposition. He made many warm friends. His favorite author was Shakespeare, from whom he quoted freely. His favorite recreation was music, being a performer and composer of

considerable ability. It was this fondness of music which brought him in touch with the late Winchell Forbes.

The following intimate friends of Mr. Steele have preceded him by a few years or less: W. M. Searby, John Calvert, J. McDonnell, W. T. Wenzell and H. H. Behr, all from San Francisco. Each one of the men named represents a distinct landmark in the progress of pharmacy on the Pacific Coast.—*The Pacific Pharmacist.*

Council Business

COUNCIL LETTER No. 13.

Philadelphia, Pa., March 6, 1914.

To the Members of the Council:

The following communication has been received from Hugh Craig:

"I have perused with a great deal of interest Council Letter No. 12, dated February 19. The matter with which it has to do is one to which I have given a great deal of attention during the past four or five months, and the result of my consideration of the subject is not such that leads me to agree with President Beringer that a specific shape for tablets of corrosive mercuric chloride will afford the desired relief. Investigation carefully conducted by the New York Board of Health shows that out of all the deaths from this poison reported during the period of ten months in that city all but about 5 percent or 6 percent were suicidal. It is folly to expect an intelligent person to believe the reports of accidental poisoning with this substance as they appear in the daily papers. Who, for instance, ever heard of any one taking *four headache wafers dissolved in water*? Yet we are told by the press that four 'bichloride' tablets were dissolved in a glass of water by a woman and taken in mistake for headache wafers! These misguided folk who wish to rid themselves of the troubles of existence and the world of their troubled existence will adapt a coffin-shaped tablet just as readily as they will a round one. The shape of the tablet has nothing to do with the desired effect.

"As far as children are concerned, they cannot tell the word 'poison' on the tablet from the motto on the popular candy wafers so dear to the childish heart. Neither can they tell whether a coffin-shaped object is poisonous or is merely a round wafer with some of the edges broken off.

"In my opinion it is a waste of time and energy to attempt to regulate the misuse of mercuric chloride by endeavoring to formulate a restriction as to the shape of the tablet into which this substance is compressed.

The real means of reaching the crux of the situation is the restriction of the sale of this substance to physicians' prescriptions. Despite the wide popular demand for the handy tablet, which can be purchased in any department store, there will be no injury to anybody if all are required to get this drug through real restrictive channels. Restrictions should also apply to physicians who are very likely to leave three or four of these poisonous tablets wrapped up in a prescription blank on the table in a sick room and also to veterinary surgeons who dip them out by the handful and leave them with oral directions for their use with an ignorant stableman—yet these stablemen being of a little sensitive nature and more stolidly constituted, seldom eat these tablets in mistake for an after-drink breath perfume or a chew of tobacco!

"There is another side to the question contained in Letter No. 12 and that is, of the advisability of the Association's taking over any such proposition. While it might be possibly easier to over-estimate the influence such an action would have upon the consideration given to the Association by those who are at present engaged in the manufacture of these tablets in various shapes, this phase should not be lost sight of. This matter, I believe, can be dealt with, very satisfactorily by some of those who have a longer acquaintance with the Association and its purposes. To me it appears rather a departure for the Association to engage in the manufacture of or the supervision of the manufacture of any article of commerce—I have not, in making this statement, lost sight of the fact that the Association publishes the National Formulary.

"There was not enclosed with the letter any voting card, and there was nothing about the letter which leads me to believe that a vote is to be taken at this time, but rather the matter is simply up for discussion. However, if a vote is expected, I should like to have mine recorded in opposition to the proposition."

President G. M. Beringer replies to Mr. Craig's comments, as follows:

"I have read with great interest the comments of Mr. Hugh Craig on Council Letter No. 12. I fear that Mr. Craig fails to grasp the real situation presented in that Council Letter. I agree with him fully as to the necessity of educating the public to the importance of exercising the proper care in the handling of all poisons.

"The question of an official shape for tablets of mercuric chloride is only one of the means of safeguarding the careful handling of these tablets, and it was not presented as the sole means that should be adopted. Through the clamor of the public press, the legislators of the country are very likely to enact in the various States and Congress, some form of legislation that shall define a shape for bichloride tablets and the proper precautions regarding labeling and selling of

these. This is evidenced by the bills that are now pending in Congress and in several of the state legislatures. Of all the shapes that have so far been proposed, there is none for originality and distinctness of character that is at all comparable with the proposition of a coffin shape tablet. As the latter form has never been used for foods, confections or harmless medicines, it has that distinct advantage of novelty and individuality, and its use could very readily be restricted solely to toxic tablets for external application without proving detrimental to manufacturers of other products.

"The desirability of this shape for bichloride tablets appealed to Vice-President Apple and President-elect Mayo as well as to myself. It is apparent, however, that if this shape is to be monopolized by a patent controlled by any one manufacturer, no matter what benefit might accrue to the public from this safeguard, it could not be endorsed by either the Association or the U. S. Pharmacopœia. The proposition presented in Council Letter No. 12 by which monopoly could be prevented and every honorable manufacturer be given the privilege of making such a standard tablet, was the only plan that appeared to be feasible to assure the public of the greatest amount of benefit and safety.

"In presenting this plan to the Association, we were quite aware that this was a departure from the usual line of activity of the American Pharmaceutical Association, but I conceived that it is well within the scope of usefulness of the Association to thus exert its influence for the benefit of the public. If the American Pharmaceutical Association will not accept this unusual opportunity, then, no doubt, the Norwich Pharmacal Co. will prosecute their patent to completion and monopolize the manufacture of such tablets in the United States.

"Mr. Craig is certainly in error in stating that "after a careful consideration of the question from every possible view point, the Association is opposed to any provisions of the U. S. Pharmacopœia or National Formulary prescribing the shape, size or color of mercury bichloride or other poisonous tablets, or shape, size or color of the package in which they shall be furnished." The Committee of Revision of the U. S. Pharmacopœia have already, by vote, decided to introduce a bichloride of mercury tablet, and as many of the members of that Committee of Revision are likewise members of the American Pharmaceutical Association, such a statement coming officially from the Association would be inconsistent. Some of the foreign pharmacopœias and formularies have fixed standards of bichloride of mercury tablets, and the U. S. Pharmacopœia in fixing a standard for bichloride tablets will simply follow precedents already set in other pharmacopœias. We need not necessarily adopt standards and shapes that were adopted in other countries, but well may fol-

low the most advanced American thought for an American standard.

"I hope that Mr. Craig will modify his resolutions so as to make them entirely consistent with the real view of the Association. May I likewise point out the inconsistency of his objection to a uniform shape for poison tablets and then to propose a special receptacle as a container for all poisons."

Secretary J. H. Beal writes that he is heartily in favor of taking over the assignment of the patent which it is hoped will be obtained by the Norwich Pharmacal Company; also, that the patent should be accepted by the Association as a trust, and its free use to the medical and pharmaceutical professions permitted without charge and without restrictions, further than necessary to prevent the use of the design for confections and harmless medicaments. He offers the following resolutions, which are seconded by G. M. Beringer:

"(1) *Resolved*, That the American Pharmaceutical Association accept the complete assignment of the patent-rights of the Norwich Pharmacal Company in and to a design patent for a poison tablet, serial number 801,748, as tendered by the said Norwich Pharmacal Company in their communication to the President of the Association, dated February 16, 1914, and presented in Council Letter No. 12.

"(2) *Resolved*, That the American Pharmaceutical Association hold such design patent exclusively for the free use of the medical and pharmaceutical professions of the United States, without restrictions except such as may be necessary to prevent possible abuse through use of the design for confectionery or other non-poisonous substances.

"(3) *Resolved*, That the American Pharmaceutical Association hereby tenders to the Norwich Pharmacal Company a vote of thanks for their generous and public spirited proposition."

The above will be regarded as *Motion No. 25 (Assignment of Patent-Rights for Poison Tablet.)*

The following communication has been received from F. W. Nitardy:

"In his address at Nashville, President Day recommended that a portion of the annual dues from members of local branches be remitted to the branch treasurer. The committee on the President's address referred the matter to the Council for action.

"I believe President Day's recommendation is a valuable one, one that will work to the benefit of both the national body and the branches, and one on which early action by the Council would be advisable.

I shall appreciate it if you will submit the subject to the Council for discussion or vote together with my argument based on the experience of the Denver Branch.

"Our branch is very active. It has gained some seventy-five new members for the A. Ph. A., holds regular and well attended meetings, which in turn are responsible for quite a number of members retaining their interest in the A. Ph. A. In order to maintain such a branch more or less money is needed. It may be raised by assessing each member several dollars yearly in local dues, but this frequently acts as a stumbling block in gaining and holding members. We have contented ourselves with yearly local dues of \$1 with a result that a deficit occasionally exists in our treasury. This has from time to time been quietly wiped out by some of our more prosperous and generous members. Our greatest handicap has always been lack of money. The local branch carries all of the burden, while the benefits of its existence are without question shared by the national body. Every city in the U. S. with a population of 100,000 or over could support a good local branch and do it better if it could obtain a little financial help from the national body. If branches would be established in all communities as large as Denver or larger, the membership of the A. Ph. A. would increase very materially, and what is more, we would have something substantial to help hold the interest of new members, especially such as cannot attend the annual conventions, of which there are many.

"If the national treasurer could remit \$1 yearly of the dues of any branch member paying not less than \$1 yearly local dues, on request, to the local branch treasurer at the end of the fiscal year, providing such request is accompanied by a list of dues-paid branch members and a copy of the treasurer's report covering the year in question, a substantial aid would be rendered, at the same time protecting the national body against paying out any money for which it could see no returns.

"In case a scheme like that outlined above meets the approval of the Council, I should like to move its adoption.

"Now, in regard to Council Letter No. 12. I have read very carefully the letter, also the bulletin on "The Sale of Bichloride Tablets" by Martin I. Wilbert (Reprint 151—Public Health Reports) and believe President Beringer's recommendation is a step in the right direction towards solving the bichloride problem and heading off unwise legislation in the matter.

"If it has not already been done, I move the acceptance of the very generous offer of the Norwich Pharmacal Co., also, that we tender them a vote of thanks and that notice of this action be sent to the pharmaceutical press."

The following communication has been received:

Nashville, Tenn., Feb. 25, 1914.

Why the A. Ph. A. Home Should Locate in Nashville, Tenn.

WHEREAS, At the last annual meeting of the A. Ph. A. held in this city the proposition to provide a permanent home for the Association was referred to the Council for future consideration; and

WHEREAS, Efforts are now being made by other cities to secure the location of this permanent home.

Therefore, We, the members of the Nashville Branch, respectfully submit for the consideration of the Council, the following reasons why the home should be located in Nashville, Tenn.:

(1) Because Nashville offers a free site for the home.

(2) It is about the center of population of the U. S. and within 24 hours' travel for the great majority of the pharmacists of the United States.

(3) The climate is unexcelled for the proposed botanical gardens.

(4) Has the second largest facilities in the U. S. for printing.

(5) Is the greatest educational center in the Central-Southern States and one of the greatest in the entire United States.

(6) Has progressive pharmaceutical schools for both races.

(7) Has a live growing A. Ph. A. Branch.

(8) Affords ample hotel facilities for future A. Ph. A. conventions.

(9) Has low freight rates, proximity to needed supplies considered.

(10) Incorporated bodies for educational purposes on a non-profit basis are not liable for taxation.

(11) Has been proven to have the cheapest cost of living of any city in the U. S.

Respectfully submitted,

W. R. White,
S. C. Davis,
Ira B. Clark,

Committee.

The above resolutions were adopted at the last meeting of the Nashville Branch of the Association.

Nashville Branch, A. Ph. A.,

J. O. Burge, Ph. G., President.
Williams R. White, Secretary.

We, the undersigned commercial organizations representing the entire business interests of Nashville, Tenn., do hereby heartily endorse the above resolutions and invite the American Pharmaceutical Association to locate its home in our city.

The Nashville Industrial Bureau,

J. M. Gray, Jr., President.

A. P. Foster, Secretary.

The Nashville Business Men's Association,

M. S. Ross, President.

J. R. Beesley, Secretary.

J. W. ENGLAND,

Secretary of the Council.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of stations and duties of commissioned and other officers of the United State Public Health Service for the period ending March 17, 1914:

Rucker, W. C., Assistant Surgeon General. Directed to proceed to Chicago, Ill., for the purpose of attending the annual mid-winter conference of the American Medical Association on Public Health, Legislation and Medical Education, February 23-24, 1914. Also designated as the Service representative on the National Legislative Committee of the American Medical Association. Also directed to deliver an address on "Public Health Legislation" before the Federation of State Medical Boards of the United States, February 25, 1914, and on "Common Sense in Public Health Administration" before the Chicago Medical Association, February 25, 1914. February 19, 1914.

White, J. H., Surgeon. Granted 1 month and 7 days' leave of absence from March 11, 1914. Granted 10 months and 23 days' leave of absence, without pay, from April 18, 1914. February 24, 1914.

Cobb, J. O., Surgeon. Granted 1 day's leave of absence, February 15, 1914, under paragraph 193, Service Regulations. February 14, 1914.

Cumming, H. S., Surgeon. Detailed, at the request of the President of the Maryland Conservation Association, to deliver an address on "The bearing which the pollution of tidal waters has on health," at Johns Hopkins University, February 25, 1914. February 19, 1914.

Lavinder, C. H., Surgeon. Detailed, at the request of the State Commissioner of Health of Virginia, to deliver a lecture on pellagra, at the Medical College of Virginia at Richmond, February 24, 1914. February 19, 1914.

Lumsden, L. L., Surgeon. Detailed, at the request of the President of the Maryland Conservation Association, to deliver an address on "The value to Maryland of controlling waterborne diseases," at Johns Hopkins University, February 25, 1914. February 19, 1914.

Sweet, E. A., Passed Assistant Surgeon. Detailed to make as complete studies as practicable of the migration of tuberculous per-

sons in New Mexico in interstate traffic. February 20, 1914.

Krulich, F., Passed Assistant Surgeon. Relieved from duty at the San Francisco quarantine station and directed to report to Surgeon Woodward for duty at the Exposition Hospital. February 24, 1914.

Ruoff, J. S., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to report to the medical officer in charge of the Marine Hospital, Stapleton, N. Y., for duty and assignment to quarters. February 18, 1914.

Phelps, E. B., Professor of Chemistry. Directed to proceed to Chicago, Ill., for the purpose of making necessary preliminary surveys in connection with investigations of the pollution of navigable waters. Also to proceed to Cincinnati, Ohio, for conference with officer in charge of Service investigations, stopping enroute at Indianapolis, Ind., for conference with the Secretary of the House Board of Health, relative to pollution of the Ohio river and its tributaries by industrial wastes. February 20, 1914.

Hammon, Harry B., Sanitary Chemist. Directed to proceed to Washington, D. C., for instructions in connection with sanitary disposal of industrial wastes. February 10, 1914.

BOARD CONVENED.

Board of medical officers established at San Francisco, Cal., for the re-examining of detained aliens. Detail for the board: Surgeon W. C. Billings, chairman; Surgeon M. W. Clover, member; Assistant Surgeon L. W. Jenkins, recorder. February 19, 1914.

Banks, C. E., Senior Surgeon. Leave of absence for 4 days from February 20, 1914, amended to read "7 days' leave of absence from February 20, 1914." February 19, 1914.

von Ezdorf, R. H., Surgeon. Directed to report at the Bureau, Washington, D. C., March 4, 1914, for conference relative to malaria investigations. March 2, 1914.

Lumsden, L. L., Surgeon. Detailed, at the request of the Maryland Medical and Chirurgical Faculty, to deliver an address before that society, at Baltimore, Md., March 9, 1914, on "Public Health Education." March 2, 1914.

Robinson, D. E., Surgeon. Relieved from temporary duty in the Hygienic Laboratory and directed to proceed, via New York, N. Y., to Cincinnati, Ohio, for investigations of tu-

berculosis in relation to occupation and environment. February 25, 1914.

Corput, C. M., Surgeon. Granted 4 days' leave of absence from February 23, 1914, under paragraph 193, Service Regulations. February 22, 1914.

Thometz, H. M., Assistant Surgeon. Relieved from duty at the Marine Hospital, San Francisco, Cal., and directed to proceed to the San Francisco quarantine station, Angel Island, Cal., and report to the medical officer in charge for duty and assignment to quarters. February 28, 1914.

Ruoff, J. S., Assistant Surgeon. Granted 30 days' leave of absence from January 24, 1914, on account of sickness. March 3, 1914.

Wayson, Newton E., Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to Surgeon John D. Long for duty in plague suppressive measures. February 28, 1914.

Galloway, Thomas C., Jr., Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to the medical officer in charge of the Marine Hospital, for duty and assignment to quarters. February 28, 1914.

Waller, Clifford E., Assistant Surgeon. Directed to proceed to Baltimore, Md., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Sutton, Don C., Assistant Surgeon. Directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Faget, Frank M., Assistant Surgeon. Directed to report to the medical officer in charge of the New Orleans quarantine station for duty and assignment to quarters. February 28, 1914.

Lison, John H., Assistant Surgeon. Directed to proceed to Detroit, Mich., and report to the medical officer in charge of the Marine Hospital for duty. February 28, 1914.

Akin, Charles V., Assistant Surgeon. Directed to proceed to New Orleans, La., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Miller, Knox E., Assistant Surgeon. Directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. February 28, 1914.

Wilson, Joseph C., Assistant Surgeon. Directed to report to the Chief Medical Officer, Immigration Station, Ellis Island, N. Y., for duty. February 28, 1914.

Staton, L. W., Acting Assistant Surgeon. Directed to proceed to West Point, Va., for investigation of case of smallpox on schooner "Lizzie Hall." February 27, 1914.

APPOINTMENTS.

Doctors Newton E. Wayson, Thomas C. Galloway, Jr., Clifford E. Waller, Don C. Sutton, Frank M. Faget, John H. Lison, Charles V. Akin, Knox E. Miller and Joseph G. Wilson commissioned Assistant Surgeons in the United States Public Health Service. February 24, 1914.

BOARD CONVENED.

Board of medical officers convened to meet at the Marine Hospital, Mobile, Ala., for the physical examination of First Lieutenant of Engineers C. S. Root, U. S. R. C. S. Detail for the board: Surgeon R. H. von Ezdorf, chairman; Assistant Surgeon R. C. Derivaux, recorder.

Mathewson, H. S., Surgeon. Directed to proceed to Ellis Island, N. Y., to study methods there used in the examination of aliens suspected of mental defects. March 7, 1914.

Spratt, R. D., Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Gloucester City, N. J., reporting to Surgeon Fairfax Irwin for duty in the examination of arriving aliens. March 7, 1914.

Frost, W. H., Passed Assistant Surgeon. Detailed, at the request of the Director of the Illinois Water Supply Association, to attend a meeting of that Association, to be held at Urbana, Ill., March 9-11, 1914. March 3, 1914.

de Valin, Hugh, Passed Assistant Surgeon. Upon completion of duties as Recorder of Board of Examiners, directed to make a study of the question of the pollution of railway tracks between Washington, D. C., and Baltimore, Md., March 3, 1914.

Guthrie, M. C., Passed Assistant Surgeon. Relieved from duty in the examination of arriving aliens at Gloucester City, N. J., and directed to proceed to the Canal Zone and report to the Governor of the Panama Canal, relieving Surgeon J. C. Perry, for duty in connection with the maritime quarantine of the Canal. March 7, 1914.

Herring, R. A., Passed Assistant Surgeon.

Relieved from duty at Ellis Island, N. Y., and directed to proceed, by way of Washington, D. C., to Spartanburg, S. C., for duty, under Surgeon Joseph Goldberger, in connection with pellagra investigations. March 3, 1914.

Ridlon, J. R., Passed Assistant Surgeon. Relieved from duty at Philadelphia, Pa., and directed to proceed, by way of Washington, D. C., to Spartanburg, S. C., for duty, under Surgeon Joseph Goldberger, in connection with pellagra investigations. March 3, 1914.

Gillespie, J. M., Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. March 7, 1914.

Thometz, H. M., Assistant Surgeon. Granted 6 days' leave of absence from January 26-31, 1914, on account of sickness. March 10, 1914.

Townsend, J. G., Assistant Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. March 3, 1914.

Hoskins, John X., Sanitary Engineer. Directed to proceed, as instructed by the officer in charge of the Ohio River investigations, to various points for laboratory studies and sanitary surveys of the Ohio River watershed. March 5, 1914.

Lowe, Dan., Epidemiologist. Directed to proceed to Washington, D. C., for conference and instructions, and thence to such places as directed by the medical officer in charge of the work, for duty in connection with the epidemiological survey of typhoid fever. March 7, 1914.

BOARD CONVENED.

Board of commissioned medical officers convened to meet at the Bureau, Monday, March 9, 1914, for the examination of candidates to determine their fitness for appointment as Assistant Surgeons in this Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Surgeon C. H. Lavinder, member; Passed Assistant Surgeon Hugh de Valin, recorder. March 3, 1914.

Banks, C. E., Senior Surgeon. Granted 7 days' leave of absence from March 6, 1914. March 5, 1914.

Guiteras, G. M., Surgeon. Leave of absence for 1 month amended to read "4 days'

leave of absence from February 21, 1914." March 14, 1914.

Wertenbaker, C. P., Surgeon. Granted 10 days' leave of absence from March 10, 1914. March 13, 1914.

Brown, B. W., Surgeon. Relieved from duty at Yokohama, Japan, and directed to proceed to San Francisco, Cal., and report arrival to the Bureau and there await orders. March 11, 1914.

Lavinder, C. H., Surgeon. Relieved from temporary duty at the Hygienic Laboratory and directed to rejoin station at the Marine Hospital, Savannah, Ga. March 11, 1914.

Lumsden, L. L., Surgeon. Directed, at the request of the Health Department of Cumberland, Md., to proceed to that city for the purpose of addressing a public meeting on March 13, 1914, on the subject of means necessary to prevent typhoid fever. March 13, 1914. Granted 2 days' leave of absence, on account of sickness, from March 2, 1914. March 11, 1914.

White, M. J., Surgeon. On request of the Industrial Commission of Indiana, directed to proceed to Indianapolis and other points within that State, to co-operate with said Commission and representatives of the Federal Bureau of Labor Statistics on investigations of sanitary conditions of factories and workshops and studies of physical status of workers. March 10, 1914.

Fricks, L. D., Surgeon. Directed to proceed to Victor, Mont., for the purpose of carrying on operations for the prevention of the interstate spread of Rocky Mountain spotted fever. March 17, 1914.

Moore, Dunlop, Surgeon. Granted 1 day's leave of absence, March 2, 1914, on account of sickness. March 10, 1914.

Gwynn, M. K., Surgeon. Granted 2 days' leave of absence, March 2-3, 1914, on account of sickness. March 11, 1914.

Schereschewsky, J. W., Surgeon. Directed to proceed to New York, N. Y., for the purpose of attending the postponed meeting of the Hygiene Committee of the National Council for Industrial Safety, March 12, 1914. March 10, 1914.

Boggess, J. S., Surgeon. Relieved from duty at the Mobile quarantine station and directed to proceed to Yokohama, Japan, for duty in the office of the American Consul-General. March 11, 1914.

Wilson, R. L., Surgeon. Granted 7 days'

additional leave from March 24, 1914. March 14, 1914.

Parker, H. B., Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Guayaquil, Ecuador, for duty in the office of the American Consul-General. March 11, 1914. Granted 1 month's leave of absence from March 10, 1914. March 11, 1914.

Collins, G. L., Passed Assistant Surgeon. Relieved from duty in connection with the trachoma clinic at Hindman, Ky., and directed to proceed to Boston, Mass., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. March 14, 1914.

Turnipseed, D. C., Assistant Surgeon. Relieved from duty in Quarantine Service of the Philippine Islands and directed to proceed to San Francisco, Cal., and report arrival to Bureau and there await orders. March 11, 1914.

Kearny, R. A., Assistant Surgeon. Granted 20 days' leave of absence from April 20, 1914. March 13, 1914.

Watkins, J. A., Assistant Surgeon. Granted 7 days' leave of absence upon completion of course of instruction at Hygienic Laboratory. March 13, 1914.

Laughlin, J. B., Assistant Surgeon. Relieved from duty at the Gulf quarantine station, and directed to proceed to the Mobile quarantine station and assume charge, relieving Surgeon J. S. Boggess. May 11, 1914.

Bolten, Joseph, Assistant Surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine

Hospital for duty and assignment to quarters. March 11, 1914.

Voegtlin, Carl, Professor of Pharmacy. Directed to proceed to Spartanburg, S. C., for conference with Passed Assistant Surgeon R. A. Herring to determine the availability of that location for special studies of metabolism in relation to the causation of pellagra. March 13, 1914.

Wickliffe, T. F., Acting Assistant Surgeon. Directed to proceed from Hyden to Jackson, Ky., to take charge of the trachoma work at the later place. March 12, 1914.

Hommon, Harry B., Sanitary Chemist. Directed to proceed to Baltimore and Luray, Md., and other places on the Potomac River watershed to make special field studies of sanitary wastes. March 17, 1914.

Stearns, W. L., Pharmacist. Reassigned to duty at the Marine Hospital, Stapleton, N. Y., effective March 24, 1914. March 13, 1914.

Smith, L. G., Pharmacist. Directed to proceed to Blackbeard's Island, to arrange for the transfer of property to the Savannah quarantine station, to be utilized in pellagra investigations. March 16, 1914.

BOARD CONVENED.

Board of medical officers convened to meet at the Bureau, March 18, 1914, for the purpose of revising the Telegraphic Cipher Code of the Service. Detail for the board: Assistant Surgeon General L. E. Cofer, chairman; Assistant Surgeon General W. C. Rucker, member; Passed Assistant Surgeon Hugh de Valin, recorder. March 17, 1914...

Official:

RUPERT BLUE,
Surgeon General.

THE NUMBER OF TECHNICAL CHEMISTS IN GERMANY.

According to the annual statistics published by the Society of German Chemists in 339 German chemical works 268 were either proprietors or directors, while in all there were employed 2,467 university-trained chemists and 384 technical chemists, i. e., without a university education. There are at present twenty firms which each employ over twenty chemists; these employ altogether, in addition in forty-five independent chemists, 1,477 chemists, and 154 technical chemists; that is to say, that over half of all the chemists included in these statistics are in the employ of these twenty large firms. During the year 1912-13 winter term there were 3,082 chemical students working in the laboratories of the German universities, of whom 2,649 were Germans.—*The Chemist and Druggist* (London).

PUSHING PHOTOGRAPHIC SUPPLIES.

The business builder has one of his finest opportunities here. Most druggists realize this. In all the smaller towns you will find druggists carrying full lines of cameras and supplies and doing a roaring business. Almost every human being gets the camera craze at some stage, and this tendency is certainly good for business. It makes cameras almost as staple as shoes. Of course, not all of us can gratify our little desires, but most of us can. The business in photographic supplies is naturally very large. It may be augmented by encouraging camera clubs, or organizing the same where none exists. Every town should have a camera club. It gives the young people the right kind of recreation and will be found helpful to the standard of citizenship in that town. Towns where the young men loaf on street corners, making smart remarks and exchanging doubtful stories, are not good towns for turning boys into high-minded men. A camera club has a social side and helps out wonderfully in places where there is little offering in the way of high-class entertainment. Some dealers offer cash prizes for photographs, and some very interesting contests have been worked up along these lines.

In one contest of this kind, cash prizes were offered as follows: A first prize of \$25 for the best photograph posed with living figures, second prize of \$15 for the best photograph of a local building inside the town limits, third prize of \$10 for the best photograph of a residence within the county but outside the town limits, and fourth prize of \$10 for the best photograph of any farm scene taken inside the county. The decisions were rendered by a committee elected by the camera club with the town mayor as chairman. The entire town and county participated more or less in this contest, the local paper gave it some good advertising, and altogether a great deal of interest was aroused. An exhibition of the photographs is a good thing, and this may be held in the rooms of the camera club, with the general public invited.

It might be practicable for all dealers in photographic supplies in a certain town to combine and offer prizes open to all amateurs. These enterprises boom business, enliven the town, and are good things all around. You can always get hearty co-operation from the local press and plenty of free advertising. When a town is dragging along in a rut, it always helps when somebody starts a proposition of this kind. A friendly rivalry wakes the people up, the surrounding country becomes interested, trade is brought into town, and the town gets some good advertising. Such are the things that boards of trade in all towns are working for. The whole population benefits. Money put into circulation helps everybody.

Annual, or semi-annual exhibitions are good things. Many camera clubs have given these, in the larger cities as well as in small towns. The druggist in the large city can handle cameras and photographic supplies to advantage. He can't get all this trade, as some of it will go down town to the regular supply houses. But druggists should bear in mind that a big city is only a collection of small towns. If you are out on the edge of the city you are still in the center of your own settlement. Many of your customers will buy all their supplies from you. Occasionally they go shopping down town, but by going after it, you can get the bulk of their business.—W. S. Adkins in *The National Druggist*.

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A QUESTION OF PROFESSIONAL ETHICS.

"I PRACTICE in a small town and do a prescription business. I write, say a prescription for a cough. A neighbor or friend has a cough, they get the number off the bottle and take it to the druggist who fills it, knowing that the mixture was not prescribed for the person for whom he is now filling it. I told him [the druggist] not to do so. Has he a legal right to do this? This has happened so many times that I am ordering a small stock of drugs to dispense my most common remedies."

The above, being purely an *ex parte* statement of facts, does not present the qualifying or extenuating circumstances which the druggist might be able to set forth if given his day in court, and we shall therefore express no opinion as to his guilt or innocence of the offense as charged.

While there have been a few cases in the lower courts where the ownership of prescriptions has been under consideration, the writer has not been able to discover any authoritative ruling by a court of last resort upon the rights of physicians to control the fate of their prescriptions after they have been delivered to the patient.

In the absence of any legal authority one guess is about as good as another. A court might rule that the pharmacist was merely the custodian of the piece of paper upon which the recipe was written, and not the owner either of the paper or the recipe; or it might take the ground that the physician passed over all of his property rights to the patient and that the latter alone had the right to control the number of times the prescription should be refilled. To the writer it would seem to be a reasonable doctrine to regard the prescription as an order for a specific transaction, like a check on a bank, and that when the medicine has been compounded and delivered the virtue of the order is exhausted, except as a record of the transaction.

The question is of such importance that an authoritative ruling is much to be desired, and it would be a work of merit for some pharmaceutical society to join with some medical society in a friendly suit to determine the matter. The value of the decision would, of course, depend largely upon the manner in which the case was framed and the distinctness with which its several issues were set forth. One well considered decision by a state appellate court would no doubt be generally accepted as settling the subject until set aside by positive legislative enactments.

It is because a proper spirit of professional comity has so generally controlled the relations of pharmacists and physicians that these have been permitted to go unregulated by statute. It is only when some exceptional case arises, like the present one, that they are brought into question.

The legal questions involved are, however, the least important part of the query.

By common consent it is agreed that the man who is merely "law-honest," that is, who recognizes only such obligations as the law imposes in set terms and definitions, is neither a good neighbor nor a desirable citizen. And it is equally true that the druggist who measures his obligations to the medical profession and the public solely by the positive declarations of the statutes is neither a good citizen nor a desirable member of the pharmaceutical fraternity.

Upon what ethical or professional ground can a pharmacist justify his act in refilling a prescription, when such repetition has been expressly forbidden by the prescriber?

It is so common for physicians to give a patient verbal directions to have a prescription refilled that we believe pharmacists are justified in refilling them when they have no notice of any contrary desire on the part of the prescriber. But when the physician has plainly expressed the wish that a prescription shall not be refilled, then that wish must in every case be respected by the custodian of the prescription. This, it is believed, represents both the theory and the practice of the great majority of pharmacists. Any other rule would be a menace to the public health and direct invitation to reprisals by the medical profession.

That all druggists do not rigidly observe the rule of comity must be admitted with regret, but so far as the writer's observation extends the men of this class are comparatively few in number and far between. The majority of pharmacists are far too anxious to convince the prescribing physician of their trustworthiness to take any undue liberties in the way of refilling or in other respects.

In fact it would be difficult to explain or define the motives that could influence a pharmacist to deliberately disregard the prescriber's wishes concerning refills. Certainly it cannot be self-interest, since properly enlightened self-interest would dictate just the opposite course of conduct. When such things do occur, they can be due only to that mixture of general perversity, stupidity and petty meanness which is colloquially expressed as "pure cussedness."

If only the druggists who did such things were concerned, their punishment might safely be left to the physicians whose confidence they have betrayed, but unfortunately as things exist in this vale of tears, the innocent too often must suffer with the guilty, and all of the members of a class for the faults of a few.

Such actions make a mockery and a joke of the propaganda for better pro-

fessional comity. One deliberate disregard of a physician's request not to refill a prescription can do more harm than a dozen get-together meetings can remedy. To invite physicians to a propaganda dinner and meeting, and then conduct one's business in violation of professional ethics amounts to chucking them under the chin with one hand and clubbing them over the head with the other.

If ever thoroughly harmonious relations are to prevail between medicine and pharmacy they must come mainly through the growth of a good understanding and of a spirit of mutual helpfulness between them, and whatever will help in promoting this better understanding or make either profession more useful to the other is a desirable instrument of the propaganda.

If the pharmacist desires the confidence of the physician he must observe that confidence when extended; if he desires the patronage of the physician, either direct or through the medium of written prescriptions, he can obtain it by serving the physician better than any one else can serve him in the same line. Whenever this kind of service has been rendered it has resulted in the professional and financial prosperity of the pharmacist.

The extent to which the law can go in promoting these good relations between the two professions is limited. It cannot properly interfere merely to protect the business of the physician against the pharmacist, nor can it compel the physician to write prescriptions simply because the pharmacist needs the money. It can take cognizance of such things only so far as they are directly connected with the general public welfare.

For example, a statute might very properly prohibit the refilling of a prescription without the express permission of the prescriber, but this prohibition would not be for the purpose of giving the physician a monopoly, but for the reason that in many cases the continued use of a given medicine or its promiscuous passing around the community would be dangerous to the public health. Such a statute would simply be converting what is generally recognized as a professional obligation into a legal obligation which all would be compelled to observe.

Again, the law might properly prescribe that physicians who desired to dispense their own medicines should demonstrate their ability to do such dispensing before an impartial and unprejudiced board or commission, because the compounding and dispensing of medicines and their application to the treatment of disease are separate arts, and a man may be well qualified to practice one and not the other.

The physician is either qualified to dispense or he is not. If qualified, it should be easy to demonstrate that fact before an impartial commission; if he is not qualified, then the more reason why he should not be permitted to dispense. Here, however, we should not lose sight of the fact that there are different grades of compounding and dispensing. If the physician prefers to use tablets, serums, or other agents the preparation of which is completed before they reach his hands, it would be difficult to convince the average legislature that he should not be permitted to do so, unless it can be shown that the use of such medicaments will be productive of injury to the public.

Again the law might very properly require that the stock of drugs and medicines kept by the physician should meet the same requirements of purity and strength as are enforced with regard to the pharmacist.

Probably no one would claim that the physician ever deliberately purchases inferior or deteriorated drugs. When he does purchase them it is because he has been careless in selecting the source of supply, or because he has permitted some smart salesman to convince him that his cheap drugs are the equal of the higher priced ones of the well known manufacturer. Before the enactment of food and drugs laws, pharmacists sometimes "took a chance" on such propositions. If they do so now the chances are that they will be sorry.

There is no reason why the physician cannot have the best of everything if he is willing to pay the price and deals only with manufacturers or retailers of established reliability, and there is also no reason why the incautious ones among them should not be discouraged from taking chances, the same as pharmacists have been discouraged.

The only sound and permanent foundation for the satisfactory adjustment of the relations between pharmacy and medicine is the creation of mutual respect and mutual confidence between the members of the two professions. All that the statute law can do is to act as a palliative or as a corrective of the grosser abuses. Laws should not be specially constructed by physicians to curb pharmacists, nor by pharmacists to curb physicians. Measures designed to define the limits between medicine and pharmacy should be draughted by joint committees chosen from both—committees composed of men who are broad enough to realize that such a boundary line cannot be drawn as sharply as the lines on an architect's blue print, and who are ready both to give and to take in the compromise of disputed points.

J. H. BEAL.



UNITY OF EFFORT.

WE live in an age of activity. Everywhere there is the bustling movement of mankind, engaged in the desire for more business, for changed conditions in almost every walk of life,—in ethics, in politics, in social conditions and in every possible outlet for superabundant vitality, until one is almost tempted to ask at times, "*Cui Bono?*" Is it for betterment that the whole world is seething and fretting and fuming for change, some of these changes being those upon which the staid and sober citizen looks with askant eye?

For change does not always mean improvement and all activity is not for the best, all speed does not always win the race. We have Biblical authority for the statement that, "The race is not always to the swift," nor is excessive activity even in trade matters always for the best. In these, as in all other things of life, moderation accomplishes most in the end. It is of little service to the betterment of our profession to seek with confused effort to accomplish real and valuable things. Attempts looking toward reform should be made with calm, deliberate thought by which only the best results can be achieved. The cause of much confusion to-day is the lack of correlation between the minor organizations of the trade and the two great national bodies. Local organizations have a most useful place but would they not be more useful if they were organized as co-ordinate parts of a greater whole, and if all these bodies were striving for a common good? Con-

sider the strength which would be exerted by these various organizations if they were united in support of a common purpose, such as a model liquor law or a poison law such as might be framed by the able men of the national associations. See what a bulwark of defense would be a model law proposed by these men of national reputation and supported zealously all along the line by the united organizations of the trade. Now we fritter away our efforts in small-arm firing, but united we would wage our battle with the mighty projectiles of modern artillery.

See the good which has been accomplished through the unity of effort of the National Drug Trade Conference, and this same good would flow from any effort backed by the united trade in a like way. We would then have no such freak-legislation as cumber the statute books of many of our states to the great vexation of the members of the profession, but there would arise a sane and safe legislation which would result in good for all.

Why should not all these local organizations be parts of a greater whole? Be auxiliary to the A. Ph. A. and the N. A. R. D. and closely identified with them? Each of these bodies having its A. Ph. A. section and its N. A. R. D. section and each attracting to their meetings those interested in the special work of its sections? These two great national bodies are nobly doing their work in the advancement of pharmacy. But beneath these organizations there is confusion in which there is no unity of effort, from which lack, there results no wise progress. He who reads the reports of the various state associations, even with a careless eye, will hardly fail to observe that some give all their thought to the development of but one side of our profession, while others devote themselves almost entirely to the other side, few of them working for the harmonious development of the whole body, for that development which makes for the all-around good of the profession. Why should these associations so neglect the other side and seek for but the development of the one side? To be a pharmacist in these days requires a development along both of these lines. One must be commercial as well as scientific to be an all-around pharmacist. The pendulum must swing in sure and even beat for the clock to mark true and accurate time; if "out of beat" it may run, but without accuracy. So should we all endeavor to have the pendulum of pharmacy swing true for the proper development of the profession as a whole; for the development of its science and the development of its commerce and these can go hand-in-hand for the making of a nobler Pharmacy, a Pharmacy of the highest ideals and purpose.

ERNEST C. MARSHALL.

DETROIT, THE CONVENTION CITY.

The Detroit meeting of the A. Ph. A. in August promises to be in many respects the most delightful in the history of that venerable association.

It is worth a trip across the continent any time just to see Detroit, for beyond all question it is the most beautiful city in America. New York is awe-inspiring—and is sometimes said to be awful—Chicago is wonderful, Philadelphia, Boston and Washington are rich in historic associations, but in Detroit nature has done everything she could and Detroit folks have done the rest.

Most people do not realize that in the past fifteen years the population has practically doubled—that Detroit has changed from an overgrown town to a big city. The visitors here next August will see not only the greatest drug houses in the world, they will also see the greatest automobile, adding machine, varnish, stove and other manufacturing plants.

They will see the city whose building activities every year regularly outstrip every other city in America except New York, Chicago and one or two other of the most populous centers.

The local entertainment committee has almost completed its plans to make every hour enjoyable to the visiting A. Ph. A. members, but maintains a profound secrecy as to details. The complete program will be announced soon.

However, no one who has ever attended a big Detroit convention entertains any doubt about the recreational features of this meeting. The finest pleasure boats in the world are here and the variety of river and lake trips offered is limited only by the amount of time one has to spend that way.

And for those who would like a taste of motoring, the wide shaded streets and boulevards, the beautiful lake shore drive through Grosse Pointe, the millionaires' suburb, and the wonderful concrete roads extending in every direction through Wayne county will furnish a temptation too great to be resisted.

An easy two hours' run to the west by motor car brings one to Ann Arbor. Certainly it would be a mistake to leave Detroit without going there to see the great University of Michigan, whose school of pharmacy with its spacious and perfectly equipped laboratories contributes so much to the advance of pharmaceutical science.

This A. Ph. A. meeting offers the overworked druggist a rare opportunity for a week of improvement and recreation that should not be overlooked. Come along. Even if you are not a member of the Association, come anyway—you will be welcome. The Association wants you. Detroit wants you. And it will be good for what ails you.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

"LLOYD'S REAGENT"*—PRELIMINARY ANNOUNCEMENT.

JOHN URI LLOYD, PHAR. M.

The writer proposes to contribute to the 1914 meeting of The American Pharmaceutical Association (probably to the *Historical Section*), a paper concerning a newly discovered alkaloidal reagent, known to a few persons only, at this date, under the name "Lloyd's Reagent," the reagent itself being a form of Hydrous Aluminum Silicate. His paper will be devoted, mainly, to its discovery and application as an alkaloidal reagent, together with such connected features as appeal as being of interest, historically and otherwise. This delay of a year is necessary, not alone on the writer's account, but because a few chemists, microscopists and physicians have already instituted experimental processes in connection with special phases of the subject, and to their researches credit should be awarded.

The alkaloidal opportunities of this newly discovered reagent are shown by the specimens, herewith exhibited, of *Gelseminine* (ether soluble), natural alkaloid, and natural Nicotine. The first of these, a fixed alkaloid, is considered rare, and is generally accepted as difficult to obtain in quantity; the second is volatile, and prone, under most processes, to manipulative changes. To neither of these has any heat whatever, or any decolorizing agent been applied, the Nicotine being made without distillation.

With this preliminary note calling brief attention to the subject, the writer voices his hope that when comes the next meeting of this Association, he may be in a position to present a fairly comprehensive, as well as more satisfactory communication than is possible at this date.

REMARKS ON LLOYD'S REAGENT.

Remarks by J. U. Lloyd, on being asked to read the paper of Dr. Gordin and Mr. Kaplan on the Qualities of Lloyd's Reagent¹:

I am naturally more than interested in what Dr. Gordin and Mr. Kaplan may say in this communication concerning this alkaloidal reagent, that is probably a new one to most members of our Society. I cannot refrain from expressing my thanks to both the authors of the paper and to the Society, in that I am privileged to read this paper, for I feel that I am highly honored in being thus selected. It

* See Dr. Sigmund Waldbott's announcement in the *Journal of the American Chemical Society*, June, 1913, and Dr. M. I. Wilbert's contribution to the Pennsylvania Pharmaceutical Association, reported in *The American Druggist*, July, 1913.

¹ Prof. Lloyd's remarks during the reading of this paper, as various phases of the subject were presented, are herein included.

would please me much were Dr. Gordin present with us, because I feel that the problems presented might lead to advantageous discussions, were he here. His absence, however, renders it permissible, and perhaps necessary, that I make some preliminary remarks concerning the reagent mentioned in the paper that I hold in my hand, as well as take the liberty of introducing, discreetly, a few comments as I proceed. It is with more than a little reluctance that even under these circumstances, I venture to intrude a few personal remarks, in directions that appeal to me as requiring special mention, but in it all I feel the authors will acquiesce.

The reagent to which Dr. Gordin refers in this paper, and which he calls simply, "Lloyd's Reagent for Alkaloids," is a form of hydrous aluminum silicate that I obtain from clay and earths. The most prolific source of supply that I have as yet discovered, is the well known "fuller's earth," which indeed carries in its crude form, most marked alkaloidal qualities. My experiences lead to the inference that the alkaloidal qualities of the material are not, however, due to the inorganic side of the compound, other than when combined with water. In fact, if the water be totally expelled from the hydrous aluminum silicate, all alkaloidal attraction disappears.

Another feature of the reagent that in a preliminary manner I need mention properly before reading this paper, is the fact that the *physical* form of the compound has much to do with its alkaloidal energy. In making and extracting this compound from the forms of clay that I have investigated, I have found it desirable, as nearly as possible, to bring the abstracted and hydrated material into a colloidal condition, in which form, before being dried, it has an intense affinity for alkaloids and alkaloidal salts. Indeed, the nearly transparent, practically colloidal form, is instantaneous in its action, there being scarcely an element of time between the absolute separation of any alkaloid yet investigated, whether in the form of salts or otherwise, from solution in water or acidulated water.

It may not be out of place for me to state that the contents of no two clays or specimens of fuller's earth seem to have the same *structural* qualities and affinities. The variations of the material obtained from different forms of fuller's earth are much greater than would be supposed to exist. The common blue clay of our hills and rivers, likewise carries qualities exceedingly variable.

Nor may it be out of place for me to state in connection with this paper of Dr. Gordin and Mr. Kaplan, that I have been bitterly disappointed in that clays that I, theoretically, supposed would be prolific in the yielding of the purest and strongest alkaloidal "attractives," but which proved to be the very reverse. Thus, the pure white aluminum silicate obtained from the Rookwood Pottery in Cincinnati, so celebrated for its beautiful wares, was found to be almost passive, when it came to the alkaloidal test.

It pleases me much to note in this paper, the comparison between charcoal and hydrate of aluminum, with my reagent. It shows that the length of time required for charcoal attraction, and the absence of alkaloidal qualities as concerns the hydrate of aluminum, agree with my experiences therewith. And also that the hydrated aluminum silicate (Lloyd's Reagent), for many bitters and different substances of drugs, has little, if any, attraction.

In making these remarks, which I feel due both to the writers of the paper and

to myself, as well as a privilege that I enjoy, I would like to add that Dr. Gordin uses the word "adsorption," as explaining the alkaloidal phenomena. Possibly he has accepted the word as employed by me in corresponding with him, and possibly he has made a scientific investigation to prove that it is altogether adsorption, or contact action, and not a chemical combination, after the manner of the usual alkaloidal reagents. Be this as it may, I wish to assume the responsibility of error of application, in case the doctor has used the word as taken from myself, and has thus been lead into accepting that view of the subject without personal investigation. Should it be shown by future experimentation that there is a chemical reaction other than adsorption, he, if the fault be mine, should be absolved from all responsibility therein.

Let me again express my deep regret that Dr. Gordin and Mr. Kaplin are not here to-day, to make a personal presentation of this paper to the Society, and let me again express my personal appreciation of the honor that has been extended me by the personal request that I read to the Society this contribution.

NOTE ON COMPARATIVE ADSORPTION OF DIFFERENT SUBSTANCES BY LLOYD'S REAGENT, ANIMAL CHARCOAL AND ALUMINUM HYDROXIDE.

H. M. GORDIN AND JAY KAPLAN.

Prof. John Uri Lloyd, in a private communication, informed me that he has discovered a reagent which quickly and completely adsorbs alkaloids from the aqueous solutions of their salts. The reagent is a natural aluminum silicate treated by a special method which he has patented in this country and will be patented abroad. Providing me with a liberal supply of the reagent, he asked me to verify his statement about the efficiency of the reagent for the complete removal of alkaloids, and gave me permission to institute upon the reagent any other set of experiments I might consider advisable. Since animal charcoal and freshly precipitated aluminum hydroxide are very much used for the removal of various substances from solution, I set up a series of experiments upon these two adsorbents along with Lloyd's reagent.

The results of my experiments, tabulated in the tables at the end of this note, may be summarized as follows:

1. The reagent resembles animal charcoal in possessing the power of adsorbing alkaloids, glucosides, bitter principles and coloring matter. While in the scope of adsorbable substances charcoal most probably excels Lloyd's reagent, in velocity of adsorption of alkaloids, the reagent by far surpasses charcoal. The complete removal of alkaloids by means of charcoal usually requires digestion with continuous shaking for several hours, while the adsorption by Lloyd's reagent is complete within a few minutes.

2. The removal of alkaloids by either the reagent or charcoal is not influenced by the presence of free acid in the solution. Even alkaloids which in the free

condition are soluble in water, such as colchicine and caffeine, can be completely adsorbed either by charcoal or Lloyd's reagent.

3. Aluminum hydroxide, so effective in the removal of acid dyes with which it forms lakes, has very little adsorptive power for alkaloids, glucosides, and bitter principles.

4. The amount of reagent or purified animal charcoal required for the complete removal of alkaloids differs with the nature of the latter, and in the case of charcoal the removal is not complete unless the digestion and shaking of the mixture lasts a certain length of time.

5. Sodium chloride is not adsorbed by Lloyd's reagent.

6. Both the reagent and charcoal adsorb acids and alkalies.

The experiments on alkaloids were carried out as follows: Solutions of alkaloidal salts or of alkaloids in acidified water were shaken with such quantities of reagent or purified animal charcoal and for such periods of time as were found by preliminary experiments to be in all cases sufficient for the complete removal of the alkaloids. The solutions were then filtered, and the acid or acidified filtrates tested with Mayer's and Wagner's reagents.

Berberine was also tested for by picric acid which is extremely delicate for this alkaloid, and for isocalycanthine the very sensitive test with gold chloride and sodium carbonate was used in addition to Mayer's and Wagner's reagents.

In working with aluminum hydroxide a comparatively large amount of aluminum sulphate was added to solutions of alkaloidal salts, and the liquids made strongly alkaline with ammonia. After shaking for some time, the liquids were filtered, and the filtrates tested as above.

In testing for the adsorption of salicin, amygdalin and aloin, the filtrates were examined by evaporating aliquot portions to dryness and weighing the residues.

In the experiments with sodium chloride the amount of the latter in the filtrate was determined by titration with standard silver nitrate.

In the experiments on the adsorption of acid and alkali the amounts of these in aliquot portions of the filtrates were determined by titration.

Another series of experiments were made in order to determine whether it would be possible to make use of either charcoal or Lloyd's reagent for the complete removal of an alkaloidal salt in presence of free acid, together with a definite amount of this acid. If this were possible, we would have here a convenient method for the quantitative determination of alkaloids. All we would have to do would be to dissolve the given alkaloid in an excess of standard acid, remove the alkaloidal salt so produced together with a definite amount of the free acid by means of the adsorbent, and then titrate the excess of acid remaining in solution. Experiments showed, however, that both Lloyd's reagent and charcoal adsorb such amounts of free acids as are entirely independent of the amount of alkaloid taken. The acid adsorbed varies with the concentration of acid, alkaloid and amount of adsorbent used.

Attempts to make the method workable by standardizing the acids against known amounts of the alkaloids failed to give concordant results. Hence the expectations in this respect were not realized.

Table IV at the end of this article is taken from Lloyd's private communication.

TABLE I.
Adsorption of different substances by Lloyd's Reagent, Purified Animal Charcoal and Freshly Precipitated Aluminum Hydroxide.

Substance.	Amount.	Con- centra- tion.	Reagent Used.	Time shaken.	Wagner's reagent.	Mayer's reagent.	Special Considerations.	Conclusion.
Caffeine .....	.0945 gm.	15 cc.	2.5 gm. Lloyd's reagent	3 min.	no ppt.			
Caffeine .....	.0945 gm.	15 cc.	2 gm. charcoal	3 hrs.	no ppt.			
Caffeine .....	.035 gm.	10 cc.	10 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	15 min.	heavy ppt.			
Colchicine .....	.0840 gm.	15 cc.	2.5 gm. Lloyd's reagent	3 min.	no ppt.	no ppt.		
Colchicine .....	.0840 gm.	15 cc.	2 gm. charcoal	3 hrs.	no ppt.	no ppt.		
Strychnine Sulphate	.0831 gm.	10 cc.	2 gm. charcoal	3 hrs.	no ppt.	no ppt.		
Strychnine Sulphate	.0321 gm.	10 cc.	6 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	15 min.	no ppt.	no ppt.		
Berberine Sulphate.	.0333 gm.	20 cc.	5 gm. Lloyd's reagent	5 min.	no ppt.	no ppt.		
Berberine Sulphate.	.0333 gm.	10 cc.	10 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	10 min.	heavy ppt.	heavy ppt.	no test with Picric acid filtrate still yellow	adsorption very incomplete
Morphine Sulphate.	.0520 gm.	10 cc.	2 gm. charcoal	3 hrs.	no ppt.	no ppt.		
Atropine Sulphate.	.0575 gm.	10 cc.	2 gm. charcoal	3 hrs.	no ppt.	no ppt.		
Brucine Sulphate.	.0415 gm.	10 cc.	2 gm. charcoal	3 hrs.	no ppt.	no ppt.		
Aloin .....	.0418 gm.	10 cc.	5 gm. Lloyd's reagent	5 min.			Aloin present .010 gm. filtrate yellow and bitter	adsorption incomplete
Aloin .....	.0418 gm.	10 cc.	10 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	5 min.			filtrate yellow and bitter	adsorption very incomplete
Aloin .....	.0418 gm.	20 cc.	4 gm. charcoal	3 hrs.			colorless and tasteless	adsorption complete
Salicin .....	.0577 gm.	20 cc.	5 gm. Lloyd's reagent	10 min.			filtrate contained .0213 gm. Salicin	adsorption incomplete
Salicin .....	.0577 gm.	10 cc.	10 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	15 min.			filtrate intensely bitter	adsorption very incomplete
Salicin .....	.0577 gm.	20 cc.	4 gm. charcoal	3 hrs.			filtrate tasteless	adsorption complete
Isocalycanthine ....	.0655 gm.	15 cc.	3 gm. Lloyd's reagent	3 min.	no ppt.	no ppt.	no result upon adding $\text{Na}_2\text{CO}_3 + \text{AuCl}_3$	adsorption complete
Isocalycanthine ....	.0655 gm.	15 cc.	3 gm. charcoal	3 hrs.	no ppt.	no ppt.	no result upon adding $\text{Na}_2\text{CO}_3 + \text{AuCl}_3$	adsorption complete
Amygdalin .....	.2786 gm.	20 cc.	3 gm. Lloyd's reagent	5 min.			residue weighed .0613 gm.	adsorption incomplete
Indigo .....	.1014 gm.	20 cc.	5 gm. Lloyd's reagent	15 min.			filtrate colorless	adsorption complete
Indigo .....	.1014 gm.	20 cc.	10 gm. $\text{Al}_2(\text{SO}_4)_3 + \text{NH}_3$	15 min.			filtrate colorless	adsorption complete
Indigo .....	.1014 gm.	20 cc.	4 gm. charcoal	3 hrs.			filtrate colorless	adsorption complete
Sodium chloride....	2.5 gm.	100 cc.	5 gm. Lloyd's reagent	5 min.			titrated with AgNO_3	no salt adsorbed

TABLE II.
Adsorption of Acid and Alkali.

Substance.	Reagent.	Time of shaking.	Amount of substance adsorbed.
50 cc. N/10 KOH+50 cc. H ₂ O.....	3 gm. Lloyd's reagent	5 minutes	8.91 cc. of N/10 KOH
50 cc. NH ₃ sol. 0.2%+50 cc. H ₂ O..	3 gm. Lloyd's reagent	5 minutes	2.82 cc. of NH ₃ O.2%
30 cc. N/10 H ₂ SO ₄ +50 cc. H ₂ O....	3 gm. Lloyd's reagent	3 hours	7.8 cc. N/10 H ₂ SO ₄
50 cc. N/10 HCl+50 cc. H ₂ O.....	3 gm. Lloyd's reagent	3 hours	12.61 cc. N/10 HCl
30 cc. N/10 H ₂ SO ₄ +50 cc. H ₂ O....	3 gm. charcoal	3 hours	6.79 cc. of N/10 H ₂ SO ₄
50 cc. N/10 H ₂ SO ₄ +50 cc. H ₂ O....	3 gm. charcoal	3 hours	11.74 cc. N/10 H ₂ SO ₄
50 cc N/10 HCl+50 cc. H ₂ O.....	3 gm. charcoal	3 hours	6.6 cc. of N/10 HCl

TABLE III.
Relation Between Alkaloid and Acid Adsorbed.

Alkaloid.	Acid.	Reagent.	Time shaken.	Amount of acid found to be in combination with alkaloid.	Conclusion.
.2506 gm. Morphine	N/10 H ₂ SO ₄	7 gm. Lloyd's reagent	3 min.	3.48 cc. N/10 acid	} No def. relation
.1002 gm. Morphine	N/10 H ₂ SO ₄	7 gm. Lloyd's reagent	3 min.	.817 cc. N/10 acid	
.250 gm. Morphine	N/10 H ₂ SO ₄	10 gm. charcoal	3 hrs.	2.342 cc. N/10 acid	} No def. relation
.1002 gm. Morphine	N/10 H ₂ SO ₄	10 gm. charcoal	3 hrs.	1.290 cc. N/10 acid	

TABLE IV.
(Lloyd's.)

Amounts of the reagent required for the complete removal of different alkaloids.

1 gm. Cocaine Hydrochlorate requires.....	14 gm. of the reagent
1 gm. Strychnine Sulphate requires.....	10 gm. of the reagent
1 gm. Morphine Sulphate requires.....	6 gm. of the reagent
1 gm. Brucine Sulphate requires.....	8 gm. of the reagent
1 gm. Codeine Sulphate requires.....	6 gm. of the reagent
1 gm. Cinchonine Sulphate requires.....	10 gm. of the reagent
1 gm. Cinchonidine Sulphate requires.....	11 gm. of the reagent
1 gm. Atropine Sulphate requires.....	8 gm. of the reagent
1 gm. Quinine Bisulphate (Neutral Solution).....	10 gm. of the reagent
1 gm. Quinine Bisulphate (Acid Solution).....	12 gm. of the reagent

NORTHWESTERN UNIVERSITY SCHOOL OF PHARMACY, Chicago, Ill., June 24, 1912.

TINCTURE OF CANTHARIDES—CONTINUED.

WILBUR L. SCOVILLE.

In 1910 I called the attention of this Association to the fact that the official Tincture of Cantharides is unwittingly misbranded, in that it does not and cannot properly represent the drug. Operating on four different samples of cantharides, by the official process, I found that 30%, 44%, 54% and 63% of the activity of the respective drugs used was represented in the tinctures. By using a menstruum of 10% Glacial Acetic Acid and 90% of alcohol, by volume, tinctures were prepared from three of these drugs which represented 81%, 87% and 91%, respectively of their activities.

This acid menstruum has been declared objectionable by some, though for what reasons I have thus far been unable to discover, since acetic acid is an excellent adjuvant to the action of cantharides.

Last year I presented a second paper on the subject in which the results of fifteen further attempts at making a representative tincture were shown. These experiments were made with menstrua composed of alcohol-acetone, alcohol-chloroform and alcohol-acetic ether, each being supplemented by the addition of 0.5 parts of acetic acid per 100 volumes, to free the cantharidin. The results showed an exhaustion of 26% to 46% by the usual percolation method, and 66% to 74% when the percolation was preceded by digestion at 40° to 50° C. The only conclusion from these experiments was that digestion is a very material aid to extraction, but even then the results were far from satisfactory. Furthermore the results were very puzzling, inasmuch as solvents had been used which were certainly capable of dissolving the cantharidin present, yet some had failed to extract any more than the best samples of a straight alcohol-menstruum. Also these results were less satisfactory than those obtained by direct percolation with a cold menstruum of alcohol-acetic acid.

In the present series, eighteen experiments have been made.

Since the beetles have shown a considerable indifference to alcoholic solvents under varying conditions, and even to mixtures of alcohol and chloroform, or alcohol-acetone and acetone-acetic ether, another line of attack was sought.

Reasoning humanly, a creature which could resist unlimited quantities of alcoholic liquids might succumb to hot water—a reasoning which had some support in the known effectiveness of boiling water in assaying the drug and its tincture, the following experiments were tried:

A—50 Gm. of drug, assaying 0.75% of cantharidin were digested with 25 cc. of diluted hydrochloric acid and 25 cc. of water for fifteen hours at a temperature of about 50° C., a reflux condenser being used. Then there were added 175 cc. of acetic ether and 275 cc. of alcohol, and the mixture macerated, with occasional shaking for two days, then filtered.

B—50 Gm. of the same drug were digested for fifteen hours with 25 cc. of diluted acid and 100 cc. of water, then 175 cc. of acetic ether and 200 cc. of alcohol were added and the mixture macerated two days before filtering.

C—50 Gm. of the same drug were digested with 25 cc. of diluted acid and

150 cc. of water for fifteen hours, then 175 cc. of acetic ether and 150 cc. of alcohol added, the mixture macerated during two days, then filtered.

Results—"A" Tincture (10% water) assayed 0.059 gm. per 100 cc.

"B" Tincture (20% water) assayed 0.066 gm. per 100 cc.

"C" Tincture (30% water) assayed 0.057 gm. per 100 cc.

These show an exhaustion of 78.6%, 88.8% and 76.0%, respectively, and indicate that the beetles yield in some degree to the hot water treatment, but that there are limits to which the menstruum can be diluted with water and still retain the cantharidin in solution.

The rest of the experiments were therefore conducted on this line, striving for conditions that would give a tincture which would fully represent the drug.

Experiment D tried 25% of acid-water and yielded 0.060 gm. cantharidin per 100 cc. or 80% exhaustion.

Experiments E, F and G were made to determine whether chloroform or acetic ether would give the best results in the menstruum.

These were made on a drug assaying 0.70% of cantharidin. E was made with 25% of acid-water and 35% of acetic ether (by volume) in the menstruum, and F with 25% of acid-water and 20% of chloroform. G was made with 25% acid-water and 20% acetic ether.

"E" Tincture assayed 0.054 gm. per 100 cc.=77.1% exhaustion.

"F" Tincture assayed 0.053 gm. per 100 cc.=76.0% exhaustion.

"G" Tincture assayed 0.057 gm. per 100 cc.=80.0% exhaustion.

This shows the perversity of the insects and leads to no conclusions.

Experiment H, made on the drug assaying 0.75% of cantharidin, used 35% of acid-water and 35% of acetic ether in the menstruum. Results=0.057 gm. per 100 cc. or 76% exhaustion—the same as C.

Experiment I, used the same drug and menstruum as C, but added the acetic ether to the hot aqueous mixture, shook until cold then added the alcohol and macerated the whole four days. Results=0.060 gm. per 100 cc. or 80% exhaustion—a trifle better than C.

Experiment J, used 25% water (including 50 cc. of acetic acid per 1000) and 20% of chloroform, and the same method as I—that is, the hot aqueous mixture was shaken with chloroform until the mixture became cold (about fifteen minutes) then the alcohol was added and the mixture macerated four days. Results=0.074 and 0.077 gm. per 100 cc., or 100%!

Victory at last! Here was a tincture which fully represented the drug used, and a drug of good grade, too. It had a brownish-green color, was a little darker than the present U. S. P. tincture and had a noticeable odor of acetic acid and of chloroform—though the latter was not as prominent as I had expected. It was brilliantly clear, and did not precipitate on standing several months—as ascertained afterward.

This was the first tincture in my experience which was known to fully represent the drug, and it only remained now to prove that the process would apply to various grades of drugs.

For the next experiment (K) an exceptionally rich drug was employed—one assaying 0.92% of cantharidin. The menstruum consisted of 25% water and

20% chloroform with acetic acid as the freeing agent and the chloroform added directly to the hot aqueous mixture and shaken until cold, as in experiment I. Result 0.064 gm. per 100 cc. or 70% exhaustion! This is tobogganing with a sharp start!

Experiment L.—Again 25% acid-water and 15% chloroform, and the mixture was digested three days after the chloroform had been well shaken as before. Result, 0.0745 gm. per 100 cc., or 81% exhaustion. This is better, but still considerably below 100%.

Experiment M.—Twenty-five percent acid-water and 20% chloroform treated as L. Result 0.075 gm. per 100 cc. or 81% exhaustion.

Experiment N.—Same as L but macerated in the cold instead of digesting the final mixture. Result 0.072 gm. per 100 cc. or 78% exhaustion.

Experiment O.—Twenty-five percent acid-water, 15% chloroform and macerate six days after the chloroform and alcohol were added. Result 0.068 gm. per 100 cc. or 74% exhaustion.

Experiment P.—The drug used on Experiments K to O, inclusive, was in a moderately coarse powder—about No. 40. Now some of this was ground to pass through a No. 80 sieve, then treated with 25% acid-water and 20% chloroform menstruum, the water digestion being continued for two days, then the mixture macerated one day with heat and two days without. Result 0.064 gm. per 100 cc. or 70% exhaustion.

Experiment Q.—Same as P but with shorter digestion and maceration—three days total. Result 0.057 gm. per 100 cc.=62% exhaustion.

Experiment R.—Twenty-five percent acid-water—which was digested at about 50° C. over night (15 hours) then on a steam-bath at 95° to 100° C. under a reflux condenser for six hours, then cooled to about 70° C., the chloroform 15% added and the mixture shaken until cold. Then alcohol (55%) added and the mixture macerated three days. Result: 0.056 gm. per 100 cc.=60% exhaustion.

Experiment S.—Twenty percent water, 35% acetic ether and 45% alcohol, digestion with water at 50° C. carried on 24 hours, then maceration with the rest two days longer. Result: .065 gm. per 100 cc.=70% exhaustion.

Conclusions: I have none. This is still a continued quest,—the conclusion to follow.

The cantharides fly seems to be like the proverbial flea—"when you put your finger on him he isn't there."

There is some encouragement in getting one tincture that fully represents the drug, but that is of little value unless the formula can be depended upon. In this case it worked on one drug, and not on another. And lest somebody questions whether the assay on this sample was reliable, let me say that three assays on this particular lot checked to 0.3% and in all the experiments at least two assays were made, the results checking closely. Probably long practice has enabled me to make assays of this drug and tincture with reasonable accuracy, though I do not expect very close results among different operators by the present known methods.

The present situation on the extraction of cantharides is as follows:

1. Alcohol alone fails to extract more than half to two-thirds of the cantharidin present.

2. Heat favors extraction, but has less effect in anhydrous than in hydrated menstrua.

3. The best menstruum thus far found is a mixture of one volume of glacial acetic acid with nine volumes of alcohol.

4. Mixtures of water, alcohol and chloroform, acidulated with acetic or hydrochloric acid have given good results in some cases, but the proportions and method which will give uniformly satisfactory results have not yet been discovered.

PARKE, DAVIS & Co., Detroit, Mich.

DISCUSSION.

Otto Raubenheimer, of Brooklyn, said Mr. Scoville's work was certainly a valuable one, and proved without doubt that the Brussels International Conference had made a mistake when they made the international agreement that tincture of cantharides should be made 10 percent strength. Instead of using a menstruum of 70 percent alcohol by percolation, Mr. Scoville recommended making a glacial acetic acid menstruum, which seemed to extract the cantharidin and made a 100 percent tincture, by mixing one part of glacial acetic acid with nine parts alcohol. He thought this was a good means of extracting the cantharides. But at the same time it was doubtful whether it could be used, because frequently tincture of cantharides was administered internally, and especially as a veterinary remedy, for horses and cattle. He thought this formula was objectionable because of its high percentage of glacial acetic acid.

Mr. Scoville responded to this that in the official dose of tincture of cantharides the equivalent would be given. For instance, 5 minims tincture cantharides made with acetic menstruum equals 8 drops of ordinary vinegar; so even with a horse or other animal, where a relative amount was given, he did not see how it could be objectionable.

F. T. Gordon, of Philadelphia, wanted to know the effect of cantharides used as a hair tonic, and Mr. Scoville responded humorously that it was "a psychological effect only," inasmuch as there was no cantharidin really in these remedies.

L. F. Kebler, of Washington, D. C., wanted to know of Mr. Scoville on what basis he made the statement that the present pharmacopœial tincture of cantharides was misbranded, in view of the fact that this was recognized as standard in the Federal Food and Drugs Act? The law declared that if it was prepared in accordance with the pharmacopœial method, it was a proper standard. He remarked that the results here stated brought to mind the possible reason why so many hair-tonics, said to be made with cantharides, had failed. He thought it was worth while to investigate this subject, for the benefit of mankind in general.

DETERMINATION OF SANTONIN IN SANTONICA.

CHARLES E. CASPARI, ST. LOUIS.

During the past winter, the fact was brought to my attention that Santonica was being bought and sold on its santonin assay, in fact, a certain manufacturer of stock remedies was in the market for Santonica with a guaranteed santonin content, claiming that he had always been able to procure such. At that time I knew of no published method for the determination of santonin and after correspondence and conversation with a number of my pharmaceutical-chemical friends, I learned that they knew no more than I did about the determination of santonin. I discovered that a firm of crude drug dealers in Chicago was assaying Santonica, but when I applied to that firm and requested it to give me

the method of assay, my request was politely but firmly refused, on the ground that this firm intended to take up the manufacture of *santonin* on a large scale and that its assay method would be the manufacturing process, which it desired to keep secret. About this time, our presiding officer, Mr. Frank R. Eldred, whom I take this opportunity of thanking, as well as the firm with which he is connected, Eli Lilly & Co., called my attention to three articles published in the *Archiv der Pharmazie* by Thaeter in Vol. 235, page 401 and Vol. 237, page 626 and by Katz in Vol. 237, page 245. Katz's article is a criticism of Thaeter's first article and some suggested improvements and Thaeter's second article is a reply to Katz.

I carefully and conscientiously endeavored to apply both the methods of Katz and Thaeter to the determination of *santonin*, but with very unsatisfactory results. Some *santonin* was always obtained, but an indeterminate amount was always lost on account of the large amount of resin that was precipitated with the *santonin* and the difficulty of separating the *santonin* quantitatively from the resin, so that it was impossible for me to obtain duplicate results that checked. About this time, my father, Charles Caspari, Jr., referred me to an article by Fromme, published in the *Jahres-Bericht* of Cäsar & Loretz of Hallé for September, 1912, for the determination of *santonin* in *Santonica*, which is a modification of Katz's method and which gave very satisfactory results. I take this occasion to say that I make absolutely no claim of originality in this paper, but merely desire to call the attention of the pharmaceutical-chemical profession to a quantitative method which I am sure is little known and which gives good results.

The method of Fromme follows: Thirteen grams of moderately finely powdered wormseed are placed in a separatory funnel containing 130 grams of chloroform. A pledget of cotton should be placed in the funnel above the stopcock before introducing the wormseed. After one hour's maceration with occasional shaking, 102.5 grams (equal to 10 grams of drug), of the liquid are drawn off into a 200 c. c. Erlenmeyer flask. Evaporate the chloroform until the residue weighs 7 to 8 grams. Add 100 grams of five percent barium hydroxide solution and place the flask in hot water. After the chloroform has evaporated sufficiently to enable the resin to rise to the surface, it is heated until all odor of chloroform has disappeared. Filter through a plain filter of six cm. diameter, previously wetted, into a 200 c. c. Erlenmeyer flask; rinse the flask and filter twice with 10 c. c. of hot water, add five grams of twenty-five percent hydrochloric acid to the filtrate and heat the whole for several minutes on a boiling water bath. After the liquid has been cooled somewhat by setting the flask in cold water, pour the liquid into a separatory funnel and rinse the flask with twenty c. c. of chloroform, which is added to the contents of the funnel. Shake the mixture actively for two minutes and after the chloroform has separated perfectly, filter the same through a double plain filter into a 100 c. c. Erlenmeyer flask. Wash the acid-aqueous liquid twice with fifteen c. c. of chloroform by agitation and draw the chloroform off as before through the filter. Distil the chloroform from the combined filtrate and remove the last traces of chloroform from the residue by a current of warm air. Dissolve the residue in 7.5 grams of absolute alcohol and add 42.5 grams of hot distilled water. Filter the milky

liquid at once into a tared 100 c. c. Erlenmeyer flask and wash the flask and filter twice with ten grams of a mixture of three grams of absolute alcohol and seventeen of distilled water. Set the filtrate aside for 24 hours (not longer) and filter through a plain six cm. tared filter, washing the flask and filter twice with ten grams of the above alcohol-water mixture. Dry the flask and filter at 100 degrees C. to constant weight, place in a desiccator for one-half hour and weigh again. To the weight of the santonin thus found add 0.04 gram for loss by solution in the dilute alcohol. The total weight of santonin multiplied by ten, gives the percentage content, which should be calculated on the basis of previously dried wormseed.

It may not be out of place to say a word in explanation of Fromme's method. Santonin is the inner anhydride or lactone of santonic acid and probably occurs as such in the wormseed. The extraction with chloroform removes the santonin and considerable resin, while the treatment with barium hydroxide converts the santonin into barium santoninate, at the same time that the barium salt of certain resin acids is formed. The addition of hydrochloric acid sets free santonic acid and also some resin acids. The heating on the water bath for several minutes serves to convert the santonic acid into the lactone, santonin. This, together with some resin acids, is extracted from the acid liquid with chloroform and the chloroform is then evaporated. The residue is dissolved in absolute alcohol and enough hot water is added to make the alcohol fifteen percent strength, because it was found by experiment that alcohol of this strength was best adapted to dissolve the santonin while hot and to hold the least amount in solution when cold. When the alcoholic solution cools, the santonin separates out in crystals, while the resins separate out in such a fine state of division that they pass through the filter paper with the greatest ease. The addition of 0.04 gram to the amount of santonin obtained is made necessary because that amount of santonin is held in solution by the amount of fifteen percent alcohol used. In order to obtain concordant results, it is necessary to adhere rigidly to the amounts given in the method.

I have tried this method on two samples of *Santonica*, and, as stated above, I obtained very satisfactory results. The method is infinitely superior to that of either Thaeter or Katz. The results which I obtained on the two samples of *Santonica* were Sample No. 1, 2.09% and 2.21% and Sample No. 2, 2.46% and 2.33%. I have not had time to make more determinations, but the method worked so satisfactorily that I see no reason why it should not prove successful in the hands of any chemist.

In Vol. II, page 596, of the *Journal of the American Pharmaceutical Association*, LaWall calls attention to the fact that there is *Santonica* on the market which is practically devoid of santonin, and I wish to confirm this fact. There are large quantities of wormseed being imported into this country, in which the amount of santonin cannot be considered as more than the faintest trace and it is practically impossible to differentiate by inspection between the true and the spurious. Hence, it becomes necessary to have recourse to the quantitative method for the determination of santonin and fortunately we have a satisfactory method in the one of Fromme described above. It would seem desirable that this method be adopted by the government at the various ports of entry of this

country and that it also be incorporated in the forthcoming United States Pharmacopœia.

ANALYTICAL LABORATORY, MEYER BROS. DRUG CO., St. Louis.

DISCUSSION.

Clement B. Lowe, of Philadelphia, said that large quantities of crude santonin were being imported into this country, and he wanted to know whether it was possible that this *santonica* which seemed to yield no santonin had been treated, or could be treated, without altering the physical appearance of the drug. He was aware that this had been done with some drugs, as with opium, for instance, where a part of the morphine content had been abstracted and then the drug fixed up from that.

Prof. Caspari said it was true, that large quantities of crude santonin were imported, but the source was controlled by the Russian government, a close corporation, and he did not believe that the *santonica* that came in devoid of santonin had been subjected to treatment in the old country. Dr. H. H. Rusby had told him that the spurious article was a different species. Tons of this spurious species were being used all over the country, especially for stock-powders, which were absolutely worthless.

Hermann Engelhardt, of Baltimore, made the comment that out of ten samples of *santonica* he had examined, he had found nine with no trace of santonin whatever. He expressed the opinion that all of the tests given were uncertain.

Chairman Eldred said that, while it did not bear upon the determination of santonin, he was reminded to say that the representative of a drug importer had told him a few months before that he had considered the handling of santonin, and had gone to Russia to investigate the conditions of the market there, and he had found it just as Mr. Caspari has stated, that it was a very close corporation. An interesting fact was, that some of the growers were paid for their drug, which was then set fire to and burned in the fields, in order to keep from overloading the market with santonin.

DETECTION AND ESTIMATION OF MINUTE QUANTITIES OF FORMALDEHYDE IN PRESENCE OF HEXAMETHYLENAMINE AND OF METHYL ALCOHOL IN PRESENCE OF ETHYL ALCOHOL.

H. A. B. DUNNING, BALTIMORE.

Sometime during the year 1912, Dr. Curtis F. Burnam, member of the staff of Johns Hopkins Hospital, sought my advice as to the most satisfactory method of detecting traces of formaldehyde in urine.

After a careful investigation, I recommended, as most delicate and satisfactory, three tests herein named and described.

Only one of these tests, Rimini's, was of particular value in his work on account of the presence of hexamethylenamine in the material tested. Hehner's milk test, while most delicate, was not suitable on account of being conducted in acid solution, resulting in decomposition of hexamethylenamine with the production of formaldehyde.

While Rimini's test has been found to be most satisfactory in differentiation of formaldehyde in presence of hexamethylenamine, experience teaches that certain precautions should be observed to obtain best results.

The specimens to be examined and all test solutions should be warm, not hot.

and an excess of nitroprusside solution should be avoided. In weak specimens the nitroprusside solution should be diluted five to ten times. In urine, formaldehyde may be detected readily by this test in strength of 1-100,000; in weaker strengths than this, much depends upon the care and experience of the operator.

The test is usually conducted as follows: About 2 cc. of urine specimen, contained in five inch tube, is warmed and two drops of one-half percent fresh solution of phenylhydrazine hydrochloride is added, followed by two drops of one-half percent fresh solution of sodium nitroprusside, the mixture being made strongly alkaline with saturated solution of sodium hydroxide. In strengths 1-20,000 to 1-50,000, deep blue colorization results, changing in a few minutes to green, then yellow, or perhaps, red. In more dilute solutions the blue lasts momentarily only, and is quickly succeeded by green. The blue may be made to last longer and become more distinct by adjustment of the quantities of sodium nitroprusside and phenylhydrazine hydrochloride added, the weaker strengths requiring less nitroprusside and phenylhydrazine. In alkaline solutions phenylhydrazine gives a yellow color, therefore, if there is but a trace of formaldehyde the blue color is masked and converted into green by mixtures of blue and yellow.

The Phloroglucin test, the author of which I have lost record, is quite satisfactory for dilutions of formaldehyde in urine, not exceeding 1-100,000, the red color being masked by yellow of the urine. The author of this test directs that a solution of phloroglucin, 1 gram, alcohol 90 percent, 100 cc. and sodium hydroxide 10 grams, be made fresh. A much better plan is to prepare a solution of phloroglucin in alcohol 1 gram to 100 cc. and add strong solution of sodium hydroxide to specimen at time of testing.

The test is conducted as follows: To 2 cc. of specimen, previously warmed, contained in a five inch test tube, add one drop of alcoholic solution of phloroglucin, then make strongly alkaline with saturated solution of sodium hydroxide, previously warmed. The color produced is red.

These tests have been used with satisfaction in connection with an investigation made by Dr. Burnam and his associates. It seems to me desirable, in connection with this paper, to call attention to the character of Dr. Burnam's work and the importance of the conclusion arrived at.

Dr. Burnam has learned that small doses, as little as five grains per day, of hexamethylenamine may produce formaldehyde in the urine of strength exceeding 1-30,000, this being highly destructive to the mucosa of the bladder, while in other patients or, perhaps, at different times, one hundred grains per day will produce only traces of formaldehyde, or perhaps, none at all. The point of interest is that it is dangerous to give large doses of hexamethylenamine until the patient has first been treated with small doses.

Subsequent to the publication of Dr. Burnam's paper, much interest was evinced by the medical fraternity in the discovery of a test for the quantitative estimation of formaldehyde in the urine that would differentiate hexamethylenamine and yet would be practicable in the hands of the physician.

I offer the following test to fill this requirement: From an assayed specimen of commercial formaldehyde solution, accurate dilutions are prepared of strengths 1-50,000, 1-100,000, 1-200,000, 1-300,000, as standard solutions for

colorimetric comparison. More standard solutions may be prepared if necessary. The test will estimate quantitatively up to 1-500,000 in the urine and 1-30,000,000 in clear water. Dextrose, acetone, acetaldehyde do not interfere in solutions weaker than 1-30,000 and then only on heating or long standing.

The test is conducted as follows: To five cc. of the specimen contained in a five inch test tube, add .1 cc. of 15 p. c. solution of sodium hydroxide and mix well. Then add .1 cc. phenylhydrazine base, not hydrochloride, finally add .7 gram of stick sodium hydroxide and agitate for ten minutes. The strength is estimated colorimetrically by comparing with the standard solutions treated in same manner as specimen, and at the same time. It is important to remember that the several reagents must be added to specimen and standard solutions at the same time; i. e., specimen and standard are treated simultaneously.

Colorimetric comparisons must be made within twenty minutes after stick alkali is added. Usually comparisons are made in about ten minutes subsequent to the addition of stick alkali.

If it is desired to keep specimens for some hours previous to estimation, then the .1 cc. of 15 p. c. solution of sodium hydroxide must be added. This precaution prevents decomposition of hexamethylenamine with production of formaldehyde, which will take place in acid urine on standing. After specimen has been made alkaline as directed in method of assay, no attempt should be made to remove precipitate, as such procedure will remove free formaldehyde wholly or in part. In my experience any attempt to remove color of urine, by charcoal, precipitation, reduction, oxidation, etc., results in removal of some or all of free formaldehyde.

This test has been used with much satisfaction in a series of clinical experiments conducted at the Union Protestant Infirmary by Dr. George Walker, associate professor of Surgery, Johns Hopkins Hospital.

In line with the above work is a recent examination of samples of whiskey submitted by Dr. Hiram Woods, Eye Specialist, of this city. Dr. Woods stated that he was at that time treating a patient almost blind, who could offer no explanation of his condition except that he had partaken rather freely of whiskey mislabelled Sherwood Maryland Rye.

Upon investigating a sample of this brand of whiskey it was found to be a mixture of approximately 30 percent methyl alcohol, about 15 percent grain alcohol and 55 percent water. This sample was tested among other tests, including specific gravity of distillates, as follows:

A test tube partially filled with the sample was heated until vapor formed in upper part of tube, into which a copper spiral heated to redness and slightly cooled in air was plunged. The characteristic odor of formaldehyde and the effect on nasal passages was observed, masked to some extent by acetaldehyde and other odors. The formaldehyde odor was much more characteristic when applied to a fraction of distillate partially freed from water by saturating with potassium citrate and distilling the supernatant layer.

The specimen was further tested as follows: 100 cc. was supersaturated with potassium citrate and thoroughly shaken, when two strata of liquid were formed, the upper measured about 44 cc. This latter liquid was removed into a distilling bulb connected with a distillation tube having several bulbs and carrying glass

beads. The liquid was heated on water bath and began to boil at 68°-70° C., the larger portion distilling over under 75° C., rising to 78° then to 85°. The mixed distillate was twice distilled over lime, practically all coming over under 78° C. This distillate was then carefully fractionated, the lower boiling fractions being collected and refractionated until 19 cc. of liquid boiling at 60°-66° C. was obtained. This distillate tested with the copper spiral gave entirely characteristic formaldehyde effects.

Formaldehyde produced in solution by plunging a heated copper spiral into portion of distillate and testing in accordance with Rimini's Test, gave entirely characteristic reaction, as also Hehner's milk test, the phloroglucin test, and Dunning's test.

Methyl salicylate was produced with salicylic acid and sulphuric acid, but only a trace of iodoform could be produced. The quantity of methyl alcohol, 96 percent, was then estimated with a refractometer and by the method suggested by C. Simmonds in his notes on the determination of small quantities of methyl alcohol,* which are here given:

"Small proportions of methyl alcohol have hitherto been somewhat difficult to determine readily and accurately. Fairly good approximate results can be obtained by comparative experiments with the well known method of Riche and Baddy (*Compt. rend.*, 80, 1076 [1875]), or with Wolff's modification of Trillat's process (*Ann. Inst. Pasteur*, 1912, 8), but these methods are lengthy and rather troublesome. The process described by Thorpe and Holmes (*J. Chem. Soc.*, 85, 1 (1904), gives good results when the quantity of methyl alcohol is not too small. It is not well adapted, however, for use when the proportion of methyl alcohol is less than about 2 percent of the ethyl alcohol, since the necessary subtractive correction (*loc. cit.*, pp. 2, 3) may in such cases be equal to or may exceed the quantity it is desired to estimate. For determining very small portions of methyl alcohol the method is quite inapplicable. In such cases satisfactory determinations can be made by applying the principle of colorimetric comparison by Deniges' process for detection of methyl alcohol (*Compt. rend.*, 150, 332 [1910]).

"The possibility of thus using the process is indicated by Deniges, (*loc. cit.*, p. 833). The object of the present note is to give the procedure which the writer finds most suitable for utilizing the reaction quantitatively in general analytical work, as, for example, in examining spirituous beverages, medical tinctures, flavoring essences, and so forth.

"The alcoholic mixture is best purified, when necessary, either by the method of Thorpe and Holmes (*J. Chem. Soc.*, 83, 314 [1903]), or by other suitable means. It is then diluted with water or mixed with ethyl alcohol, as the case may require, until it contains 10 percent of total alcohol by volume.

"To 5 cc. of this prepared liquid contained in a wide test tube are added 2.5 cc. of permanganate solution (2.0 grams KMnO_4 per 100 cc), and then 0.2 cc. of strong sulphuric acid. When the reaction has proceeded about five minutes, 0.5 cc. of oxalic acid solution is added (0.6 grams crystallized acid per 100 cc.). On shaking the liquid becomes clear and nearly colorless. One cc. of strong sulphuric acid is now run in and well mixed with the solution, which is finally treated with 5 cc. of Schiff's reagent. A violet color is developed in the course of a few minutes unless mere traces of methyl alcohol were present, when twenty or thirty minutes may be required.

"This color is due, of course, to the reaction of the fuchsin solution with formaldehyde, produced by the oxidation of the methyl alcohol. A sufficient quantity of sulphuric acid is present to prevent the development of color with any acetaldehyde formed from the ethyl alcohol during the oxidation.

*Government Laboratory, London. *Analyst* 27, 16 (1912).

"A preliminary experiment carried out as described serves to detect the presence of methyl alcohol, if it is not already known, and to give some idea of the quantity. According to the indications thus obtained, another part of the prepared liquid is further diluted, if necessary, with ethyl alcohol of 10 percent strength until it contains from 0.001 to 0.004 grams of methyl alcohol in 5 cc.; the experiment is repeated side by side with two or more standards for comparison. These contain 0.001, .002, 0.003, etc., gram of methyl alcohol in 5 cc. of 10 percent ethyl alcohol. The colors produced are compared in small Nessler tubes (25 cc.) or in a suitable colorimeter.

"With properly sensitive Schiff's reagent, 0.0003 gram methyl alcohol in the 5 cc. of liquid taken is readily detected. The best depths of color for comparison, however, are given by the formaldehyde produced in the manner described from quantities of 0.001 to 0.004 gram of methyl alcohol.

"It is convenient to keep a standard solution (1 gram per liter) of methyl alcohol in 10 percent ethyl alcohol. This is diluted as required with 10 percent alcohol to form the standards for comparison. This proportion of ethyl alcohol (10 percent) is a suitable strength for general work, as the distillates ordinarily obtained are stronger, and can be diluted down instead of having to be concentrated.

"The process has the advantage of (1) being rapidly executed, (2) requiring only a small quantity of material, and (3) being directly applicable to weak distillates. The degree of accuracy obtainable is shown by the following results of a typical series of experiments:

		Grams methyl alcohol per 100 cc.					
Present	.....0.005	0.028	0.044	0.072	0.100	0.500	1.000
Found	.....0.004	0.029	0.046	0.072	0.104	0.492	0.968

"Formaldehyde, of course, must be absent from the unoxidized solution of the alcohols, or else its effect must be determined and allowed for. Glycerol must also be absent."

The method of purification referred to is for the purpose of getting rid of other volatile substances, such as ether, chloroform, benzene, essentials oils, etc. Twenty-five cc. of the sample are diluted in a separatory funnel with water to 100-150 cc., enough salt added to saturate the solution which is then shaken vigorously for five minutes with 50-80 cc. of light petroleum (boiling below 60°), allowed to stand 0.5 hour, the lower layer drawn off and again extracted if necessary, the petroleum extracts washed with 25 cc. of saturated salt solution, the wash waters added to the main bulk of liquid which is then neutralized if necessary and 100 cc. distilled over. Experiment has shown that all of the alcohol is recovered in the first 100 cc. of distillate.

Sensitive fuchsin bisulphite solution is readily made according to the following formula: In 100 cc. of a saturated solution, less than 1 percent of basic fuchsin, dissolve sodium bisulphite 10 grams and when nearly colorless mix with purified animal charcoal and filter; a perfectly clear solution should result.

DISCUSSION.

Otto Raubenheimer, of Brooklyn, said that hexamethylenamine should be taken internally with caution, as he had learned by an experience in his own family, where the hexamethylenamine, instead of being taken three times a day, in five-grain doses was taken every hour. After the patient had taken five doses she was thrown into a great state of excitement, with impairment of vision, and it was necessary to call in a physician. This experience had

proven to him that hexamethylenamine should be taken inwardly with great caution. He thought that one thing might be stated in the paper by way of caution—a fact well known to chemists—that phenylhydrazine and sodium nitroprusside solutions should be freshly made, as they deteriorated very rapidly and that they should furthermore be protected from light.

METHODS OF ANALYSIS FOR CERTAIN PHARMACEUTICAL PREPARATIONS.

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In the course of a year's work in a laboratory devoted to the analysis of drugs and drug preparations, it often becomes necessary to devise new methods, or to modify old ones, for the analysis of certain drug products that do not have any commonly recognized methods.

So far as the author is aware, the following methods have not appeared in print, and my reason for calling your attention to them is the fact that perhaps someone else may have need for such methods.

DETERMINATION OF MORPHINE IN TABLETS.

Take a sufficient number of tablets to equal about four or five grains of morphine, place in a small Erlenmeyer flask of about 50 cc. capacity, add 10 cc. of water and a drop of dilute sulphuric acid and allow to dissolve. If the tablets are not entirely soluble, as determined by a previous test, place the powdered tablets in a 5.5 cm. plain folded filter and extract with distilled water, applied drop by drop, using if possible not more than 10 to 15 cc. of water.

Now add a few drops of cochineal or methyl red and sufficient ammonia to give neutral point, and then add $\frac{1}{2}$ to 1 cc. of 10% ammonia in excess.

Place sample in an ice chest, preferably resting upon a cake of ice and allow to stand over night, when if precipitation has taken place properly, the morphine will appear as a fine crystalline precipitate. Filter into a weighed Gooch crucible, wash well with cold water, dry at 65° C. and weigh.

Place filtrate from above in a separatory funnel and extract five or six times with 30 cc. portions of a mixture of chloroform 3 parts, and alcohol 1 part, being careful to maintain a very slight excess of ammonia. Wash the united chloroform-alcohol solution of morphine twice with 5 cc. portions of water, and then extract the aqueous washings with an equal volume of chloroform.

Filter the chloroform-alcohol solution of morphine through a small filter wetted with chloroform, into a suitable flask and distill off all but about 10 cc. of the liquid, evaporate the remaining portion to dryness on the water bath, take up in neutral alcohol (2 or 3 cc.) add an excess of N/50 sulphuric acid (about 15 cc.), a few drops of methyl-red or cochineal as indicator and titrate excess of acid with N/50 KOH. Each cc. of N/50 acid consumed is equal to 0.006 gm. crystallized morphine.

Add weight of morphine found in filtrate by titration to that obtained by

gravimetric method and multiply this figure by 1.251 to get amount of morphine sulphate in sample used.

ASSAY OF EFFERVESCENT SOLUTION OF MAGNESIUM CITRATE.

In addition to such tests and observations as appearance, odor, precipitate, if any, gas pressure, sp. gr. at 25° C., volume of entire sample, sulphates, chlorides, etc., we make the following assay:

Free Citric Acid.

Having first determined the total volume of the sample, measure out exactly 15 cc., add an equal volume of water, and boil until free from CO_2 , cool, add a few drops of phenolphthalein, and titrate with $\text{N}/2$ KOH .

Each cc. $\text{N}/2$ KOH = .03475 gm. citric acid.

Total Citric Acid.

Evaporate the liquid remaining after determining "free citric acid" to dryness in a platinum dish, char thoroughly, take up residue in 20 cc. $\text{N}/1$ H_2SO_4 , heat on water bath, filter through ashless filter, and wash filter thoroughly with hot distilled water, burn filter in same dish, and dissolve the small amount of ash in a portion of the filtrate, filter if necessary, wash thoroughly, cool, and titrate excess of $\text{N}/1$ H_2SO_4 with $\text{N}/2$ KOH , using methyl orange as the indicator.

Each cc. $\text{N}/1$ H_2SO_4 consumed = .0695 gm. total citric acid.

Each bottle of Solution Magnesium Citrate when made by the U. S. P. formula should contain 33.6 gm. U. S. P. citric acid, and 15 gm. magnesium carbonate, equivalent to not less than 5.76 gm. pure MgO , and 2.5 gm. potassium bicarbonate.

According to my calculations, we should have in a strictly U. S. P. preparation, 11.87 gm. free citric acid, 21.73 gm. combined citric acid, and 5.76 gm. MgO per bottle.

Determination of MgO .

Dilute 25 cc. of the sample with water to 100 cc. Measure out 25 cc. aliquots, place in wide mouthed Erlenmeyer flask, and determine MgO by A. O. A. C. method as given in Bulletin 107, revised, page 16.

Calculate to gm. MgO per bottle.

By means of the above method we obviate the disagreeable feature of precipitating the citrate as the lead salt and its subsequent manipulation as proposed by Street. (Report of Conn. Agric. Exp. Station, 1912, part 2, page 165.)

ASSAY OF SEIDLITZ POWDERS.

Weight of Powders.

Weigh each powder in the box, using as counterpoise a powder paper of the same kind used in sample, compute the average weight of both the "white" and "blue" powders, reporting maximum, minimum, and average weight.

Assay of "Blue" Powders.

(1) Determination of Sodium Bicarbonate. Place one or two of the "blue" powders in a mortar and reduce to very fine powder to thoroughly mix, transfer to weighing bottle, and weigh off duplicate samples of about 1.5 gm., transfer carefully to flask, add about 50 cc. of water and 10 cc. $\text{N}/1$ sulphuric acid,

and boil until free from CO_2 , cool, add phenolphthalein and titrate excess of acid with N/1 KOH.

Each cc. N/1 sulphuric acid consumed equals 0.08343 gm. sodium bicarbonate.

(2) *Rochelle Salt*. Weigh off samples of exactly the same amount as were used in the bicarbonate determination, place in platinum dish and carefully ignite until all organic matter is thoroughly charred, cool, and thoroughly extract ash with hot water, filter, burn filter and dissolve residue, if any, in water and add to previous solution. Aqueous solution should be colorless and perfectly clear, otherwise sample has not been ignited enough and determination must be repeated. Add methyl orange to aqueous solution and titrate to neutrality with normal sulphuric acid.

Calculation. Owing to the fact that the soda bicarbonate has been determined along with the Rochelle salt in this method, a correction must be made for it.

If samples of the same weight have been used, subtract the amount of acid consumed in the bicarbonate determination, from the amount used in the last assay. This will give the amount of acid consumed by the alkalinity of the ash due to the Rochelle salt.

Each cc. N/1 sulphuric acid consumed in this determination after allowing for the bicarbonate is equivalent to 0.14009 gm. Rochelle salt U. S. P.

The "blue" powder should weigh 10.33 gm. and should contain 25% sodium bicarbonate and 75% Rochelle salt. Each "white" powder should weigh 2.25 gm. net, and consist of tartaric acid U. S. P.

TINCTURE OF IODINE.

It would seem, after all that has been said and written concerning this preparation, that little remains, however I wish to call your attention to a few methods that have given satisfaction in my hands.

Determination of Alcohol. A number of methods of procedure have been suggested for this determination, such as shaking with metallic mercury until iodine is decolorized, (Alcock, Proc. A. Ph. A., 1904, p. 583); adding sodium thiosulphate in slight excess and distilling from an alkaline solution, (Gane & Webster Chem. Abs., vol. 3, p. 2487); and Cameron (Analyst, 1902, p. 87), who suggests in place of caustic soda the use of iron filings.

As I have never seen the following method suggested I take the liberty of doing so, especially as the above mentioned methods have certain objections, such as slowness of action between the iodine and the mercury or iron filings, difficulty of distilling from an alkaline solution, contamination of distillate with iodoform and other volatile substances, etc.

Place about 70 cc. of distilled water in a 300 cc. Erlenmeyer flask, add about 1 gm. of "zinc dust" such as is used in Kjeldahl method for nitrogen, or sufficient to leave a decided excess after combining with the iodine, now add exactly 10 cc. of the tincture, observing the proper precautions as to temperature in measuring out sample, shake flask, and immediately connect up with a good condenser, worm condenser preferred, and provided with an efficient spray trap, and distill over nearly 50 cc. of distillate.

Make up to volume with distilled water at desired temperature, and determine

sp. gr. of distillate by means of a pycnometer, and from the sp. gr. thus obtained calculate the percent of alcohol.

The zinc dust serves two purposes, first it *immediately* combines with the iodine forming a colorless solution of zinc iodide, and second, the excess of zinc helps to make the solution boil smoothly.

Determination of Free Acid. After the titration of the iodine as in the U. S. P. method, add a few drops of phenolphthalein to the clear liquid and run in decinormal KOH until liquid has faint pink color. The use of starch solution in the determination of the iodine is not necessary, as the change from the yellow color of the iodine to the colorless solution is quite distinct, and the use of the starch paste interferes with the "free acid" titration.

In samples made with the full amount of potassium iodide, it should not require more than one or two drops of 1/10 normal KOH, while in a tincture made without potassium iodide, and a few weeks old it sometimes requires as much as 5.75 cc. of the solution for a 5 cc. sample, equivalent to 1.459 gm. absolute hydriodic acid per 100 cc. of tincture. Each cc. of decinormal KOH consumed equals 0.01269 gm. HI.

This process depends upon the fact that the products of the reaction between iodine and sodium thiosulphate are neutral, and the free hydriodic acid can be titrated with standard alkali.

Determination of Potassium Iodide. Measure out 10 cc. of sample into a weighed porcelain dish, and place on top of water bath, but not in direct contact with steam, and set fire to the alcohol vapors to prevent the iodine creeping over the edge of the dish. Allow to evaporate to dryness, moisten a few times with 2 or 3 cc. of dilute alcohol, evaporating to dryness each time, finally ignite at a low temperature, short of red heat, cool and weigh. Calculate grams potassium iodide per 100 cc.

This is essentially the same method as proposed by Lawall (Proc. A. Ph. A., 1907, p. 159) and is given here with a few modifications, simply to call attention to it as a satisfactory method for this determination.

Theoretically potassium iodide is the only non-volatile ingredient of tincture of iodine, though the iodine and alcohol may contain small amounts of non-volatile matter, sufficient to sometimes give a dark gray color to the residue. This, however, is not sufficiently great ordinarily to seriously interfere with its accuracy as a practical method. In case the residue is very impure, it should be dissolved in water and the iodide determined in the residue by means of Volhard's method.

DETERMINATION OF TOTAL ARSENIC IN FOWLER'S SOLUTION.

Owing to the fact that arsenic has a tendency to oxidize in alkaline solution, during the process of manufacture, or by age, it becomes necessary to know the total amount of arsenic present as well as that in the arsenious condition.

Weigh out sample of about 15 cc., add 5 cc. of dilute sulphuric acid (1:3) and 1 gm. of potassium iodide, dilute to 100 cc. and boil down to about 40 cc.; cool, add starch solution and remove excess of iodine by the careful addition of thiosulphate solution, neutralize excess of acid by the addition of sodium bicarbonate, and add 2 or 3 grams in excess.

Determine arsenic from this point by the U. S. P. method. The difference between the percent of As_2O_3 by the U. S. P. method and "total arsenic" calculated as As_2O_3 represents the amount of arsenic in oxidized form.

DISCUSSION.

Philip Asher, of New Orleans, referring to the method proposed by Mr. Brown of using both the gravimetric and the volumetric processes, asked, "Why not stop at the volumetric, and get the morphine content?" Referring to the author's method of determining the alcohol in iodine, he said he had used that method himself, and it was approximately correct, sufficiently so for all practical purposes, and it could be carried out in two minutes. He placed some alcohol in a graduated cylinder and added potassium carbonate. This was shaken thoroughly, and in a short while the alcohol was found lying out above the potassium carbonate, upon which he was making the determination.

Continuing, Mr. Asher said, referring to the author's determination of free acids by distillation, that, in the early '90s, he had carried on a series of experiments of this kind, and had gotten his free acids by determining the free iodine by the potassium iodate method. He started by adding sodium thiosulphate until all the free iodine was taken up, and then added a small amount of potassium iodate. The iodate, in the presence of hydriodic acid was split up into iodine. The number of cubic centimeters found, multiplied by five-sixths, and by the iodine coefficient gave the iodine that was converted into hydriodic acid. This gave an exact determination. The desired result was had, without going through the process of distillation.

Mr. Brown responded that in the determination of morphine by precipitation, and extraction of the residual morphine left in the "mother liquor," he got around the disadvantage of having to use a large amount of solvent, which would be necessary if *all* the morphine was extracted by means of an immiscible solvent.

He did not determine the "free acid" by distillation as had been suggested. If the titration method was used, all that was necessary to do was to add a little phenolphthalein indicator to the solution, after decolorizing with thiosulphate, and titrate with tenth normal alkali to get the free acid, the product of the reaction between the thiosulphate and the iodine being neutral.

THE STABILITY OF OUABAIN IN AQUEOUS SOLUTION.

CHAS. C. HASKELL AND W. A. DOEPPERS.

Galenical preparations and isolated pure principles of digitalis are comparatively slowly absorbed when administered by mouth to normal individuals. In patients suffering from cardiac disease, a condition of acute circulatory embarrassment often occurs, rendering it of the greatest importance to secure prompt drug action; but the venous stasis dependent upon the circulatory failure gives rise to engorgement of the gastro-intestinal mucosa and consequently, further delays absorption by this route.

In the treatment of such patients, clinicians have long desired some remedy that could be introduced directly into the blood stream and bring about full and prompt action. The infusion of digitalis has been employed in this way, but it would seem that it would be desirable to study upon lower animals the effect of

introducing the number of undesirable constituents present in crude preparations of digitalis before the use of the infusion in this manner could be unqualifiedly endorsed. Then too, the experiments of Hatcher and Eggleston have shown that the commonly held opinion regarding the instability of the infusion is fully justified. Finally, it would be hard to secure an estimate of the strength of crude preparations of digitalis sufficiently accurate for use in standardizing remedies for intravenous use.

Credit is due to Hatcher for drawing attention to the possible value of Strophanthin gratus; known as crystalline Strophanthin, Thoms; or better, as Ouabain. This substance is a crystalline glucoside, isolated from Strophanthus gratus; probably a definite chemical compound; and is readily soluble in water or alcohol.

Amorphous strophanthin has been used quite extensively for intravenous administration; and the results have often been very favorable. The chief disadvantage in the use of this substance is the uncertainty concerning its composition, it being probable that it is a mixture of different glucosides and different lots are apt to vary in strength.

Ouabain in a dry condition kept under ordinary climatic conditions, exposed to air and light, undergoes no change in two years that can be detected by animal experiments. The convenience afforded by offering the physician a solution of Ouabain in ampoules, has led us to undertake a study of its keeping qualities when dissolved in solutions of different composition.

Ouabain was dissolved in distilled water, in normal salt (.09%) solution; in 5 percent alcohol; in 10 percent alcohol; in 25 percent alcohol and in 95 percent alcohol. The ouabain percentage was 1/10 to 1/100. Some of these solutions were tested upon frogs, using Cushny's one hour method; others upon guinea pigs, using a 24 hour lethal dose method; and a few upon cats, using Hatcher's method. The frog and cat methods have already been fully described elsewhere. The guinea pig method is a modification of Reed's. The dose is calculated per gram body weight and injected subcutaneously as in Reed's method. We have found it necessary, however, to take account of the alcoholic content of the solution and also advisable always to use the same volume of fluid per gram, so 0.01 cc. fluid per gram weight is always injected and 25 percent alcohol has been used in all the tests. It is also more satisfactory to observe the animal for 24 hours, because it is very common for pigs to survive more than three hours and succumb before the expiration of twenty-four hours. Occasionally, an animal succumbs only at the end of forty-eight hours, but this is unusual. Attention has already been called to the unreliability of the guinea pig method in attempting to standardize the members of the digitalis group, but in a comparative study such as this the factor of seasonal variation does not enter. The results may be tabulated as follows: "Drug strength means the strength of the original solution, which was reduced to 1:100000 for the cat assay; 1:20000 for the frog assay; and 1:10000 for the guinea pig assay whenever it was originally stronger. The figures under cat assay are fractions of a milligram per kilo; under guinea pig and frog assay are fractions of a gram per gram.

I. OUABAIN IN AMBER GLASS CONTAINERS.

Age of Solution	Solvent	Drug Strength	Container	Cat Assay	Guinea Pig Assay	Frog Assay
2 days	95% Alc.	1:1000	Flask	.0788	.00000025	.00000045
9 months	Water	1:10000	Amber Bottle	.....	.00000025	.00000045
14 months	Water	1:10000	Amber Bottle	.0800	.00000025	.00000046
28 months	Normal Salt	1:1000	Amber Bottle	.0796	.00000027	.00000046

From these results it may be assumed that Ouabain dissolved in distilled water or in normal salt solution and kept in amber bottles suffers no appreciable loss of strength in 28 months.

Two samples had been kept in glass-stoppered flint bottles and the assay of these give rather surprising results.

II. OUABAIN IN FLINT GLASS CONTAINERS.

Age of Solution	Solvent	Drug Strength	Container	Cat Assay	Guinea Pig Assay	Frog Assay
2 days	95% Alc.	1:1000	Flask	.0788	.00000025	.00000045
*22 months	Water	1:1000	Flint Bottle	.....	.00000036	.00000067
*32 months	Water	1:1000	Flint Bottle	.....	.00000055	.00000075
36 months	95% Alc.	1:1000	Flint Bottle	.....	.....	.00000052

*First and second assays on same sample.

From these tests, it seems that the nature of the container and the presence of alcohol influence the rate of deterioration. While an aqueous solution in an amber cork-stoppered bottle suffers little or no change in strength during twenty-eight months; an aqueous solution in a flint glass-stoppered bottle loses strength to a considerable degree in twenty-two months. Of course, too much weight should not be given the results obtained with such a limited number of samples.

Since the aqueous solutions of Ouabain in amber bottles show no loss in strength that could be detected in twenty-eight months, it seemed unnecessary at this time to test those containing alcohol, because other things being equal, an aqueous solution is preferable to an alcoholic solution for intramuscular or intravenous use. Frog assays with these solutions showed that those containing five percent and ten percent alcohol gave the same value at the end of fourteen months as did the aqueous solutions, the containers being amber bottles.

In conclusion it may be said that the results of our work indicate that aqueous solutions of Ouabain in amber glass containers are sufficiently stable to justify reliance being placed upon them by the physician.

DEPARTMENT OF EXPERIMENTAL MEDICINE, ELI LILLY & Co., Indianapolis, Ind.

THE MEDULLARY RAY CELLS IN RHAMNUS PURSHIANA AND IN RHAMNUS CALIFORNICA.

OLIVER A. FARWELL, DETROIT, MICH.

Ever since *Cascara Sagrada*, *Rhamnus Purshiana*, D. C., became a prominent therapeutic agent it has generally been conceded that it could be distinguished from its near ally, *Rhamnus Californica*, Esch. by the character of its medullary rays as seen in a cross section of the bark. Prof. Henry Kraemer, in a study of the bark of *Rhamnus Purshiana*, (*Journal of the American Pharmaceutical Association*, Vol. 1, page 846, August, 1912) makes the following statement: "It is usual to attempt to differentiate between the barks of *Rhamnus Purshianus* and *Rhamnus Californicus* by reason of the apparent difference in the number of cells comprising the width of the medullary rays." This has reference to the ray as seen in the cross section of the bark. It is possible that most authors, in the study of this work, have relied chiefly upon the number of cells in the width of the ray to distinguish it from *R. Californica*; but it is not the chief character. The two barks can readily be distinguished in cross section by comparing the rays without reference to the number of cells in their width, although those of *R. Purshiana* generally have fewer cells. The rays of *R. Californica* are fewer, probably not over one-half or two-thirds as many and, therefore, have much wider spaces between them; they are more curved and irregularly grouped, and as the ends are not even with the rest of the tissues, as they are in *R. Purshiana*, the cambium edge of the section presents a very pronouncedly wavy or lobed line, that of *R. Purshiana* being even. Prof. Kraemer also calls attention to the fact, which most investigators have either forgotten or overlooked, that the tangential-longitudinal section alone gives the general outline as to height and width of the medullary ray and lays great stress upon the importance of this section, which should be in the cambium region, in furnishing the distinguishing characters in the medullary ray, if such there be, between closely related species. *Rhamnus Purshiana* is illustrated showing the bark in all three sections, cross, radial-, and tangential-longitudinal; *Rhamnus Californica* is not illustrated as Prof. Kraemer did not have authentic material for investigation. Upon reading Prof. Kraemer's paper, I immediately took steps to obtain authentic bark of *Rhamnus Californica* for investigation. A supply was obtained in the fall of 1912 but as no fruit or leaves from the same shrub accompanied the bark, for its identification botanically, nothing was done with it. In the spring of the present year, the collector was again approached, and this time he furnished another supply of the bark, together with flowering branches from the same shrub that furnished the bark. This proved to be typical *Rhamnus Californica* and a comparison of the twig bark with that of the bark in bulk showed the two to be of the same species. In the cross sections of the barks the rays of both species, in the sections examined by me, were from one to four cells wide but in *Rhamnus Purshiana* those of one and two cells in width were quite frequent while they were rare in *Rhamnus Californica*. As to the character of the rays, themselves, which is more important than the number of cells, the dis-

tinctions as outlined above were seen to be well defined. In the tangential-longitudinal section I found the ray in *Rhamnus Purshiana* to be from one to five cells in width, commonly three or four; in *Rhamnus Californica* the ray in from one to seven cells wide, commonly four or five. In the former the cells are pretty evenly arranged in lines, and are of about the same size; while in the latter, when more than four cells wide, the cells are irregularly arranged in the center of the ray and of variable size.

Perhaps it will not be amiss before dismissing the subject to make a few remarks upon the cultivation of *Rhamnus Purshiana* in Michigan. The plant, according to the *Kew Bulletin*, has been, for several years, cultivated with success in Ireland. In 1907, at my request, Messrs. Parke, Davis & Co. procured about eighty seedlings of *Rhamnus Purshiana* from Oregon. These were transplanted in October of that year on the lawn in front of the laboratory. The trees are not protected with winter buds so it was a question as to whether or not they would withstand the rigor of our climate. In order to make a thorough test they were planted near the Detroit river and ran inland or in a line at right angles with the river bank. Most of them would be directly exposed to the freezing winds from the icy river while a few would be more or less protected by near-by buildings. The first winter the transplanted seedlings were well protected by wrappings of straw and sacks while the ground was covered with plenty of straw; in the following winters they were not protected. During the six years since they were planted about eighty-five percent have died or all that were not protected from the cold winds from the river. The more vigorous trees are about 12 feet in height and 4 inches in diameter at the ground. They have blossomed this year for the first time but no fruit has developed. The plants were planted in made ground consisting mostly of blue clay and some greyish clayey loam. The inference is that *Rhamnus Purshiana* can be successfully cultivated in Michigan in situations where it can be protected from the direct blasts of the cold icy winds.

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NOTE ON THE ACIDITY OF HYDROGEN PEROXIDE SOLUTION.

B. L. MURRAY, PH. C., RAHWAY, N. J.

The acidity of solutions of hydrogen peroxide may be due to one or more acids, free phosphoric, sulphuric, or hydrochloric acid usually being present. To determine quantitatively how much free acid is present has been studied by many, and with varying success. The choice of an indicator for the titration must be made, and it has generally been attempted to select one indicator suitable for all cases. Of course the amount of free acid in solution of hydrogen peroxide for general medicinal use does not need to be controlled very closely, so perhaps one indicator for all acids is sufficient. But by following out a suggestion published

by the writer some years ago, and lately elaborated, we can easily select an indicator suitable to the acid to be titrated.

It was advised that one could decompose the hydrogen peroxide by means of platinum metal, subsequently titrating the acid remaining. This procedure has now assumed this shape. Place the customary 25 cc. sample of peroxide and an excess of decinormal solution of sodium hydroxide in a long test tube (about 8 or 10 inches long). Add about three grams of platinized pumice stone and place the tube in a steam bath for about 15 minutes, or until the peroxide is all decomposed. The heat and the shape of the container (long and narrow) hasten the reaction. It only remains to pour the remaining liquid into a beaker or flask and complete the titration of the acid that was in the peroxide, now in simple aqueous solution as a sodium salt. In our hands an excess of standardized acid is generally added, followed by boiling and subsequent titration with decinormal alkali. Any indicator suitable to the acid and conditions at hand can be used. Experiments show that it is easy by the above method to so completely destroy the peroxide that no reduction of permanganate can be obtained from the resulting liquid. The pumice stone is easily prepared by soaking the stone in solution of platinic chloride, then igniting, then re-soaking and re-igniting. It is used over and over.

THE EDUCATION OF THE PUBLIC.

The education of the public in matters pharmaceutical is being attempted in various states, with the object of putting the druggist right in the eyes of the public. During the past decade certain lay newspapers have carried on campaigns against the proprietary medicine business, with the admitted object of destroying it. Recently there appeared in the "Ladies' Home Journal" an article entitled "The Meanest Business in the World—Cheating the Sick," wherein remedies for women's ailments, soothing-syrups, and headache and cough preparations were condemned as a class. Unfortunately, the writer made his attack too inclusive, stating that such medicines (excluding the first named) "all depend for their effect upon alcohol, and one or all of the stupefying drugs—opium, morphine, or chloroform." The writer went on to say that "used to excess they kill outright; used even in moderation, they gradually become a necessity to the child's system, and before the parents realize the danger they have on their hands a victim of the drug habit." Such misstatements are freely copied by the newspapers throughout the country, with the result that an unmerited slur is cast upon the drug business. In order to combat this influence, the Wisconsin State Pharmaceutical Association has formed a publicity bureau, charged with the duty of disseminating among the country papers short articles that will set the druggist right in the public eye. The time has come when the public must be told that the maker of ready-made medicine is not necessarily a faker and a charlatan.—American Letter in *The Chemist and Druggist* (London).

Section on Pharmacopœias and Formularies

Papers Presented at the Sixty-First Annual Convention

PHARMACOPŒIAL TITLES FOR NEW REMEDIES.

M. I. WILBERT, WASHINGTON, D. C.

A review of the now existing national pharmacopœias suggests the thought that from the point of view of nomenclature the several books may be classified as following either the English, French, Scandinavian or German system and that apart from adhering more or less closely to the general style that has been in the prototype, little or no attempt has as yet been made to secure any degree of international uniformity in the accepted title for official articles.

The greatest amount of variation is of course to be found in connection with the official names for chemical substances, and using these names as the basis for the classification, we find that broadly speaking, the English style is followed only in the British Pharmacopœia and in the Pharmacopœia of the United States. The French system gives precedence to the vernacular title and uses the Latin only as a secondary title, usually for chemical substances and galencial preparations that are prescribed by physicians. Vernacular titles occur in the French, Spanish and Italian Pharmacopœias. The Scandinavian style, which it may be here pointed out, is based on an understanding between representatives of the Scandinavian countries, still adheres closely to the Berzelian system of nomenclature, giving precedence to the acidic radical in salts. This system is followed rather closely in the Swedish, Norwegian, Danish and Dutch Pharmacopœias, in the Latin titles of the Spanish and Italian Pharmacopœias and in the Latin synonyms of the Belgian Pharmacopœia. The German system so well known to us through the German Pharmacopœia is also included in the Swiss, Russian, Belgian, Austrian, Hungarian, Servian and Japanese Pharmacopœias, in the Latin titles of the French Pharmacopœia and the synonyms of the Danish Pharmacopœia.

The possible mistaking of the name for a comparatively innocuous substance for that of a much more active one has been repeatedly cited as an argument for greater uniformity. In this connection it will suffice to call attention to the Continental "chloratum," which in English speaking countries has not infrequently been mistaken for chlorate in place of chloride.

The exceptional titles for widely used chemical substances occur almost exclusively in the American and the British Pharmacopœias, which have uniformly adopted potassium and sodium for the universally used kalium and natrium despite the fact that kalium and natrium are thoroughly well established as designations for the elements themselves in connection with the symbols for atomic

weights. A somewhat similar exception occurs in the Russian Pharmacopœia where "magnium" is used in place of magnesium.

The obstacles in the way of international uniformity in pharmacopœial nomenclature are not so many and so varied as one would expect from the truly provincial system of pharmacopœial revision that has generally prevailed up to recent years. With a modernization of the pharmacopœias still adhering to the Berzelian system of nomenclature and sundry slight changes on the part of the Pharmacopœias of the United States and of Great Britain, the nomenclature of chemical substances, of pharmacopœial preparations and of practically all drugs could be readily made uniform and even at the present time this uniformity could be obtained for all practical purposes if the revisers of these several pharmacopœias would adopt the precedent established by the Committee of Revision of the Danish Pharmacopœia and include the most widely used official titles as synonyms.

A rather more difficult problem is, however, presented by the official recognition of some of the newer chemical remedies, particularly those of foreign manufacture which have been given short and catchy titles by the manufacturers. These titles, in some countries, at least, are accepted as property and protected by law, while in other countries, our own for example, where the law does not provide for such protection, the general adoption of the names has been prevented by fear of legal difficulties.

Some idea of the complications existing at the present time may be gathered from the following enumeration of the titles under which three widely used articles have been included in foreign pharmacopœias:

Theobromine Sodium Salicylate—

Theobrominum Natrio-salicylicum, Austr., Belg., Japan.

Theobromino-Natrium salicylicum, Germ., Helv.

Salicylas natrico-theobromicus, Dan.

Salicylas natricum cum Theobromino-Natrio, Ndl.

Salicylas sodæ et theobrominæ, Hisp.

Theobromino-salicylas natricus, Svec.

Diuretin (as a synonym), Austr., Belg., Dan., Svec., Ital., Hisp.

Epinephrine—

Adrenalinum, Fr., Helv., Ital., Belg.

Suprarenin hydrochloricum, Germ.

Suprareninum, Ndl. (Suppl.)

Aspirin—

Acidum acetylosalicylicum, Helv., Germ.

Acidum acetylo-salicylicum, Dan.

Acidum Acetylsalicylicum, Fr.

Acidum acetsalicylicum, Japan.

Aspirin, As a synonym in Germ.

In the U. S. P. VIII an attempt was made to include some of the newer remedies under abbreviated titles. The following list gives the titles under which several of these articles have been included in our own and in foreign pharma-

copœias and it is rather interesting to note that with the single exception of acetphenetidin, not any of the abbreviated names have as yet found favor with other pharmacopœial revisers:

Acetphenetidinum—

Phenacetinum, Germ., Brit., Ndl., Japan., Belg., Dan., Helv., Svec., Hung., Fr., Russ., and as a synonym in Austr., Serb.

Fenacetina, Hisp., Ital.

Acetphenetidinum, Austr., Serb.

Hexamethylenamina—

Hexamethylenetetraminum, Germ., Ndl., Japan., Dan., Helv., Svec., Ital.

Utropin (as a synonym), Germ., Ndl., Dan., Ital.

Sulphonethylmethanum—

Trionalum, Austr., Svec., Fr., Ital., Hung., and as a synonym in Ndl. and Belg.

Methylsulfonalum, Germ., Ndl., Belg.

Methyl Sulfonalum, Japan.

Sulphonmethanum—

Sulfonalum, Germ., Hisp., Ndl., Japan., Belg., Austr., Dan., Helv., Svec., Fr., Serb., Ital., Hung., Russ.

Sulphonal, Brit.

A rather significant indication of the lack of popularity that has been developed by these abbreviated titles is suggested by a review of the Index Medicus for the years 1905-1912, inclusive. This publication, as is well known, reflects in a rather comprehensive way the medical literature of the world and a careful search through the index of the publication fails to show a single occurrence of the words acetphenetidin, sulphonethylmethane and sulphonmethane, despite the fact that phenacetin, trional and sulphonal occur repeatedly. Urotropin and some of the other proprietary names for hexamethylenetetramine also occur in all of the several volumes, though hexamethylene does not occur at all in the volumes previous to 1908. In the latter year, owing no doubt to the inclusion of the drug as hexamethylenetetramine in a number of European pharmacopœias, the name occurs in connection with the title for one paper and re-occurs in several succeeding years, but very sparingly.

The ointment bases of the Pharmacopœia appear to offer rather a difficult problem from the American point of view, largely perhaps because of the fact that succeeding committees of revision have been unwilling to undertake a possible legal controversy in regard to proprietorship in name. Designed as our laws are to protect the interests of the many against the usurpations of the few, it would appear to be a comparatively simple procedure to have the legal rights of the people at large adequately defined either by statute or by court decisions. Trade-mark registration in this country involves no recognition of property right and is at best but a record of claim to ownership. The present law obviously restricts the right of ownership in a trade-mark to a designation of the brand of a particular product made by a manufacturer and this mark or designation must be apart from the title under which the article is known or sold. The following names for widely used ointment bases illustrate the difficulties that have

been encountered with the problems abroad and also suggest the desirability of proper inquiry as to the validity of existing trade-marks in this country.

Adeps Lanæ Hydrosus—

Adeps lanæ cum aqua—Germ. IV, Ndl., Japan., Dan., Russ., Fr., and as a synonym in Belg., Helv.

Lanolinum—Helv., Svec., Germ. V, Ital., and as a synonym in Ndl., Austr., and Dan.

Adeps lanæ hydrosus—Brit., Austr., Serb., Hung.

Lanolinum cum aqua—Belg.

Petrolatum—

Vaselinum—Japan., Belg., Austr., Dan., Helv., Svec., Fr., Serv., Ital., Russ.

Vaselinum flavum p., Germ. V, Ndl., Hung.

Paraffinum molle—Brit.

Vaselina—Hisp.

The U. S. P. title "*Adeps Lanæ Hydrosus*" has never come into general use and as a court decision (Hyg. Lab. Bull. No. 87, p. 205) has long since established the fact that the name lanolin became a free title when the patent on the product expired there appears to be no reason why anhydrous lanolin and lanolin should not be used in place of wool fat and hydrated wool fat in the Pharmacopœia of the United States.

The word "Vaselin" is so widely used as a popular title for a semi-solid fatty substance obtained from petroleum, and in European countries particularly has been so uniformly accepted as the official name for the product included in our own Pharmacopœia as petrolatum that there is considerable reason for the use of the word "vaselin" regardless of the claim that it is or was used as a trade-mark for the product of any one firm.

The U. S. P. title for one of the comparatively new remedies, "Solution of Hydrogen Dioxide," has been severely criticized, by chemists particularly, who point out that dioxide is used to designate certain definite combinations like manganese dioxide and is not applicable to a peroxide such as exists in the official solution. There appears to be no well founded reason why our official title should not comply with foreign pharmacopœias, and it might well be made to read "Solution of Hydrogen Peroxide."

As noted above, the problems involved in the securing of international uniformity in pharmacopœial titles while at times complicated, are by no means insurmountable and could be readily overcome if the revisers of the several pharmacopœias made sincere and consistent efforts to do so.

DISCUSSION.

W. C. Alpers, of New York, said Mr. Wilbert had expressed the wish in his paper to avoid the mistake made in foreign pharmacopœias of including the synonyms of an entire nation in the pharmacopœia. There was a tendency among some people to expect everything of the pharmacopœia. They thought the pharmacopœia was a pharmaceutical cyclopedia. He had always opposed this idea. He did not believe a pharmacopœia should be anything else than a book of standards for the drugs and chemicals used in the country for which it was intended. The question of bringing harmony out of the chaos of different nomenclatures rested with the International Pharmaceutical Congress, and one of the objects of that Congress was to find a way of uniformity in this matter, but it would probably be many years

before this desired end was accomplished. He had no doubt the same desire existed in other countries as in this, of bringing about greater uniformity. But, in the very nature of things, care must be exercised in a matter of this kind, and progress would necessarily be slow. No committee that could be appointed could successfully deal with a subject of such broad scope, and the only thing that could be done was to make recommendations to the International Congress as to this particular phase of their work; but not until the pharmacists of the world were gotten near enough together, by a conference, on scientific matters, would a remedy be found.

Mr. Wilbert responded that the pharmacists of America were extremely slow to adopt the recommendations of the International Congress. The Brussels Conference had suggested, not one name, but several for each article, and in a number of instances none of these had been adopted in this country. The International Conference could only suggest or recommend, and true uniformity could be had only when the necessity of such a thing became apparent everywhere. The trouble with the pharmacists of America was, that they were so provincial they were not willing to adopt the recommendations made by the International Congress, and put in the form of an international treaty signed by diplomatic representatives. This was one serious fault of the pharmacists of this country, they were over-conservative in making headway in such directions as this.

James M. Good, of St. Louis, thought it could be only pure selfishness that would deny the privilege of using the name "phenacetin." What one of the speakers had said did not apply with the same force to phenacetin that it did to diuretin, for instance. In many drug stores, it was not known that acetphenetidin was the official name for what was the proprietary product "phenacetin." He thought there was no necessity for the two names. Out in St. Louis, he said, a man could say, "I want to be called 'George Washington,'" and the courts would allow him to adopt the name; but it was a different proposition when it came to the United States courts. "Why, are we afraid of these people," he asked, "and hence not willing to give these synonyms?" He understood from what Mr. Raubenheimer had said that the probabilities were, that these people did not want any legal facts to be in the hands of the pharmacists of the country.

Mr. Wilbert, commenting upon this last suggestion, as to the legal phase of this matter, said that the American Medical Association, which was a responsible financial institution, had said that these names were applicable to the pharmacopœial articles. These facts had been published in the Journal of the American Medical Association repeatedly, and if these people had desired to do any fighting they had had ample opportunity.

Mr. Good suggested that it might be put up to the Pharmacopœial Committee as to whether or not these synonyms could be used. This was a subject that all pharmacists were vitally interested in, and he thought this Committee of Fifty could deal with it. Very few pharmacists were capable of acting intelligently on a proposition of this kind, but the committee should be able to give a good reason for whatever it did.

TABELLÆ DULCES, SWEET TABLETS FOR CHILDREN'S MEDICATION.

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Modern pharmacy boasts of many elegant and palatable preparations suitable for adults. But very little has thus far been done in this line for children, and yet attractiveness and palatability are even more important for the little ones than for the grown-up. Syrups have hitherto been our chief aids in making medicines more acceptable to children. Unfortunately, many a child has had its palate

offended by liquid medicine so that it abhors spoon-medicine of any kind, and will struggle even against the most palatable. It is especially for such children—and there are a great many of these—that another method of administration is needed. As all children love candy, this form would seem to be most desirable for children.

In name and in principle, "candy medication" is even now recognized by the Pharmacopœia. Have we not confections and troches? Unfortunately, the pharmacopœial conception of a confection does not coincide with the confectioner's. Have you ever seen Confection of Rose sold in a candy store? If it were a really delicious confection would not the confectioner be glad to take it up? Confection of Senna is far from being delicious. I know whereof I speak. In the early days of my experiments on "candy medication," I tried to put Confection of Senna into attractive dosage forms with the hope of making the youngsters think it was candy; but without the least success. Troches have been defined as "confections made into various dosage forms and dried." How many troches are real candy? How many of them are popular? Of course, I recognize that the chief purpose of troches is throat medication and not palatability; that they are intended to dissolve slowly in the mouth, so as to give prolonged contact of the medicament with the throat. Real "candy medication" is therefore not yet to be found in the Pharmacopœia.

The sweet tablets to which I desire to call your attention are—to use a phrase of the drug-store vernacular—"just as good as" candy; and they are the only candy form I know of that can be prepared extemporaneously by the pharmacist. These tablets, to be successful, must be perfectly pleasant, actually delicious sweets, free from any suggestion of medicinal taste or odor, as the ailing child is liable to be very critical. The tablet should disintegrate readily in the mouth, for a sick child usually will not chew or suck candy as a healthy one would.

Having conducted a study to determine to what extent the materia medica would lend itself to this form of medication, I was surprised to find that the list was quite extensive. Within the last few weeks I have been able to enlarge this list still further, thanks to the discovery by John Uri Lloyd, of almost tasteless compounds of the alkaloids, called by him Alcresta Alkaloids, which are obtained by precipitating alkaloidal salts with a reagent that, I am told, is essentially composed of hydrous aluminum silicate which combines with alkaloids possibly by reason of adsorption. These precipitates are insoluble in neutral and in acid liquids but soluble in alkaline fluids; hence may be expected to unfold their activity in the intestine. The slight alkalinity of the saliva does not liberate enough of the alkaloid to bring out the bitterness excepting in case of the strychnine and of the quinine compounds. These Lloyd has subdued practically to tastelessness by combining the strychnine with free tartaric acid, and in case of quinine by combining it with glycyrrhiza and a tannin. The first question that comes to one's mind is, whether by removing the taste, the activity is not likewise annulled. That this is not the case can be positively asserted in regard to strychnine, the Alcresta compound of which will kill a dog quite as readily as strychnine sulphate. It may be inferred that the other preparations will likewise not be impaired in their activity; though this remains to be demonstrated. By the use of these compounds, the alkaloids become available for administration

in candy form. Strychnine can be given to the extent of 1/200 grain per 5 grain chocolate tablet. The Alcresta compounds of morphine, of codeine, of cocaine, and of atropine, permit the administration of adult doses in five grain sweet tablets. I have also experimented with Alcresta compounds of cinchonine, cinchonidine, berberine, sanguinarine, gelsemium alkaloids; and have found all of them more or less suitable for this method of administration. It is evident therefore that sweet tablets are a form of pleasant administration of such wide applicability that it would rarely be necessary to inflict upon children less pleasant medicine.

I have found three fundamentally different formulæ of use: 1, Sugar tablets; 2, Chocolate tablets; 3, Licorice tablets.

1. *Sugar Tablets*.—There are quite a number of medicines sufficiently free from taste to be made pleasant by the mere admixture of sugar and of flavoring. The addition of a little of harmless coloring seems desirable, as pleasing color adds considerably to the attractiveness of the tablet for the little ones. The powder, after having been moistened with alcohol, may be moulded in a tablet triturate mould. Or else, it may be made into compressed tablets by the use of an inexpensive tablet machine. The addition to the powder of 3 percent of cacao butter or of paraffin causes it to retain the shape imparted to it by the machine; the paraffin being preferable if the tablet is to be kept for some time; cacao butter, if it is for immediate consumption. If the powder has a tendency to stick to the dies, the further addition of 3 percent talcum is advantageous. If a considerable amount of insoluble powder enters into the composition of the tablet, the addition of talcum is unnecessary. The following might be taken as a typical formula for sugar tablet:

TABELLAE TERPINI HYDRATIS DULCES, GR. ½.

SWEET TABLETS OF TERPIN HYDRATE.

Terpin hydrate	50 grains
Paraffin, low melting point, in thin shavings.....	15 grains
Tincture of curcuma.....	60 minims
Spirit of rose, 10%.....	5 minims
Powdered sugar	435 grains

Mix the terpin hydrate with the sugar, the coloring and the flavoring by thorough trituration in a mortar, incorporate the paraffin by gentle trituration; and compress in tablet machine, using three-eighths-inch die and punches, to make 100 five-grain tablets.

It might be remarked in passing that these tablets of terpin hydrate, as well as quite a number of others, are not only suitable for children's medication, but for adults as well. Two of these tablets would be equivalent to a teaspoonful of the N. F. Elixir of Terpin Hydrate in a much more pleasant form.

2. *Chocolate Tablets*.—Substances that have a slightly bitter or otherwise slightly disagreeable taste can well be disguised by the addition of 10 to 20 percent of powdered cacao to the sugar. The addition of a small amount of Tincture of Vanilla, say 3 percent, is of advantage to improve the flavor of the cacao. So nicely does the cacao-containing powder lend itself to compression in a tablet machine, that the formula for the chocolate tablet might be considered the formula

of choice, if one general formula for sweet tablets were desired. The following might serve as a typical example:

TABELLAE ACETPHENETIDINI DULCES, GR. $\frac{1}{2}$.

SWEET TABLETS OF ACETPHENETIDIN.

Acetphenetidin	50 grains
Powdered cacao	100 grains
Tincture of vanilla.....	15 minims
Powdered sugar	350 grains

Mix the ingredients by thorough trituration in a mortar; and compress in tablet machine, using three-eighths-inch die and punches, to make 100 five-grain tablets.

The taste of tablets containing some of the ordinary salts of alkaloids can be improved by the addition of a small amount (1%) of sodium bicarbonate; some need a little saccharin in addition. To the Alcresta alkaloids, on the other hand, alkali must not be added, as that would bring out the bitterness.

3. *Licorice Tablets*.—There are a few substances that are better disguised by extract of glycyrrhiza than by cacao. A formula for such a tablet would be:

TABELLAE ANTIPYRINAE DULCES, GR. $\frac{1}{2}$.

SWEET TABLETS OF ANTIPYRIN.

Antipyrin	50 grains
Extract of glycyrrhiza, powdered.....	25 grains
Caramel, 50% solution.....	30 minims
Spirit of anise, 10%.....	8 minims
Spirit of coriander, 10%.....	4 minims
Powdered sugar	425 grains

Mix the ingredients by through trituration in a mortar; and compress in tablet machine, using three-eighths-inch die and punches, to make 100 five-grain tablets.

These sweet tablets are so delightful in practice among children, that any one who has used them once would never again wish to do without them. Why should iron ever be given to a child in other form than that of some delicious sweet tablets of iron carbonate? Why should a little one suffering from cardiac weakness and in need of a heart tonic be permitted to struggle against medicine, and thereby jeopardize its life, when digitalin, strophanthin and even strychnine can be given in candy form? And quinine can be given in positively pleasant form as sweet tablets of aristochin, of saloquinine, or of Alcresta quinine.

If these sweet tablets are useful in medical practice—and it can readily be proved that some of them are—why should not one of our formularies, the Pharmacopœia or the National Formulary, help in introducing them? Why should not the pharmacists of the country be given the opportunity of preparing these tablets? There is no doubt in my mind that any pharmacist who will equip himself with the necessary apparatus, costing not much more than \$10, and who will busy himself to get the physicians of his district acquainted with these new preparations, would reap a rich harvest. Should pharmacists equip themselves to prepare these tablets extemporaneously so that physicians could prescribe them, the patient would receive a fresh product fitted exactly to his needs, for

the dose could be modified and several medicaments combined in the same tablet, as occasion may require.

My conclusions are:

1. There are a considerable number of drugs that can be administered in form of perfectly sweet tablets, particularly desirable for children's medication.
2. These sweet tablets can be readily prepared extemporaneously by any pharmacist equipped with an inexpensive apparatus.
3. A few sweet tablets, such as those of calomel and of phenolphthalein are now in extensive use.
4. These and a few others of undoubted desirability should be introduced into the Pharmacopœia or the National Formulary.
5. If this be done, a definite advance in pharmacy would be recorded, suffering childhood would many times be spared the hardship of having nasty medicine forced upon it, and grateful mothers and nurses would bless the day of the new medication.

DISCUSSION.

Mr. Wm. C. Alpers, calling attention to the use of the three colors, green, red and white, obtained by solutions of malachite green and carmine, and tincture of curcuma, respectively, suggested that green might more appropriately be applied to tablets that should be classified as poisons,—to drugs like arsenic, and antimony-potassium tartrate,—and expressed the opinion that some system should be observed in the coloring scheme. Comparing the two formulas for terpin hydrate and terpin hydrate with heroin, he pointed out the difference between the two, in that, with the latter, chocolate powder was used as the coloring-matter, whereas with the first-named tincture of curcuma was used. Again, as to flavors, the one was flavored with vanilla, while the other was flavored with spirit of rose. If any system was employed, he desired to be enlightened upon that point. He suggested that one would naturally think, as to these two formulas, that they would be in the same system. He thought it might be a question as to whether sugar should be used in all cases for children; but this was not a question for the pharmacist, but for the physician himself to answer.

Doctor Fantus said he appreciated the remarks of Doctor Alpers, and that there was a certain amount of system observed in the coloring scheme he had used. He had tried to use green or deep red for poisonous substances. For instance, there was elaterin, a substance that might be considered rather active. He had used as deep a red for that as he thought desirable. Then, there was hyoscine, which was colored a rather deep red. And again, green was used for some poisonous tablets. He confessed that he had not carried out this idea as consistently as might be desirable. He had found green was attractive to children, and he had also used it for other tablets, that were not poisonous for instance with acetylamidosalol. The idea advanced of marking poisons by a particular color seemed to him to be a good one, and it would be carried out more definitely in future work.

The difference in color between terpin hydrate tablets and those of terpin hydrate with heroin, was due to the bitterness of the heroin, which was best disguised by chocolate. He called attention to the fact that the heroin tablets were also chocolate tablets.

As to the question whether sugar might not be, at times, objectionable in the treatment of sick children, he confessed that it had also given him considerable concern. However, the conditions in which the small amount of sugar given with the medicaments in this form would be objectionable must be very rare indeed.

These tablets were not intended for babies. They were intended for children, from the ages of three years to nine; and the doses were calculated for a child of three, although some of them could be given in larger doses. Children of that size he did not believe would be harmed by the amount of sugar given them in connection with the remedy. Anyhow, actual experience with many of these had shown that was not the case.

This work was merely experimental, and more to show how many different medicaments

could be put up in this form. Some of them would probably be useless. Experience would show how many could be successfully used. He had found his own practice to increase to a marked degree since he had been using this form of medication.

Dr. Fantus concluded by saying that he had brought this subject before this body of representative pharmacists of the country for the reason that he wished their coöperation in keeping this form of medication in the hands of legitimate pharmaceutical practice, instead of having it forced upon the market as a new line of proprietary medicines.

W. R. White, of Nashville, said he was particularly interested and pleased with this paper. It bore on a subject that he had given some attention to heretofore, in a paper that he had read before the Los Angeles meeting, in which the subject of chocolate and its uses in pharmacy were considered. In that paper he had referred to the use of chocolate in disguising the taste of a great many different medicines. One question that presented itself to his mind and which was not brought out here was the fact that some people did not swallow tablets, and in such cases a powder was necessary to be administered. In these cases he thought a powder consisting of chocolate and sugar might be prepared and used in many instances, instead of the aromatic and other powders used. The value of chocolate was being more and more recognized, continually. A good many pharmaceutical houses were using it in preparations that were elegant, and they had become very popular.

J. L. Lascoff, of New York, called attention to the fact that Doctor Fantus had said that there were certain manufacturers putting on the market strychnine and other poisonous substances in tablet form, and stated that several cases of poisoning had occurred with children, where they had mistaken these tablets for candy. He thought all poison tablets should be of a certain color, for distinction. For instance, terpin hydrate tablets should be of a distinctive color. He said he had found a tablet machine costing \$30.00 to give good results.

F. E. Stewart, of Philadelphia, said that he was very much interested in this subject when Doctor Fantus presented it to the meeting of the American Medical Association. He feared, however, that if the idea was logically carried out it would ruin the pharmaceutical business. He thought pharmacists were doing all they could to put themselves out of business by encouraging such things as this, and expressed the opinion that, if this kind of medication became very popular, it would be a question as to whether the pharmacist would have anything to do.

W. C. Alpers, speaking again on this subject, thought that if these tablets should become popular there was no doubt but that the manufacturing houses would make them; that they would not be made in the store of the pharmacist, but every manufacturer would take advantage of the opportunity, and offer them for sale. He thought it would be manifestly desirable in such case that tablets of the same kind should be turned out of the same color by the different houses, and right at the beginning the inventor should lay down certain rules as to the coloring. He could foresee that the failure to do this would lead to all sorts of trouble. The patient buying a tablet of a certain kind and color at one store would immediately raise objection if he was offered the same thing at another store in a different color. He thought that this question should be well-considered and determined by creating right at the start a well-defined system as to color. He was decidedly of the opinion that one distinctive color should be adopted for poisons; the rest could then be arranged in other ways. This would not apply to those articles where chocolate was used for the outside coating, but the rest should have a definite color-scheme. By following out this idea, a great deal of confusion, which would inevitably arise otherwise, would be avoided.

Continuing, Mr. Alpers called attention to the fact that a chocolate quinine tablet was being sold on the market, and suggested that a quinine tannate was formed from the tannin in the chocolate, which, being insoluble, had no taste. He said a great many physicians would not allow their patients to use these quinine chocolate tablets because of this insolubility, which they regarded as making them worthless. According to them, the presence of chocolate in the quinine tablets would make them objectionable.

Otto Raubenheimer, of Brooklyn, said that all knew how hard it was to administer medicine to children. Doctor Fantus had certainly taken a step in the right direction, in originating a scheme of preparing tablets which was intended for the pharmacist, and not for the

manufacturer. Of course, if the pharmacist remained ignorant and lazy, and did not prepare these tablets, the manufacturer would do it. These tablets could be made by the pharmacist by an inexpensive machine, and he had something here that he could make some money out of.

He did not agree that there was tannin in chocolate. The quinine chocolate tablets were prepared with quinine tannate. He thanked Doctor Fantus for originating these tablets, and expressed the hope that some standard work like the Pharmacopœia or the National Formulary would take up some of these formulas.

Doctor Fantus thanked the members very heartily for the interest taken in this work, and for the ideas brought forward. He regretted that he was not familiar with the paper referred to by Mr. White, in regard to the use of chocolate in disguising the taste of medicine, as he should have given him credit if he had known of it. It should be understood that these tablets should always be dissolved in the mouth; they were not intended to be swallowed whole. He saw no reasons for tablet-making, excepting for the purpose of either hypodermic administration or to be dissolved in the mouth. A pill could be swallowed much more readily than a tablet. A tablet was made in imitation of candy, and that was the reason it was attractive to children. He had found that powders were of no advantage, because children rebelled against them.

He admitted that the possibility of poisoning was probably the most serious objection to candy medication. There was undoubtedly danger that a child might get hold of a quantity of such poisonous tablets and eat them. However, that danger could be readily overcome by not prescribing, and not permitting to come into the house, any more than could be safely taken at one dose. Thus, if the physician prescribed only a few morphine tablets, and the little patient got hold of them and ate them all, no harm would be done. And the same with aconitine, and so on.

Referring to Mr. Alpers' suggestion that he should systematize a color-scheme for these tablets, Dr. Fantus agreed that this was an excellent idea, and he would profit by it.

A tablet machine, that would satisfactorily turn out prescription quantities of tablets, could be obtained from Whitall, Tatum & Co. at about \$10.00. Doctor Fantus could see no reason why pharmacists should not take up tablet making.

F. W. Nitardy, of Denver, said that, some years ago, he had experimented with putting up castor oil in the form of candy, and had met with fair success. He had not done much with it of late, however. He put up the castor oil in the form of chocolate creams, each containing a teaspoonful of castor oil; and they were sufficiently disguised to deceive the clerks in the store to whom he handed around these creams; at least, none of them found out it was castor oil or that the candy was medicated, until they had been told. The process consisted of making an emulsion of castor oil, with condensed milk, sugar and flavoring, so that the finished product was of proper consistence and contained 50% castor oil. This was divided into lumps of about $\frac{3}{4}$ oz. each, which were then dipped in chocolate.

Doctor Fantus said he had worked with chocolate creams himself, but his experiments with cod liver oil in this form had been a failure—although in his early studies in this form of medication he had taken the pains to go to a candymaker for instruction, that he might find out what forms of candy would be most suitable for various forms of medication. He was not the first, however, to use chocolate cream in medication. Sir James Sawyer had published a process in *The Lancet* in 1911 for making medicinal chocolate creams, for which he had proposed the name "Cremulæ."

In response to a question by Mr. Lascoff, Doctor Fantus said that any process that required drying was practically excluded from extemporaneous pharmacy, for this reason, lozenges were excluded. The granulation ordinarily prepared for tablet making also required drying. A. Schleimer suggested, in 1909, the use of cacao tablet making. Three percent of cacao butter would do, but some tablets made with it would not keep well. He had endeavored to find some substance to substitute for cacao butter, and found that paraffin did just as well, using the same percentage. There might be some objection to paraffin, as it was insoluble and indigestible. He thought cacao butter should be preferred for tablets that are not to be kept for any length of time.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

SOME ASPECTS OF OUR POISON LAWS.

B. L. MURRAY AND A. W. FRAME.

If there is any one here that handles poisons in a commercial way he can doubtless anticipate parts of this paper. For any one that handles poisons must label them and to label them properly is a difficult task. It is not such a troublesome task where the business is confined to one single state, but the uncertainties increase when an interstate business is attempted. In one single state there is generally the state poison law to be complied with, and, in addition, sometimes the city ordinances of some of the larger cities; while in interstate business there are forty or fifty poison laws to be taken into consideration. And yet without undertaking an *exhaustive* criticism of present poison laws, we are here to-day advocating the enactment of still another poison law; a law especially applicable to the interstate traffic in poisons.

The real difficulty in labeling poisons is not exactly in the *wording* of the label. It is easy, as a rule, to decide upon the wording of poison labels, selecting the color of the ink, the proper antidote, etc. The serious part of the work comes in deciding what articles are poisons and what are not. On this feature (deciding what articles are poisons) there seems to be no uniformity of opinion. Wide variations in the individual state laws occur at this point, and one is finally brought to the homely question: What is a poison? The answer to this question is, or at least seems to be: We do not know. Just here is where the trade comes into difficulties. The trade as a whole wants to comply with the laws, but can find nothing substantial in the way of a poison law upon which to stand.

But surely in order to properly classify our various drugs and preparations as poisons or non-poisons, and then to label them, we must inquire as to the meaning of the word "poison." In these days of multi-legislation it becomes essential at once to inquire what the statutes say a poison is. Some definitions or statements that might be interpreted as definitions from state laws follow:

"Any substance which in doses of 5 grains or less is destructive of human life." (New Jersey.)

"Any poisonous medicine fatal to human life in doses of 15 grains or less." (S. D.)

"Any drug, chemical, medicine, or preparation liable to be destructive to adult human life in quantities of 60 grains or less." (N. Y.)

"Any drug, chemical or preparation which, according to standard works on

medicine or materia medica, is liable to be destructive to adult human life in quantities of 60 grains or less." (Kentucky.)

"Any drug, chemical, or preparation which according to the Pharmacopœia and Formulary and Homeopathic Pharmacopœia is destructive to adult human life in quantities of 60 grains or less." (N. Y.)

"All vegetable poisonous drugs and their pharmaceutical preparations and alkaloids." (N. M.)

"Article of a nature poisonous to the human system or to animals." (Louisiana.)

"Any chemical, drug, or medicine which is poisonous or which contains a poison." (Indiana.)

"Any article belonging to the class of medicines usually denominated poisons." (Miss.)

"Any article or articles of medicines belonging to the class usually known as poisons." (Neb.)

"Drugs commonly known as deadly poisons." (Porto Rico.)

"Any dangerously poisonous drug." (Utah.)

"Any deadly poison." (Hawaii.)

Much vagueness and indefiniteness is seen in making a comparison of the above definitions. But note, too, the deplorable lack of uniformity. Upon which of these definitions can one rest and feel sure that he is right, or even reasonably sure? How can any one comply with them? At first thought it would seem that poison in one state would be poison in another state, and thus a uniformity of definition might be expected. But apparently what is poison for mankind in one state is food for mankind in another state.

The conclusions of the courts are reflected in the following:

"A poison is an agent which when introduced into the animal organism, is capable of producing a morbid, noxious or deadly effect upon it."

"Any substance that, when taken into the system, acts in a noxious manner by means not mechanical, tending to cause death or serious detriment to health."

"A substance of definite chemical composition which when taken into the living organism is capable of causing impairment or cessation of function."

"Any substance which when taken into the body and either by being absorbed or by its direct chemical action upon the parts with which it comes in contact or when applied externally and entering into circulation is capable of producing deleterious effects."

Some dictionary definitions of poison are offered. But they do not bring us much nearer to a satisfactory idea of a poison.

"A general name for all substances which, when introduced into the animal economy either by cutaneous absorption, respiration or the digestive canal act in a noxious manner on the vital properties or the textures of an organ."—The Dunglison Medical Dictionary.

"A substance having an inherent deleterious property which renders it when taken into the system capable of destroying life."—Wharton & Stille Medical Jurisprudence.

"A substance which, on being applied to the human body, internally or ex-

ternally, is capable of destroying the action of the vital functions, or of placing solids and fluids in such a state as to prevent the continuance of life."—Black's Law Dictionary.

"A substance of definite chemical composition, which when taken into the living organism is capable of causing impairment or cessation of function."—Bouvier's Law Dictionary.

"Any substance which, when taken, applied to the body externally or in any way introduced into the system, is capable, without acting mechanically, but by its own inherent qualities, of destroying life."—Cyclopedia of Law.

"Any substance which, introduced into the living organism directly, tends to destroy the life or impair the health of that organism."—The Century Dictionary.

"In its scientific sense this word applies to any substance which, taken in small quantity into the body of a living animal, is capable by its chemical action, exerted locally or after absorption into the blood, of producing death or notable injury. This definition excludes substances which act mechanically, such as broken glass, or physically, as very hot water."—Century Dictionary.

Further definitions, selected from those elaborated by private authorities, are appended.

"A poison is defined as any chemical which when introduced into the body or generated within the body produces death or disease or permanently or temporarily impairs an organ that is healthy or apparently healthy."

"A poison is defined as any substance which when taken into the body in stated amounts, and usually in relatively small amounts, acting chemically, is capable of producing on ordinary persons, or an average person, death or grave injury to health."

"A poison is a substance, as we understand it, which when taken into the body, on account of its chemical constituent, seriously impairs or destroys the functions of some part of the body or it may kill, or simply impair."

"A poison is defined as any substance when introduced into the body in sufficient strength and in relatively small quantities and acting chemically is capable of producing death or serious injury to health in the case of an ordinary individual in average health."

"Toxicology is the science of poisons. A substance may produce deleterious results in several different ways. In the first place, it may act mechanically and produce disturbances in that manner. For instance, in the case of glass or other fragments, or by physical action as in the case of extremely hot water, or it may produce deleterious results by local chemical action which destroys the tissues with which it comes in contact, like sulphuric acid, or it may produce deleterious results by organized material which occurs in the system and produces detrimental results and it may act chemically upon the blood, or it may be carried by the blood to other parts of the body and there produce chemical action which is detrimental which is the case in true poisons; or substances can be taken in excessive quantities, substances naturally taken may also, when taken in excessive quantities, produce deleterious results by the increased quantity. For instance, you may take too much food of one kind or another."

It is plain to be seen that there is no unanimity of opinion in the best definitions at our command. Some definitions are so broad that one could hardly point out any single article and say, "It is not poison." Common salt is referred to by one of our prominent medical journals as follows: "A case reported in this issue calls attention to the well-known yet not always sufficiently recognized fact that sodium chloride, while the least toxic of the group of similar metal chlorides, is a *poison* which may be abused with fatal results." And from another issue of the same journal we learn that over doses of this same sodium chloride are commonly used in China as a means of committing suicide. One school thinks only of the *quality* of the physiological effect produced by any given substance; and if the effect is deleterious in any way then the substance is a poison. Another school thinks of the *quantity* of the effect produced; thus a small quantity of effect upon you might be beneficial, while a larger quantity of the same effect might be injurious. As an example a little strychnine might be beneficial, while more might be deleterious.

We should not overlook in our survey of the question the varying idiosyncrasy, or susceptibility of man and animals to certain articles. Poison Ivy is much more troublesome with some people than with others. The effects of buckwheat and strawberries on some people are familiar. Rabbits are said to withstand large doses of atropine. The hedge-hog is reported to withstand unusual doses of numerous articles that we commonly call active poisons. And are not birds quite indifferent to strychnine? These considerations only increase the difficulty of framing a satisfactory definition for poison, and at the same time increase the need for such a definition. There are hosts of articles generally regarded as harmless that should be classified as poisons if one is to follow the definitions, the laws, the court decisions, etc. It is not impossible to classify the various drugs and chemicals as to poisonousness, but no two people would do it alike. They would make up classifications widely different. Again the need for some one master classification is shown. And a proper national poison law would be such a master classification.

A proper national poison law would leave no doubt in the mind of the producer, dealer, or consumer as to just what articles are to be considered poisons and labeled and handled accordingly. With such a law it would not matter that one says chemistry and physiology know no substance as such which is deleterious to health, but every substance has a definite ratio to the weight unit of the human body below which it is without any effect, and above which it exerts its specific influence. It would not matter that some pronounce caffeine poisonous, while others proclaim it harmless. With a proper national poison law enacted everyone would be on an equal footing and one person would know as well as another whether any given preparation should be handled as a poison or not. In other words with a standard once set all would have an equal chance to live up to it.

Just what a national poison law should comprise is a subject that needs study. But certainly the law should be as definite as possible. It should not depend for its efficiency on such vague expressions as "active poison," "virulent poison," "acting in a noxious manner," "capable of producing deleterious effects," "liable to be destructive to adult human life," etc. If, as it appears, we can not now

define a poison, let us perhaps omit the definition and frame our law in some other way. Let us in the law enumerate the poisons by name. It will be a long list and an incomplete one. But to-day we have no list at all, so that even an incomplete list will be a step in advance. Let us authorize changes to be made in this list and additions to be made to it. By this means an article at first regarded as non-poisonous can later be put on the poison list. Our knowledge is constantly changing, so our poison list should. An article may be used some years before it is learned that it is habit-forming. In the beginning it would not be found on the list, but subsequently should be.

The law might be made to say such and such things are hereby declared poisons and must be treated in such and such ways. Just as our tariff laws contain almost unending lists of articles that must pay duty so and so. Perhaps classifications could be embodied in the law, as for example Schedule A—Habit-forming drugs, Schedule B—Heart stimulants, Schedule C—Emmenagogues, etc. But these schedules or lists are not sufficient without the individual poisons being mentioned by name (and perhaps also by quantities when in combination). If this provision could be made so that the three Secretaries (Agriculture, Treasury and Commerce) by means of appropriate advisers could keep the schedules up to date, we should have an effective statute.

Such an arrangement is not wholly new. Canada now has a law somewhat on these lines. But with us there would be much in it that is new. It will be necessary to decide what should be considered poisonous for practical purposes. It is easy to decide what is poisonous on purely theoretical grounds; but we live in a practical world. Still we have already made beginnings in establishing standards of poisonousness and we can go on. You are doubtless familiar with the interesting work along these lines using strophanthin made according to Thoms as a standard for comparison. A commission or a committee under the direction of the Bureau of Chemistry or perhaps of the Public Health Service would no doubt be able to do good work on this subject. It is to be remembered, however, that in a national poison law the aim is not to establish fine medical distinctions in regard to poisons, but to establish a working basis, a practical basis for traffic in poisons in interstate commerce of such a nature that consumer, dealer, and purchaser will be equally assisted and protected.

DISCUSSION.

H. H. Rusby, of New York, said he would like to add a definition: A poison is any substance which, introduced into or applied to the bodily tissues, is capable of producing death otherwise than by mechanical action.

C. T. P. Fennell, of Cincinnati, said the English law placed it on a much broader basis. The claim there was, that any substance which entered the human body and deranged any function was a poison. There was one substance which, recently, caused a great deal of trouble in Cincinnati, a substance not mentioned in any of these laws—barium chloride.

C. A. Mayo, of New York, said the question of poisons happened to be at an acute stage just now, the postal regulations regarding the shipments of poisons having been entirely upset by recent United States Court decisions, and the postal authorities seemed to be entirely at sea as to what should or should not be permitted in the shipment of poisons by mail. The regulations heretofore in force gave permission to shippers of poisons to ship only to dealers, but the United States Court had decided that these regulations were illegal. It seemed to

him that the Association was in a position to give counsel and advice to the authorities, and he thought it might help the situation to offer such advice; therefore, he proposed the following resolution for discussion in connection with this paper:

"WHEREAS, The regulations regarding the shipment of drugs by mail are vague, indefinite and unsatisfactory, and

"WHEREAS, The drafting of such regulations requires special knowledge of pharmacy and its problems. Therefore, be it

"Resolved, That the Chairman of this Section appoint a special committee of five to prepare such regulations and submit them to the postal authorities for consideration."

J. H. Beal, of Scio, Ohio, said he thought acknowledgment was due Mr. Murray for the very valuable paper he had presented. He knew something of the labor involved, because, some fifteen or twenty years ago, he had undertaken to find a definition of the word "poison" which could be used in the drafting of a poison law, and had searched diligently for all possible information on the subject. He had finally come to the conclusion that Mr. Murray seemed to have come to here, that the physiological or scientific definition of poison, based upon physiological action, would not do for a legal definition; that a legal definition of poison must be more or less arbitrary. Then he considered the question of whether or not such definitions as were found in the Pennsylvania Poison Law could be used, making the question of whether it should be labeled poison depend upon the quantity required to produce death, but the toxicologists were so much at variance upon this point that he had discarded the idea as impracticable.

He had finally drafted a bill, which had been enacted into law in the State of Ohio, and was still in force there. This law did one of the things which Mr. Murray had recommended, it attempted to enumerate the poisons. It began by stating that "The following substances shall be regarded as poisons:" and after enumerating a list of such articles, provided a series of exceptions, excluding certain insoluble substances that had never been known to produce poisonous or fatal results. Further study had convinced him that a satisfactory legal definition of the word "poison" would require the adoption of a standard toxicity unit—say, for instance, the minimum lethal dose in milligrams which would occasion the death of a white mouse of standard weight. He thought by experiment along this line a standard toxicity unit could be developed, and then the law could state that any substance which had a toxicity value of a specified number of these should be deemed a poison. Mr. Beal concluded by saying that he would demur strongly to Mr. Murray's suggestion that any body or committee of men be permitted to extend the list of poisons or take away from it.

H. P. Hynson, of Baltimore, moved to refer Mr. Mayo's resolution to the House of Delegates. He said he was always glad when he found that anybody else entertained an idea or conclusion that agreed with his; it always encouraged him. He was particularly glad to hear Mr. Beal and the author of the paper say that it was desirable to be specific in this matter of poisons, and refuse to accept any general definition. He would especially impress upon the young men in pharmacy that they should stand for a definite and specific definition as to poisons. He also thought that narcotic and anti-narcotic legislation should be likewise specific. He told of the troubles they had in Baltimore, with three anti-narcotic laws, a general State law, a poison law, and a city ordinance. This had resulted in great confusion for a while, but he had finally succeeded in getting out a line of interpretations which, in spite of prejudice, had been accepted. They had gone to their state's attorneys and judges, and asked them to accept this as an interpretation of the law, and thought that when they got them to accept such specific description of each drug their troubles would be pretty well over.

J. F. Windolph, of Norwich, New York, was impressed with the importance of taking some action along the lines Mr. Mayo had suggested. He had in his possession an official definition from the Postoffice Department as to what was considered a poison, and he thought the members would be impressed with the idea that the Postoffice Department needed some expert advice in the enforcement of its amended regulations. The department did not wish to carry out the law along technical lines, and it had issued a rule to the effect that a medi-

cine would not be considered a poison if it did not contain sufficient poison to render the composition a poison.

Adverting to his resolution just offered, Mr. Mayo said he wished to forestall objection to it, or any attack by Mr. Hynson, by saying that this resolution did not involve a question of policy on the part of the Association, and he hoped the Chairman of the House of Delegates would agree with him in thinking that it was simply asking for the appointment of a special committee of a technical nature. He thereupon re-read his resolution, and said that the definition just recited by Mr. Windolph gave a good idea of what pharmacists had to go up against when it came to the postal authorities.

W. C. Abbott, of Chicago, said it seemed to him that, as an example of vague legislation—of which there had been a great deal—this attempted poison legislation stood out first. He regarded the proposed regulation of the Postoffice Department to declare all poisons un-mailable as little less than silly. It was an attempt to regulate the practice of those who knew a great deal more about the substances classed as poisons than those making such regulations. He believed that the purpose of the proposed regulation of the department was intended to protect the public, but this piece of "bureau legislation" was so widely general that it stood as a dead letter in practice, because it could not be enforced; or, if enforced, could only be so enforced to the detriment of the many, and would not be in harmony with the real purport of the law. He held that neither the pharmacist nor the physician should be handicapped in the manner he procured or prescribed poisonous substances, or potent remedies of any sort or character. What mattered it, in his business whether he got it by mail or express. At last, it was up to the educated pharmacists and physicians to handle this question properly. He heartily seconded the resolution offered by Mr. Mayo.

Speaking again on the subject, Mr. Windolph said he understood that the Criminal Code, section 217, excluded poisons, but gave the Postmaster General power to formulate certain rules and regulations for the admission of certain of these poisons, and the regulation which had been amended to conform to the court's decision, apparently did not admit any medicine containing poison, because the words "containing poison" had been omitted from the regulation, which now read that "medicines and anaesthetics" might be admitted. It was further provided that the word "medicine" should not be understood as meaning "poisons;" and according to the law and regulations attempting to make an exception thereto, it was not possible to legally mail any preparation containing a trace of poison. However, it was the purpose of the Postoffice Department to permit the mailing of preparations containing a minimum amount of poison. They were very much in the dark, he said, and didn't know just what they did mean. The definition had been given to him, that what was meant was a poison which, in the ordinary dose, was not fatal.

Mr. Murray said this discussion simply bore out the position that no one knew what a poison was, and the pharmacists did not know where they stood in this matter. His idea about the Postoffice Department was that they knew no more than the pharmacists, although they would like to know. He had with him a copy of the ruling of the department, to which Mr. Windolph had referred, which read: "Medicines containing a small proportion of poison are mailable, and medicines containing poison to such a degree as to make the composition a poison are not mailable." He said he did not understand what Mr. Beal meant by saying that this was not desirable.

Mr. Beal replied that he did not deem it advisable to give to any bureau the right to arbitrarily extend or diminish the list of substances which shall be deemed poisons, i. e., that he did not believe in "bureau-legislation." He was not referring to the postal regulations.

DRUG PRODUCTS—THE LAW AND THE LABEL.

LOUIS EMANUEL, PITTSBURG, PA.

How to make a statement of the strength, quality or purity on a label for drugs which differ from the official standards, in such manner as to be plain, has never been judicially determined. It is claimed by some that a simple declaration of the actual strength is sufficient, while others contend, that some qualifying statement should also be made in order that the purchasers may not be misled.

The labels employed by some manufacturers and dealers give evidence of their conviction, that a simple statement of the strength of the drug, in such cases, does not comply with the law. Examples:

"Aconite Root

Standard Strength U. S. P.0.5% Aconitine
Assayed Strength0.485% Aconitine

"Elixir of Ammonium Valerate

Alcohol, 17%

Each Fluidounce contains

Ammonium Valerate16 grains
Tincture of Vanilla 2 minims

This elixir is preserved with alcohol and glycerin. The chloroform of the N. F. preparation has been omitted and the elixir colored with carmine."

"Beef, Wine and Iron

Alcohol 18%

This preparation should not be confused with that of the National Formulary, as it is made from a different formula.

Each fluidounce represents 15 grains of Extract of Beef in Sherry Wine with about 4 Grains of Iron and Ammonium Citrate."

Section 7 of the Federal Food and Drugs Act provides: "That no drug defined in the United States Pharmacopœia or National Formulary shall be deemed to be adulterated * * * if the standard of strength, quality, or purity be plainly stated upon the bottle, box or other container thereof, although the standard may differ from that determined by the test laid down in the United States Pharmacopœia or National Formulary."

Section 8 provides: "That the term 'misbranded,' as herein used, shall apply to all drugs, or * * *, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular."

The label for a drug sold under an official name, which is either above or below the standard, having upon it a declaration of strength only, is plainly misbranded, because a single declaration of strength does not provide a plainly stated declara-

tion of the quality. Moreover, when such a label carries a guaranty, the label is misleading. The standard is stated and the drug guaranteed. Nothing appears on the label to show the purchaser what the standard should be. He does not know what the standard is and, naturally, concludes that the article is guaranteed of standard strength, but is sadly misled. In fact just such a case as this was brought to light in the work of the Pennsylvania Board of Pharmacy.

A prescription for Essence of Pepsin, N. F. was sent to a pharmacist who filled it with a nearly half-strength drug. Later this pharmacist was cited for a hearing before the board, at which he set up the claim that he was in the right and safe from prosecution because the essence he used was guaranteed by a reputable manufacturer. The difference in a guaranty *for what the product is sold for*, and a guaranty that the product is of *official standard of strength and quality*, misled him. This would not have been possible, if a declaration of the quality had appeared upon the label of the article, or a statement such as appears on the label for the beef, iron and wine, or the elixir of ammonium valerate quoted herein.

It may very properly be said that a pharmacist should be sufficiently familiar with official standards, to readily detect a drug of deficient strength when a simple statement of strength appears upon the label. But is this law for the protection of the pharmacist only? How about the physician and the general public, are they expected to know the standards? What constitutes a plain statement of the standard of strength, quality, or purity, within the meaning of the law?

For our answers to these questions we must look to the intent or purpose of the provision. It can have no other purpose than to protect the consumer and acquaint him with the fact, when he is sold an article that is not standard. A label bearing a statement of strength by which only the pharmacist may determine the actual strength and quality of the drug it represents, and that, perhaps, after making a careful calculation, cannot possibly afford the protection this provision is intended to give, to the ordinary every day purchaser of the product for his own consumption. The following illustrations will show how some manufacturers attempt to comply with this very important provision as to the label, and how the public may be misled thereby.

"Essence of Peppermint

Contains 80 percent PURE PROOF SPIRIT

19.75 percent Distilled Water

Pure Oil of Peppermint and herb, a trace.

Guaranteed under the Food & Drugs Act, June 30, 1906."

"Tincture of Iodine

Contains 45. percent Pure Alcohol.

3.51 percent Pure Iodine

0.5 percent Pure Potassium Iodide.

Guaranteed under the Food & Drugs Act, June 30th, 1906."

Under labels as above, drug products are not guaranteed for their PRIME quality. They are really guaranteed to be of inferior quality. The labels are not plain as to this, but what average purchaser of such 10 percent bottled prod-

ucts as these were taken from would ever know how utterly deficient in strength and quality they were?

The labels declare the strength, but say nothing plainly about the quality. They are not adulterated drug products, within the meaning of the law, but they are misbranded, which is, also, a violation of the law.

It is evident that there is need for a court decision in this matter and a possibility of a common sense rendition, as to what a plain statement for sub-standard drugs should consist of, is apparent, when we consider what Chief Justice Claybaugh, in the Antikamnia case, says regarding regulations, viz.:

"Conceding for the purpose of the statement of this case, that this is not a quasi-criminal statute, but purely a remedial one, if that be true then it is the duty of the court to construe it as to give effect to the purposes and objects for which it was passed.

"I have no doubt that these secretaries could, with great propriety, make regulations that would more effectually carry into execution the purposes and intent of the law makers. That being so, what is the fair construction of the act, or does it need any interpretation?

"The right to interpret an act in conformity to the purposes and objects of that act applies only where the act is not perfectly plain or is not perfectly apparent.

"Then the courts can give such interpretation to it as will carry out and gratify the purposes of its passage. Interpretation, as I understand it, does not mean that the court can add anything to language which is plain."

This would seem to encourage a hope that the position taken by the Pennsylvania Board may be sustained when properly presented to the courts.

Regarding regulations. The Federal law does not provide for a guaranty and serial number; nor does it provide, that a label shall make reference to a guaranty; nor does it provide that a guaranty shall be filed with the department of agriculture, but the regulations adopted, do provide for, not only the guaranty and serial number, but also the manner in which these are to be stated. It was found when left to themselves, manufacturers misapplied the object of the guaranty and made their labels read "Guaranteed by the U. S. Government."

Now if it is legal and proper to adopt regulations as to the manner in which a guaranty shall be made, and stated, it is reasonable to hold that regulations may be adopted which shall provide for a plain statement for labels on sub-standard drug products, in order that purchasers may not be misled.

SOME PHASES OF A PHARMACIST'S DUTY TO THE PUBLIC.

ZADA M. COOPER, PH. G., IOWA CITY, IA.

It is fair to suppose that all men realize that they owe something to the community in which they live. They believe that it is their duty to be good citizens but the ideas of what constitute good citizenship are as far apart as the poles. It is without doubt too often true that men think it is sufficient to be honest and honorable in their dealings with others, to pay their debts and keep out of the penitentiary. There is a considerable number who do not even feel it a duty to exercise the right of suffrage. In brief, it is a passive sort of good citizenship

that they practice, feeling no compulsion to engage in active service for mankind in general or their neighbors in particular, and, I suspect that pharmacists are not altogether innocent of such inactivity.

Lest such a criticism from a woman seem rank presumption which it probably is, I hasten to say that it is of only one specific point that I wish to speak and that point is just as applicable to myself as to others. I refer to what we as pharmacists should do toward the education of that part of the public with whom we come in contact. We shall all concede that we are our brother's keeper in so far as it is necessary to supply him with only good drugs and medicines and to refuse to sell him dangerous habit-forming drugs, but how many of us feel any necessity to help him to a better understanding of these things, how many of us try to pass on useful knowledge? Do we believe with Huxley that while, "We live in a world which is full of ignorance and misery" it is "the plain duty of each and all of us to try to make the little corner he can influence somewhat less ignorant than it was before he entered it."

Possibly there is no subject of which the public is so ignorant as medicine, unless it be religion. Not even in religion is there more superstition, more absurdity, more need for the exercise of common sense and good sound reasoning.

Little can be accomplished in the way of reform by legislation or otherwise along any line without an awakened public sentiment and before public sentiment can be aroused, the need of reform must be seen, there must be knowledge, education. Take for example, the patent medicine evil. It can never be eliminated without a campaign of education. Just as long as the public reads the alluring advertisements and believes the extravagant claims, we shall have the thing to contend with. Efforts to get restrictive legislation come to naught so long as the people believe in the efficacy of such remedies. Until they learn that most of them are worthless if not dangerous they will continue to use them. Some lay magazines have done much toward exposing them but there is still a vast amount of ignorance and, in my opinion, it is the duty of the pharmacist to do what he can to reduce it. It is not expected that we shall be able to eliminate the sale of patents entirely or that we shall refuse a customer who insists. We cannot bring in the millennium instantly but it is unnecessary to push that branch of the business. Even if we are to consider it only from the mercenary view point, the same effort expended on some other department would bring better results.

Of course we all understand the difficulties that will be encountered. For various reasons, some people resent pharmacists offering information. It may be the implied ignorance, an unusual amount of conceit, or the impression that it is an interference in one's private affairs. Whatever the cause, it involves the exercise of tact but so does the successful conduct of any part of your work. In fact any profession, any business, any trade, in which one must deal with people, I care not what it is, requires that same quality if one is to get on. The ability to estimate human nature is very essential in any branch of the pharmacist's calling, hence there can be no good reason for not bringing it into use here. Then as opportunity offers, should not a pharmacist teach many of the dangers of self-medication?

Should we not go a step farther and try to explain that self-medication usually

involves self-diagnosis. If they can be made to understand that standard remedies of well known therapeutic value are best, perhaps they can be taught also that they cannot diagnose their own ailments and that that is just what a physician is qualified to do. Attention can be called to the fact that a prescription is a safeguard against error because at least two people, the physician and the pharmacist see it before the medicine gets into the patient's hands. The public should know that if a dispensing physician makes a mistake, it is difficult to prove and so there is less chance of recourse. Perhaps we hear it said, "The Lord giveth and the Lord hath taken away" when as a matter of fact the Lord had nothing to do with it. In the case of the physician who prescribes, errors are much more easily located and the prescription itself is evidence. What is still more important than being able to trace mistakes is the fact that error is much less likely to occur. If it be the physician's the pharmacist should detect it, if it be the pharmacist's the checking systems usually employed in reliable pharmacies reduces the chances to a minimum. I am sure that pharmacists have no desire to antagonize physicians but these are a few of the things the public has a right to know, things upon which they have thought little but knowledge of which would materially affect the attitude of intelligent thinking people. Another of these little known facts is that the pharmacist's stock must conform to the requirements of pure drug laws but physicians may dispense what they please and no one is the wiser.

I believe that teachers of salesmanship agree that one of the essentials is a knowledge of the stock. If the sale of ordinary merchandise is helped by knowing all about it and subsequently passing on to the customer at least a part of that knowledge, surely the principle is just as applicable to the sale of many things handled by the pharmacist, even to many drugs themselves. I believe the old idea that the less a man or woman knows about medicine the better, is all wrong. We shall grant that technical and professional information is only for those educated in the profession but outside of this there are a great many interesting and helpful facts about even the common household remedies that can easily be passed on to the customer. In an article by Mr. Raubenheimer published not long since he gives an excellent example of how historical information about sulphur, cream of tartar and Rochelle salt displayed on placards in the show window aided in the sale of lozenges compounded from these ingredients.

Having good laws regulating the practice of pharmacy is a benefit to us but many of the laws were enacted primarily for the protection of the public. So what is good for the public in the end benefits us—the knowledge we pass on to them brings returns. "Cast thy bread upon the waters" is not without its application here. Some one will say that it does not pay to go to so much trouble, that it is a thankless task. I believe not, I believe it will react to benefit us either as druggists or as citizens. The simple fact that you know increases the respect for you and your calling. Every man owes it to himself to bring his vocation to a higher plane of honor and usefulness. As educated men and women we owe the community more than the uneducated. Some one has said that, "Education is the development of power to bring things to pass for the common good." If that be true, we do not know that we are educated, we have no right to the

title until we make use of our power, latent though it may be, to do something for the common good.

There is no lack of opportunity to exercise this sort of good citizenship. If there seems to be none, it is because we are so self-centered as to be blind to our opportunities. In advice about sanitation and methods of disease-prevention we should be able to do much toward assisting public health departments. It has been said by one of our own number that "no trade or profession of the present day presents greater opportunity for serving the human family by relieving suffering and causing the dissemination of useful knowledge than that of the pharmacist."

Apparently physicians themselves believe that the public needs information and have claims that those who possess the information have no right to ignore. Not long since an editorial in the Journal of the American Medical Association emphasized the people's right to a thorough education in the "essentials of public and personal hygiene and sanitation" and "to correct information about medical progress." Another physician writing recently says that "the education of the laity on medical matters is daily becoming a subject of wider interest and greater importance. Preventive measures are based in great part upon a thorough medical education of the public." Among those who are most likely to be asked to express opinions concerning medical questions, he includes the druggists and thinks that druggists who are asked for advice or to express an opinion as to the meaning or seriousness of any symptoms can be of much assistance to physicians, that he has done as much perhaps as the physician himself if he advises against the use of remedies that may be of doubtful value and succeeds in bringing the case to the physician's care.

INTRODUCTION TO THE REPORT OF COMMITTEE ON PATENTS AND TRADE-MARKS.

F. E. STEWART, M. D., CHAIRMAN.

In June, 1881, your chairman, then attending the annual meeting of the American Medical Association for the first time read before the section dealing with the *Materia Medica*, a paper entitled, "The *Materia Medica* of the Future," and in connection therewith he laid down as a declaration of principle the following resolution:

Resolved, That it is contrary to the spirit of the code of ethics for a physician to prescribe a remedy controlled by a patent, copyright, or trade-mark. This, however, shall except the use of a patent upon a process or machinery for manufacture. It shall also accept the use of a trade-mark if the article so marked is provided with a technical name, and a working formula, under which any person may manufacture and sell it.

This resolution was rejected by the Judicial Council on account of its exceptions, it being considered contrary to the spirit of the code of ethics for physicians to habitually prescribe, or in any other way endorse the commercial control of anything required for the prevention, cure or mitigation of disease. It is unnecessary to add that if the medical profession had been true to its obligations,

pharmacy and drug therapeutics would today possess much higher standing in the estimation of the public than at the present time.

Long before the advent of the modern manufacturing houses engaged in the pharmaceutical field the so-called "new remedy" business had its birth in the retail drug store, and was known as the "specialty" business. Many of the so-called specialties originated as favorite prescriptions by leading members of the medical profession. Some were labeled with descriptive names, others with semi-descriptive coined names which were generally adopted as proper titles. As a rule labels were provided with names of diseases and doses, frequently with circulars setting forth their uses, all intended for the convenience of the self-medicating public.

As long as this method of doing business was confined to the retail druggist it was not only considered legitimate, but proudly heralded as "elegant pharmacy," and the reputation of the pharmacist among the members of his guild was largely dependent upon the sale of his specialties. The medical profession prescribed them, the demand created thereby increased their sales, and the endorsement of physicians gave sanctity to the business.

But when the country became over-run with unlicensed practitioners parading as manufacturing pharmacists and chemists, who advertised similar preparations in the medical journals and sent out their detail men to interview the doctors, then a mighty howl went up from the retail druggists, and the Brooklyn Formulary, which afterwards became the National Formulary, was devised in retaliation. Shortly afterward a corresponding howl was raised by the doctors. They commenced to take exception to the methods of labeling, circularizing and advertising. Attention was called to the fact that physicians who prescribed this class of products, prescribed themselves out of practice, and sent their patients to the nostrum manufacturers for treatment. The advertisements were characterized as tissues of fraud, humbug and lies. Then it was discovered that some of these products were patented, others commercially controlled by registering their currently used names as trade-marks, and others by secret or semi-secret formulas and processes. These discoveries brought out the fact that the "specialty" business was only another branch of the so-called "patent" medicine business, the principal difference between them being that one class of products was advertised in the secular and religious press to fool the people, and the other class advertised in the medical journals to fool the doctors.

Your chairman graduated from the Philadelphia College of Pharmacy in 1876, under the tuition of preceptors prominently identified with the "specialty" business, and, after graduation, went into the same business as a proprietor, later graduated at the Jefferson Medical College, class of 1879, sold out to one of the prominent manufacturing houses, entered the practice of medicine, and made an arrangement for receiving royalties for new materia medica products of his own introduction. His literature was reprinted from the medical journals by said house and widely circulated to the medical profession. The products were not patented, or "trade-marked," and full knowledge concerning their method of manufacture was published in the medical press, but in spite of such precautions to be ethical, immediately the leaders of the medical profession in New York took exception to this action upon the part of your chairman and the

manufacturing house referred to. As both had gone into the arrangement in good faith, both now united in an attempt to solve the problem presented by the so-called "new remedy" business.

The "propaganda for reform" agreed upon included the following:

First.—A published platform declaring the policy of the propaganda, and including the objections urged by the profession against the new remedy business.

Second.—The advocacy of the establishment of a national bureau of materia medica, or board of control, under the central government at Washington, provided with laboratories for materia medica research, and including government experts employed in the various government departments dealing with medicinal drugs, chemicals, or preparations of the same, and also including the physicians in the Army, Navy, and U. S. Marine Hospital Service engaged in research work.

Third.—The investigation of the materia medica of the world by said government bureau to ascertain what products were being used by the various nations, peoples, and tribes, with the object of adding the same to the materia medica collection in the National Museum, and whenever any product was discovered appearing to be worthy of further research, the same to be investigated by the laboratory and its claims proved or disproved.

Fourth.—The organization of a National Pharmacologic Society, representative in character, including members of the medical and pharmaceutical professions, and manufacturers engaged in the pharmacal and chemical industries, also editors and publishers of medical journals, the special object of the association being to co-operate with the bureau or board of control.

Fifth.—The free publication of working bulletins by said bureau or board containing all available information concerning each product undergoing more complete investigation, the same to be sent to clinicians throughout the country for the therapeutic test of said products, in the form of properly prepared and standardized preparations, to be furnished by the government without charge.

Sixth.—The publication of a monthly journal, an annual report, and a complete compilation of the results of work done in book form.

Seventh.—The abolishment of commercial monopoly of materia medica products except in so far as limited monopolies may be obtained by the proper application of the patent and trade-mark laws.

Eighth.—The establishment by the manufacturers of Scientific Departments manned by persons skilled in the arts of medicine, pharmacy and chemistry, including physicians, pharmacists, chemists, physiologists, botanists, bacteriologists, etc., such departments to be professionally organized as a part of said pharmacologic society, and working in co-operation with the bureau or board of control.

Ninth.—The introduction into the Pharmacopœia of methods for standardizing galenicals, thus extending and making more practical the work of the revision committee.

The results of this propaganda have been far reaching. The Smithsonian Institute endorsed the plan for an investigation of the materia medica of the world under governmental auspices. It was also endorsed by the Surgeons General of the Army, Navy and U. S. Marine Hospital Service, also by the Alumni Associa-

tion of the Philadelphia College of Pharmacy. It was discussed by the Philadelphia County Medical Society and approved by H. C. Wood and other prominent men in the medical profession both in civil and official life. The American Medical Association memorialized Congress on the subject in 1891. The A. Ph. A. in a set of preambles and resolutions endorsed the policy mapped out by our Committee on National Legislation in 1896 in relation to the commercial control of materia medica products. This act was in accord with the Richmond resolution. The Journal of the American Medical Association editorially endorsed a modification of the bureau plan presented by your chairman in April, 1901. Several of the large manufacturing houses adopted the scientific department idea, and also adopted the working bulletin system under that or some other name. The U. S. Pharmacopœial Convention increased the scope of its standardization work by introducing standardized galenicals in 1890, and made further additions in 1900. In 1901 a national pharmacy company was incorporated in New Jersey and organized in San Francisco, and a national bureau of medicines and foods organized to support it. This plan was cordially approved by the leaders in pharmacy and medicine on the Pacific Coast, but afterwards abandoned to take part in an organization under the auspices of the A. M. A., and A. Ph. A. The joint committee reported favorably but the plan was defeated, only to rise again in another form as the A. M. A. Council on Pharmacy and Chemistry.

It is safe to assert that the combined manufacturing houses of the United States engaged in the pharmacal and pharmaco-chemical industries publish and distribute to the medical profession at least fifty tons of literature annually relating to their products. This probably represents two or three million or more separate working bulletins, pamphlets or circulars. The question is, are these publications disseminating truth or error? If truth, then the publication represents a work most beneficial and salutary. If error, then these houses are misleading the medical profession, exploiting the sick for gain, and are guilty of a heinous crime against humanity.

The object of the scientific department idea referred to in this report, with its working bulletin system for the distribution of scientific literature concerning the newer materia medica, the same to be published under the censorship of a bureau or board of control, representing the several interests involved, is in line with the professional society idea in which individuals contribute the results of their experience and observations for the benefit of the profession, and submit their contributions to the censorship of their peers, who censor the same in organic capacity. The literature of contributors to the professional societies, describing results obtained from original research, may be copyrighted, but the results of their investigations are freely given to the profession. Progress in the science and arts of medicine is thereby promoted because each member of the profession who does his duty uses the knowledge thus contributed and publishes the results of his observations also, thus verifying or disproving the findings of the original contributors.

The object of the patent law is to promote progress in science and useful arts. This object is now being defeated by the way our patent and trade-mark laws are being interpreted and applied in the protection of alleged materia medica inventions. As not over one-tenth of one percent of the alleged new

remedies commercially introduced during the past thirty years and protected by patents and so-called trade-marks have proved of sufficient merit to justify the experiments upon the sick entailed, it is evident that these laws have been misinterpreted and misapplied. Is it not about time that we as physicians and pharmacists enter our protest against such travesty of law? And in making this protest, could we make it more effectively than to adopt a plan for directing this great commercial propaganda, employed for creating a demand for these alleged new remedies, into proper educational channels for the circulating of accurate information concerning them, by establishing a censorship over the publication of this literature—a censorship voluntary and representative in character on the part of the manufacturers, and co-operative on the part of the medical and pharmaceutical professions?

Place the professions where they can properly co-operate by making the propaganda professional in character and there will be quick reciprocity on the part of professional men. But the professions cannot co-operate with a plan for using the professions and the public for selfish purposes.

Finally, the professional ideal of pharmacy includes autonomy on the part of the profession. Without autonomy there can be no profession of pharmacy. We have our professional schools, press and societies, but are lacking in the essential qualification necessary to gain for the vocation recognition as one of the liberal and learned professions, namely, autonomous censorship and control over the publication of literature relating to the introduction of new materia medica products to be used by the medical and pharmaceutical professions. Such autonomy is secured in the publication of information relating to the older materia medica by the Pharmacopœial Convention and its Committee on Revision. Why not establish a similar board of control for the censorship of literature relating to the newer materia medica?

From the above statement it will be seen that the question of patents and trade-marks as applied to materia medica products is entirely subsidiary and dependent upon questions of materia medica standardization, professional autonomy, and medical and pharmcal education and license. Some of these questions are:

Who shall practice medicine and pharmacy, licensed practitioners duly qualified by education and license from a board of examiners, or unlicensed practitioners who have set up as manufacturers and are practicing at wholesale at long range and without diagnosis?

Who shall control the teaching of therapeutics as applied to the newer materia medica?

Who shall decide questions relating to the preparation and standardization of these products?

How shall the patent and trade-mark laws be so applied as to promote progress in materia medica science, advance the legitimate practice of the arts of pharmacy and drug therapeutics, and protect the public from the errors of dishonest commercial exploitation?

How shall charlatans and pretenders be prevented from availing themselves of the protection of these laws in carrying on a dishonest commercial business parading under the guise of scientific pharmacy and chemistry?

Is it not apparent then that we need some kind of bureau or board of control or society, representing the several interests concerned, in which the autonomy

of the medical and pharmaceutical professions can be vested in relation to the newer *materia medica* just as they are now vested in the U. S. P. Convention and its committee of revision in relation to the older *materia medica*—a bureau or board working in co-operation with the professions and manufacturers for the promotion of the common good and public welfare? Can the American Pharmaceutical Association take up the work and secure the aid of the manufacturers in establishing a home for the Association with proper laboratories and facilities? Ought the work to be assumed by the Pharmacopœial Convention at its next decennial meeting? Or would it be a better plan to have the work taken out of the hands of the professions and assumed by the Federal Government? Upon the answers to these and other questions relating to professional autonomy is dependent the answer to the patent and trade-mark question.

There seems to be so much misunderstanding in regard to the object of the "propaganda of reform" advocated so persistently and consistently since 1881, that your chairman feels it incumbent upon him to make this preliminary statement.

REPORT OF THE COMMITTEE ON PATENTS AND TRADE-MARKS.

The question of patents and trade-marks in its relation to medicine and pharmacy is far more complex and comprehensive than the superficial student realizes.

The physician and pharmacist have already been granted a monopoly of medicine and pharmacal practice. This grant was given in exchange for services of a highly altruistic character. There is no justification for either calling, except to the extent that the practitioner is able to prevent disease, relieve suffering, and heal the sick; and the function of the pharmacist is to prepare medicine for the physician to use, also to meet the demands of the public for medicine for self-medication so long as these demands are within reason.

Why should the government grant to the ignorant and venal manufacturers and dealers in drugs the right to the exclusive sale of certain *materia medica* products on the ground that they are "new and useful inventions and discoveries" in the treatment of the sick, and thereby create and foster great medical monopolies conducted in an unfair competition with the medical and pharmaceutical professions, and in a manner inimical to the public health?

In reply to this question we are constantly confronted with the answer: "What are you going to do about it?" If the medical and pharmaceutical professions would get together and ask Congress to do something about it, it would soon be done. As stated by one of our prominent senators: "Congress is always ready to listen to the advice of the learned professions, especially in regard to legislation concerning the practice of these professions. That is what Congress is here for. But we as legislators can do nothing until you, as professional men, agree as to what you want done."

Contrary to the general impression, the inventor does not possess a natural right to the exclusive use of his invention. The right, when it exists at all, is a creature of statute and grant, and subject to the conditions imposed by the

statute and the grants. The government is under no obligations to grant inventors the exclusive right to their inventions or discoveries. The object of giving such grants is to promote progress in science and useful arts.

Is the patent system now in vogue, as applied to medicine and pharmacy, promoting progress in the science of materia medica and in the arts of pharmacy and drug therapeutics? When it is considered that thousands of alleged new remedies have been introduced during the last thirty years and not one-tenth of one per cent of them has proved of any special therapeutic value; when it is considered that this introduction represents hundreds of thousands of useless experiments upon the sick by physicians in private and hospital practice, and many times that number by the self-medicating public, it is evident that the question may be properly answered in the negative.

Why should materia medica products be patented at all? Apparently the only persons who have profited from these patent grants have been the manufacturers of the patented products and the medical journals accepting their advertisements. It is well known that, as a rule, these advertisements are misleading. In no line of business is the principle underlying the motto "*caveat emptor*," (the purchaser beware) been worked to such an extent as in the introduction of alleged new remedies by advertising.

The system has debauched the medical and pharmaceutical press, has seriously injured medical and pharmacal practice, has thrown pharmacy and medicine into disrepute with the public, and has proved a serious detriment to the public health. The medical press itself would be far better off under a system of open competition between manufacturers of new materia medica products. Take diphtheria antitoxin for example, it is an open product, consequently there are a number of manufacturers each contributing to the advertising columns of the medical journals. Adrenalin, on the contrary, is a closed product controlled by a product patent and for seventeen years there can be but one brand of it and therefore only one advertiser. Why should we sacrifice the professions of medicine and pharmacy, and the public health for the advantage of the manufacturers of questionable therapeutic novelties, and medical journals subsisting upon their advertising patronage? Why should not the system be wiped out altogether?

Most foreign countries prohibit the patenting of materia medica products, but as a rule permit the patenting of processes and machinery for their manufacture. Germany has been one of the leading countries in this respect. But now Germany will probably modify its patent law to be in line with the United States patent law, so that all of the arguments based upon the example of Germany will, in that event, fall to the ground.

Fortunately the advertising fraternity are waking up to the menace threatening the advertising business due to the misleading character of advertising in general. "Printer's Ink," the well-known organ of the advertising fraternity, is advocating a Bill for the prevention of misleading advertisements. This bill, or legislation founded thereon has already been enacted in several of the states, and it is hoped that it will be universally adopted by all of the states of this Union.

The Shirley Bill, recently passed by Congress, has for its object the suppres-

sion of misleading advertising in so far as it relates to foods and drugs in interstate commerce. If these laws are properly enforced the result will be to make the advertising of medicines as now carried on by some manufacturing houses exceedingly unprofitable, both as to reputation and financial returns.

One of the most important points in regard to the patenting of materia medica products for the protection of the commercial introduction by advertising is this, namely: materia medica products cannot be properly introduced by advertising. The only way they can be introduced in such a manner as to promote progress in the science of materia medica and the useful arts of pharmacy and drug therapeutics is by the co-operative investigation of experts in the various branches of knowledge upon which materia medica science depends.

The services of experts in pharmacognosy, pharmacy, pharmacodynamics, therapy dynamics, and pharmacotherapy are required for their introduction. It is necessary to develop a knowledge of their source or genesis, physical and chemical properties, methods of selection, preparation, reservation, compounding and dispensing, and also a knowledge of their comparative value in relation to the older products of the materia medica used for similar purposes. This in turn requires co-operation between the laboratories of the universities, government institutions and manufacturing houses engaged in the legitimate pharmacal and chemical industries. Therapeutic verdicts concerning new medicinal products can only be obtained by the co-operative investigations of many competent observers extending over years of time, and conducted under conditions of environment sufficiently differing as to climate and nationality so as to eliminate the personal equation. It is manifest that this is an altruistic work in which all co-operate for the common good, and that the results of the co-operative work belong to the professions of medicine and pharmacy, and to the public, and do not belong to individuals for their exclusive use. Why should we permit individuals, firms and corporations to monopolize common property for personal gain?

Taking the above facts into consideration, it would seem that the American Pharmaceutical Association should consider the subject of materia medica monopoly from the point of view of the public, and not from the narrow and selfish viewpoint of individuals. As before mentioned, pharmacy and medicine have lost caste because of the narrowness and selfishness of the professions themselves, and the only way to restore public confidence in physicians, pharmacists, and medicines is for the professions to unite with the legitimate pharmaceutical and chemical laboratories in an appeal to Congress for the proper legislation on this subject.

Mr. Bodemann, member of our Committee, calls attention to the fact that our present patent law as applied to materia medica, not only "does *not* encourage scientific research, but absolutely forbids it; that is to say, if you find a way to make a certain product and then patent it, I am not allowed to make the same product even though I may have discovered a better way for so doing."

This undoubtedly is true, and your chairman has since 1889 continually called attention to the fact in his reports, in literature, and in his reports as Chairman of this Committee, and Chairman of a Special Committee on National Legislation.

What shall be the character of this legislation? This is an important question, and apparently it will be very difficult to harmonize the conflicting interests involved. Several excellent suggestions have been made, one of the latest of which emanates from Joseph England, Secretary of Council of the American Pharmaceutical Association, and a member of the Committee on Patents and Trademarks. Mr. England suggested at the recent meeting of the Pennsylvania State Pharmaceutical Association, after listening to the report of the Committee on Patents and Trademarks, that said Association should appeal to Congress for the modification of the patent law, giving the Commissioner of Patents the right and authority to suspend or abrogate a product patent, or any materia medica product if an inventor of an improved process for its preparation shall apply for a patent therefor.

The effect of this plan would be quite similar to the effect of the clause in the German patent law which places the burden of proof in cases of infringement of process patents upon the inventor of the alleged improvement, forcing him to show that his process is in fact an improvement upon the original process for the preparation of the drug in question.

The question of trademarks is largely a question of interpretation of law. Trademarks used to distinguish between brands of well-known articles of commerce, each provided with a name of its own for proper classification and use in medical and pharmaceutical literature, is to be strongly commended. But the scheme for creating a monopoly by registering as a trademark a coined name and afterwards using it, not as a brand mark, but as the name of the article itself, is to be strongly condemned. Any person has a perfect right to make and sell any article of commerce provided he knows how to do so, also to deal in it under its currently used name. If it were true that the first commercial introducer of an invention acquires thereby a proprietary right in the product, or in the name of the product, there would be no necessity of a patent law granting him the right to the exclusive use of his invention, for he would already possess such a right by nature, and the laws would be so formulated as to protect him in his natural right. Moreover, the right to the exclusive use of the invention would be perpetual in character, and in its enforcement powerful monopolies would be created, unlimited in time and possessing privileges far more influential than any granted by the patent law. If the world had started in this way every art would now be subjected to monopoly and inventors would own the world; the rest of us would be their slaves.

The trademark law does not recognize any such scheme as the one described. In fact, the trademark law does not attempt to define what is meant by a trademark. This has caused much misunderstanding on the part of the Patent Office and the courts. Not many years ago one of the leading members of the Illinois Bar, in defending a case before the Supreme Court of the United States, asked the court for a definition of the trademark. He said: "I have searched the literature on this subject for a definition and found none," and he requested the court "for the sake of the Bar, the Bench, and the commercial interests of the country to define the word, trademark." The court did not respond to this appeal.

Fortunately many of the recent decisions of the Supreme Court have cleared up

mooted points in relation to the patent and trademark systems. In 1895 the Supreme Court decided that the names of patented products could not hold as trademarks after the patents expire. This was decided in the Singer Sewing Machine case. More recently the Supreme Court decided that the patentee has no right to dictate as to what article should be used in connection with his patented article. This was decided in the Mimeograph case, and referred to in our report last year. Still more recently the Supreme Court decided that the patentee has no right to dictate the price at which his patented product shall be sold by the purchasers. This was decided in the Sanatogen case, Bauer et Cie, of Berlin, Germany, co-partners, being the signers of Letters Patent of the United States, dated April 5th, 1898, No. 601995, covering a certain water-soluble albuminoid known as "Sanatogen."

Finally as to the names of unpatented products, there has been a large number of decisions to the effect that the name of an article does not belong to the person who christens it, but to the article itself as a common noun. Any person has a right to make an article, has a right to manufacture and deal in it under its currently used name. It is to be hoped that this question will come up before the Supreme Court in a clearly cut case when the court can decide this question once and for all.

Another point in this connection is that relating to the defense of trademarks. The courts require that persons desiring to defend their trademarks shall come into court "with clean hands." This they cannot do when they have been guilty of misstatements on labels or in literature relating to the products in question.

The Supreme Court of the United States in the case of Worden versus California Fig Syrup Company, threw the case out of court because the claims made by the manufacturers of the original product were not substantiated by the facts, and although the competing manufacturer used labels so closely imitating the original as to deceive the public, yet the defendant had no status in court and lost the case.

It is our desire as a committee to impress upon the profession the necessity of conforming our methods as pharmacists and manufacturers of materia medica products with professional and scientific requirements, so that we may receive the endorsement and co-operation of the medical profession. While it is true that a large number of physicians are utterly indifferent on the subject, and do not care what course is pursued by the pharmaceutical profession and manufacturers, yet, medical scientists are quick to draw the line between the altruistic work of the medical profession and the commercial methods of those engaged in the materia-medica-supply business. One of the reasons why the medical profession is indifferent to the course pursued by pharmacists and manufacturers is because they consider us outside the pale of professional life, and therefore it is a matter of indifference to them what course we pursue. Let the physician patent his therapeutic inventions or surgical instruments and he is ostracized by the fraternity because he has violated the principles of fraternity and professionalism upon which medical practice is founded. But it is not expected by them that persons engaged in commerce will conduct their vocations in harmony with the beneficence and liberality which is supposed to characterize the medical

profession. If we wish to secure professional recognition we can only do so by becoming professional men.

The medical profession does not consider it contrary to professional usages for medical authors to associate themselves with publishing houses for the publication of copyrighted books, and it is probably true that there would be no objections to physicians associating themselves with pharmacists and manufacturers for the production of materia medica products protected by process patents and brand names provided the products themselves and their proper distinction or currently used names are left free for introduction to science by the way of the educational channels of the profession. But we cannot expect endorsement for any plan whereby the products themselves and their names are commercially controlled and the educational machinery of the profession converted into a great advertising bureau for the exploitation of alleged new remedies by advertising.

To Recapitulate: 1st. That products and names of products should be free so that the products themselves as to their course or genesis, physical and chemical properties, methods of preparation, preservation, compounding and dispensing, and methods of applying them in the treatment of the sick may be impartially discussed in the medical journals, societies and colleges without forcing those who discuss them to advertise any one's special make of products. This will protect the educational machinery of medicine and pharmacy and secure the co-operation of the medical and pharmaceutical professions in the introduction of the products to science, thereby popularizing them without expense to the manufacturers.

2nd. Brands of products and the names of the brands should be commercially controlled by the manufacturer; that the advertising should be directed to creating a demand for the brands; that the manufacturers or commercial introducers who spend their good money in advertising may be protected in their investments.

3rd. Advertisers should be forced to tell the truth in their advertising and not permitted to create a fictitious demand by misleading statements, thus injuring their competitors by acts of unfair competition in trade.

In conclusion, we wish to again call attention to the suggestions several times made in previous reports of this committee, and the Committee on National Legislation, regarding the advisability of establishing some kind of Board of Control representing the medical and pharmaceutical professions and manufacturers engaged in the legitimate pharmacal and chemical industries, the same to work in co-operation with the universities, medical schools and colleges, government laboratories, and Patent Office for the proper introduction of materia medica products to science and brands of the same to commerce, and the proper application of the patent and trademark laws to materia medica commerce.

One of the first subjects for such a Board of Control to take up would be that of materia medica nomenclature for the purpose of making rules to be adopted by the manufacturers who affiliate themselves with the Board. The rule in regard to nomenclature should be one to protect the manufacturers by having the Board coin generic names for each product manufactured under the censorship of the Board, thus protecting the commercial interests of the manufacturers and

introducers on the one hand, and materia medica science and the practitioners of the medical and pharmacal arts on the other.

The suggestions of Mr. Frank H. Freericks, of our committee, should also be considered. He recommends a conference between representatives from the different pharmaceutical associations similar to the National Drug Trade Conference which has been held with reference to Federal narcotic legislation. In order to bring such a conference about, or to have the matter considered by the existing National Drug Trade Conference, it was suggested by Mr. Freericks that the A. Ph. A. upon the recommendation of this committee, vote on the subject.

The special subjects offered for discussion are as follows:

1st. The suggestion that the A. Ph. A. memorialize Congress by asking for a repeal of that portion of the patent law which permits the patenting of materia medica products, or substances used in the treatment of the sick.

2nd. The compromise suggested by Mr. England regarding the suspension of product patents by the Commissioner when improved processes are devised for their production.

3rd. The advisability of establishing some kind of a Board of Control representing the medical and pharmaceutical professions, manufacturers, medical and pharmaceutical colleges, the press, and government laboratories for the adoption of proper rules in relation to the introduction of materia medica products to science and brands of the same to commerce; said Board of Control to work in co-operation with the Patent Office in an advisory capacity.

4th. An expression of the Association in regard to the proper application of the patent and trademark laws in relation to materia medica inventions.

5th. The suggestion of Mr. Freericks in regard to a special conference or consideration by the existing National Drug Trade Conference.

Respectfully submitted by the Committee:

S. L. HILTON,
W. BODEMANN,
F. H. FREERICKS,
J. W. ENGLAND,
F. E. STEWART, M. D., Chairman.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

SOME ADDITIONAL SOURCES OF ERROR IN THE CHEMICAL EXAMINATION OF URINE.

JOSEPH L. MAYER, NEW YORK.

At the 1907 meeting of the Association I read a paper, "Some Sources of Error in the Chemical Examination of Urine" (Proc., 1907, page 486) in which attention was called to various factors which if not observed would lead to faulty findings in connection with analyses of urine; since that time other sources of error have presented themselves which are of sufficient importance to be offered now.

In testing for sugar Fehling's Solution has the disadvantage that too large an amount of urine is employed with the consequence that foreign substances very frequently interfere, therefore Haines' Solution which only employs 8 or 10 drops of urine is suggested to overcome this difficulty, but as I pointed out in another paper, (Merck's Report, June, 1905), this solution is not stable, but deposits red oxide of copper on standing without the presence of urine and for that reason it is not of much value.

Recently Benedict, (Druggists' Circular from Jour. Amer. Med. Ass'n, January, 1912), has suggested the use of a solution in which 8 drops of urine are employed and the keeping qualities of the solution are such that it will keep indefinitely.

The solution and urine must be heated a minute or two to obtain the best results, a reaction only being regarded as positive when the greenish tinge extends throughout the whole mixture. A test tube is very unsatisfactory to perform the test in, therefore I employ a very small Erlenmeyer flask into which 5 cc. of Benedict's solution is measured with a pipette, and then 8 drops of urine added from a medicine dropper and the whole placed on the hot plate, and when the material starts to boil it is timed for $1\frac{1}{2}$ minutes and then poured into a small test tube and allowed to cool spontaneously. It is a good plan to place a small funnel in the neck of the Erlenmeyer flask to act as a reflex condenser and prevent undue evaporation.

Where the quantity of sugar is large the presence of sugar is indicated at once by the green color whereas a small quantity of sugar is only revealed when the solution cools. If the mixture remains blue, sugar is absent.

For the quantitative estimation of sugar, Benedict's solution for quantitative work gives excellent results if properly employed. Benedict directs measuring the reagent into a porcelain evaporating dish, adding sodium carbonate, powdered pumice stone or talcum and boiling over a free flame.

This procedure did not yield very good results and I therefore altered it as follows:

Into a 100 cc. Erlenmeyer flask, with cord wrapped around the neck to prevent burning the fingers, measure with a pipette 25 cc. of Benedict's quantitative solution, add about 10 gram anhydrous sodium carbonate, a couple of pieces of pumice stone which have been heated to white heat and plunged into water, and about 10 cc. distilled water and place the whole on a hot plate until the solution boils and the sodium carbonate is dissolved, then begin adding the urine in small amounts from a burette, allowing sufficient time between each addition for the reaction to proceed, the end being indicated by the disappearance of the last trace of blue. As in the qualitative test it is a good plan to place a small funnel in the neck of the Erlenmeyer flask.

The use of the hot plate which I suggested in a paper read before the N. Y. S. Ph. Ass'n (Proc. N. Y. S. Ph. Ass'n, 1911, page 261) enables the qualitative and quantitative determinations to be carried out without any source of error.

Purdy's test for albumin using three-fourths of a test tube full of filtered urine, adding $1/6$ of the volume of saturated solution of sodium chloride, acidifying with acetic acid and heating the upper inch of the mixture is a very sensitive and trustworthy one, but care must be exercised to keep the tubes very clean for when they are in use some time the portion of the tube which is constantly heated assumes a milky appearance with the result that albumin is indicated where none should appear.

Testing for acetone by adding solution of sodium nitroprusside to the urine acidifying with glacial acetic acid and overlaying with ammonia water is a very good test, but if the urine contains phenolphthalein there will be produced a coloration very much the same as when acetone is present.

In testing for indican by adding hydrochloric acid and an oxidizing agent, it is well to remember that after large doses of codeine a purple-red color is frequently produced which may obscure the blue color. In addition, if the urine contains iodine, the chloroform portion of the test will be colored carmine and it becomes necessary to add solution of sodium thiosulphate to decolorize it when the blue color will be plainly seen, if present.

In testing for diacetic acid the fact must not be overlooked that it is very volatile and that tests must not be made after the sample is a day old. The test is made by adding ferric chloride solution to the sample when the phosphates are all precipitated; further addition of the reagent produces a deep reddish-brown color which also appears if salicylic acid, phenol, acetic acid and other substances, produced after taking various other drugs are present.

A better test is Liplawsky's modification of the Arnold reaction, which according to Wood (Wood's Chemical and Microscopical Diagnosis, page 553) is carried out as follows:

Two solutions are kept in stock. One is a 1% aqueous solution of para-amidoacetophenon with 2 cc. of strong hydrochloric acid in each 100 cc. of the mixture; the other is a 1% solution of potassium nitrite. To apply the test take 6 cc. of the first solution, 3 cc. of the second solution and 9 cc. of the urine to be tested. Add a drop of strong ammonia and then shake the whole thor-

oughly when a brick red color will appear. Ten drops to 2 cc. of the mixture of urine and reagent are then removed to another tube and 20 cc. of strong hydrochloric acid and 4 drops ferric chloride solution added, together with 3 cc. of chloroform. The corked test tube is then slowly tilted from side to side so as not to emulsify the chloroform. At the end of a minute, if diacetic acid is present, the chloroform will assume a violet color. In normal urines the color will be either a yellow or pale red. Salicylic acid and similar drugs do not interfere with the reaction.

In testing for bile with tincture iodine, the test to be successful must be made with a tincture of iodine diluted with alcohol until the color is a dark yellow which is applied by using a dropper to form a layer of reagent over the urine. A green ring indicates a positive reaction. Antipyrine yields the same reaction.

A better test is to take some of the suspected sample, add enough U. S. P. magnesia mixture to produce a precipitate and filter. When the material has filtered through, place the paper containing the precipitate on a white porcelain surface and add to it a drop of yellow nitric acid. A green color indicates bile.

These few notes like those published before are not intended as a course of instruction in uranalysis, but simply to point out some sources of error in the chemical examination of urine.

DISCUSSION.

Otto Raubenheimer, of Brooklyn, said he wished to call attention to two points in connection with this paper. One was, that Benedict's solution was not at all a new one. An attempt had been made to introduce Benedict's solution in the U. S. P., but it was declined with thanks.

R. H. Needham, of Ft. Worth, Tex., said that a good many authorities claimed that Haines' solution would keep indefinitely. His experience had not shown this to be true. Benedict's solution he had used for quite a while, and his experience had been that it kept well for two years. The last he had was four ounces in a five-pint bottle, which seemed to be just as sensitive at the end of that time as at the time he made it up.

CAMPHORATED OIL IN AMPOULES, SIMPLE APPARATUS FOR FILLING.

J. LEON LASCOFF, NEW YORK.

In 1909 Mr. Caswell A. Mayo read a very interesting paper before the New York Branch of the Association entitled: "Ampoules and Their Use in the Preservation of Sterile Solutions," in which he explained how easily the dispensing pharmacist can put up any sterile solution in ampoule form.

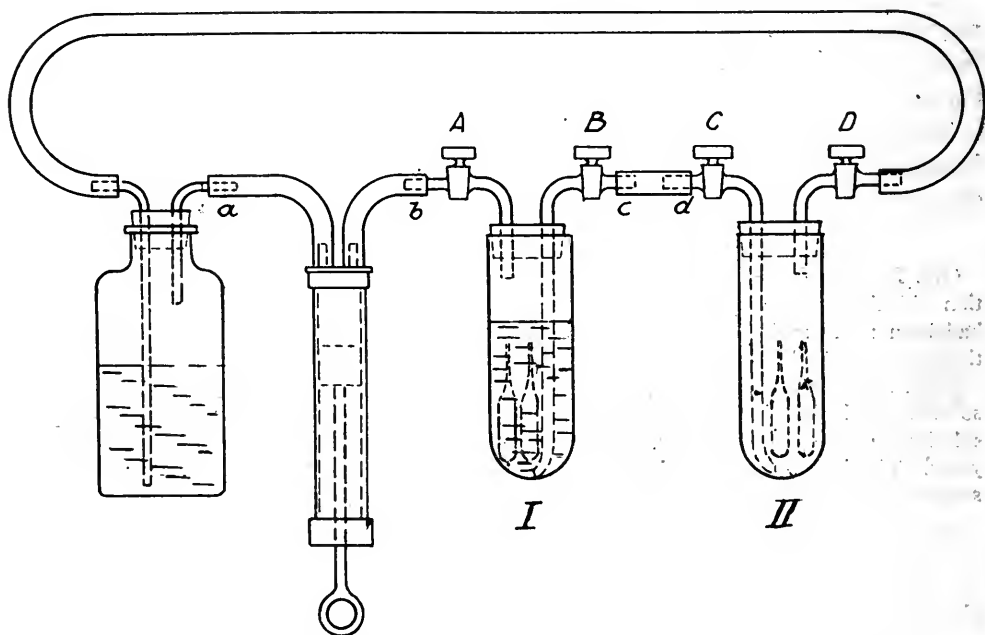
I was very much interested in this subject, and began experimenting, with the result that I met with marked success.

My object in selecting the subject of Camphorated Oil Ampoules, is that during my experience as a pharmacist I have had more calls for Camphorated Oil Ampoules than any other kind. In former years, when physicians prescribed camphorated oil for hypodermic use they had to be prepared extemporaneously,

which took a great deal of time and they were not always sterile. As such solutions are needed in emergency cases, the idea of making ampoules in sterilized form is far superior to the old way of preparing fresh ones every time they are required.

At the time my experiments began I had great difficulty in obtaining the empty ampoules, as they were not yet stocked generally in the United States. If the dispenser is only ordinarily skilled in glass blowing, he can make them himself from test tubes.

The chief consideration which I have had in mind was to devise a simple, non-expensive and practical method of filling glass ampoules with sterile camphorated oil. Sterile, because they are used by the physician in the hypodermic syringe and this had to be done without the use of too much heat as the camphor volatil-



APPARATUS FOR FILLING AMPOULES DEVISED BY J. LEON LASCOFF, NEW YORK CITY.

ized, so I devised the apparatus shown in the illustration. A single apparatus for making one dozen only may be used, but in cases where more than that number is required, a double apparatus may be used as shown in the diagram. It works very satisfactorily and in all cases the ampoules prove to be sterile, as I have in my possession the case reports in which they were dispensed. No infection has resulted from their use, either on the skin or in the deeper tissues. That the strength of the camphor was uniformly up to the standard has been testified to by the physician who prescribed and used them.

Having covered the technical side of the question, let us now turn to the commercial. We frequently see the statement made in print that professional pharmacy does not pay; that there is no money in prescription work. Let us take this particular preparation, ampoules of camphorated oil, and see whether they

have paid me or not. The permanent investment for the small outfit consists of the following:

SMALL OUTFIT.

1 Electric hot plate.....	\$5.00
1 Sterilizing oven, costing..... (Cake box, 80c; insulating cover, 75c.) (Fixing interior shelf, 25c.)	1.98
1 Test tube, 4x 2.....	.50
1 Ginger ale holder.....	.25
1 Perforated rubber stopper.....	.35
2 Bent glass tubes with ground glass stop cocks.....	2.40
Rubber tubing .....	.20
1 Metal syringe	2.25

Total permanent investment..... \$12.93

LARGE OUTFIT.

1 Wash bottle	\$0.25
2 Bent glass tubes.....	.20
1 Rubber stopper .....	.15
2 Glass cups, 2 x 5.....	1.00
2 Rubber stoppers, No. 11.....	.70
4 Glass tubes with stop-cocks.....	4.40
Rubber tubing .....	.40
Electric heater	5.00
Sterilizer	1.98
2 Ginger ale holders.....	.50
Air pumps	2.50

\$17.08

By using a Bunsen burner for sterilization instead of an electric stove and by using one instead of two glass stop-cocks, this can be cut almost a half, making the permanent investment \$5.53.

The cost of the ingredients for a 2 cc. ampoule of camphorated oil, and the ampoules amount to a little less than 15 cents a dozen. I had one prescription for six ampoules for which I charged 90 cents. This was refilled forty-one times, making the receipts \$36.90 from this one prescription alone. Another prescription called for twelve ampoules. For this I charged \$1.25. It was called for 150 times, making \$187.50 received from this prescription. The two prescriptions therefore brought in a total of \$224.40. From this deduct permanent investment of \$17.08 and the cost of the materials for 170-1/2 dozen at 15 cents a dozen, \$12.75, and we have a net profit of \$224.40—\$29.83=\$194.57, plus the apparatus. On an average the dispensing of the prescriptions required not more than 15 minutes of actual working time or a total of $191 \times 15 = 47\text{-}3/5$ hours. Allowing a dollar an hour as fair compensation for prescription work this leaves \$194.57—\$47.60=\$146.97 profit above the cost of investment, material and labor. I do not think that commercial pharmacy can make any such showing on any of its investments.

DISCUSSION.

C. A. Mayo, of New York, said that he had been very much interested in the subject of ampoules since it was first brought up before the New York Branch, and had presented quite a complete paper before the Association at Los Angeles, at the 1909 meeting. It had afforded him great pleasure to observe Mr. Lascoff's apparatus in his store. Not only did he see him

fill one of these prescriptions, but he had brought out the account, and he had figured out himself how much money he had gotten on two prescriptions. He had been impressed with the thought that this was one of the best answers to the statement that professional pharmacy did not pay—that on these two prescriptions alone a profit of over \$100 had been made. Mr. Mayo said it had afforded him great pleasure to testify to this particular phase of the matter. This work had been done in a rather small store, in a remodeled residence on a corner. The prescription room only measured some 12 by 15 feet, had no elaborate marble-tops in it, but was one of the most complete and neatest and cleanest places he had been in for a long time; and it had done his heart good to see a "real pharmacist." It was not only important that the pharmacist should make money, but he should know whether he was making it or not, and how he made it, if he did make it. The system of accounting in this case was so accurate and readily comprehended that one could find out in five minutes how this man had made his money.

H. A. B. Dunning, of Baltimore, said that a very simple process in use in his establishment for making camphorated ampoules was to simply fill the ampoule by the use of a subcutaneous syringe, seal the ampoules and place in an Arnold Sterilizer, sterilizing the ampoules and contents at the same time. Being sealed, no camphor could be lost. His apparatus only cost 75 cents.

LOTIO ALBA.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

The prescription calls for Lotio Alba. In this age of white dress, white flag, white cross, white linen, white plague, white slavery and whitewashing, undoubtedly White Lotion, or White Wash, will be of interest to the pharmacist. However, he is at a loss as he is unable to find a formula for this preparation, even if he is equipped with a good sized pharmaceutical library. No pharmacopœia, no National Formulary, no other formulary, and no dispensatory, *the* book which is looked upon to give all kinds of pharmaceutical information, mentions Lotio Alba. Even such authorities as Remington, Caspari, Arny, Fenner, Hager, Dietrich, Buchheister, Hell, Dorvault, Orosi, MacEwan, Martindale and others, and such standard works as the British Pharmaceutical Codex, and the Pharmaceutical Journal Formulary do not mention Lotio Alba.

Upon getting in touch with the physician the pharmacist is informed that this preparation is used largely in hospital and dispensary practice. If the pharmacist is fortunate enough to possess a hospital formulary, as for instance, that of Bellevue and Allied Hospitals in New York City, then he at last finds a formula for Lotio Alba, or White Wash, which is composed of zinc oxide, solution of lead subacetate, glycerin and lime water. This however, is not the preparation which the physician intends to be used against acne, pimples, blackheads or other skin affections. Lotio Alba is composed of zinc sulphate, sulphurated potassa and water, or rose water.

The writer, as chairman of the Committee on the A. Ph. A. Recipe Book, is well aware of the fact how difficult it is to find a formula for Lotio Alba. It

is for this reason that in the July number of the Journal of the A. Ph. A., 1912, page 761, he has published the following formula:

LOTIO ALBA
White Lotion
Lotio Sulphurata

Zinc sulphate	5 gm.
Sulphurated potassa	5 gm.
Water, or Rose water, a sufficient quantity to make..	125 cc.

Dissolve each chemical in 60 cc. of water, or rose water, which latter is preferred by some dermatologists and also by some patients on account of its odor. Filter each solution and mix by slowly pouring the potassa solution into the zinc solution, then add sufficient water or rose water to make 125 cc.

If the pharmacist is a member of the A. Ph. A. and keeps or binds the Journal of the A. Ph. A., or if he is a reader of *The Practical Druggist*, he can find this formula in the Journal, as said before, or in *The Practical Druggist* for November, 1912, page 44. This prescription originally came from France and was introduced into the U. S. around the 70's and has been used extensively since, in fact its use in dermatology seems to be on the increase.

Potassa Sulphurata, Sulphurated Potassa or "Liver of Sulphur" was official in U. S. P. 1890, and must have been of some importance at that time, as it was admitted into the Appendix of the N. F. III, page 226, together with a formula for its preparation. There is a great difference in this substance in its physical characteristics, as well as its chemical composition. As can be seen from the specimens exhibited it varies from a dark liver-brown color to dark yellow, dark green, light green or even gray. When fresh it has a strong characteristic hydrogen sulphide odor which, however, upon exposure gradually decreases so that old "liver of sulphur" does not resemble liver or sulphur, being practically odorless and worthless. Owing to its rapid deterioration, it is absolutely necessary to keep it in well stoppered bottles, which is one of the specifications in the monograph of the National Formulary. Chemically, sulphurated potassa is a mixture of potassium trisulphide, K_2S_3 , and potassium thiosulphate, $K_2S_2O_3$. Sulphurated potassa when prepared according to the N. F. should be almost completely soluble in two parts of water. On account of the importance of this chemical and inasmuch as it will be readmitted into the U. S. P. IX, no doubt some one, if not the writer, will give us a paper on the history and chemistry of potassa sulphurata.

The value of White Lotion depends upon the strength of sulphurated potassa. If the latter is fresh and contains the proper amount of potassium polysulphides, then the solution of zinc sulphate will be decomposed into zinc sulphide, which is a white precipitate and which is desired by the prescribing physician and which is of value in the treatment of acne, etc.

Prescriptions calling for 2 oz. of Lotio Alba, containing 1 dram of each chemical, have been compounded in different pharmacies in New York, Brooklyn and elsewhere and samples of same are herewith submitted. For better comparison these specimens are put in uniform bottles.

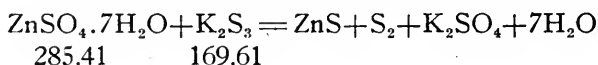
The color of these lotions varies from a pure white to gray or brown, some of them being so dark so as to deserve the title "Black Lotion." As to the precipitate this ranges from a very coarse to a very fine texture. Some precipitates are very dense, others are very bulky. In fact one sample is colorless like water, evidently having been filtered in order to improve (?) its appearance! This wide variation most certainly deserves the careful attention which pharmacists must pay to the preparation of Lotio Alba.

In the formula for Lotio Alba given above the writer has taken the pains to specify the proper manipulation. The following should be borne in mind:

- I. The zinc sulphate solution should be filtered, if necessary.
- II. The potassa sulphurata employed must be fresh and must possess a strong H_2S odor.
- III. It is absolutely necessary to filter the sulphurated potassa solution, to remove any insoluble portion, which would act as an irritant to an inflamed skin.
- IV. In order to obtain a finely divided precipitate it is necessary to have both solutions as much diluted as possible.
- V. According to the experience of the writer and other prominent pharmacists it is best to *slowly* pour the potassa solution with constant agitation into the zinc solution. By this method a more bulky precipitate is obtained, which is the desideratum of the prescriber.
- VI. The lotion should be dispensed with a "shake well" label.

As stated above, the author, as chairman of the Committee of the A. Ph. A. Recipe Book has proposed a formula containing 5 gm. each of zinc sulphate and sulphurated potassa in 125 cc. of water. Dermatologists all over the country prescribe this lotion in different strengths, generally varying from 1 to 2 drams of each chemical in 4 oz. of water or rose water.

Sulphurated potassa is a mixture of polysulphides, potassium thiosulphate and potassium sulphate. The best variety, that is one which has not been overheated, contains potassium trisulphide. According to its approximate molecular weight, 354.23 gm. of sulphurated potassa contains 169.21 gm. K_2S_3 and 185.02 gm. $\text{K}_2\text{S}_2\text{O}_3$. In the preparation of Lotio Alba the following change takes place.



From this chemical equation it can readily be seen that in Lotio Alba, containing equal parts of the chemicals, all of the sulphuret is decomposed, in fact that there is an excess of zinc sulphate. This accounts for the fact that there is no odor of hydrogen sulphide in the finished lotion if properly prepared. The precipitated sulphur is, of course, in a finely divided state, just what is desired by the dermatologist.

As explained above sulphurated potassa is very unstable. What is the average pharmacist going to do when he receives an occasional prescription for Lotio Alba? There are two ways to overcome this difficulty.

I. Preparing small quantities of sulphurated potassa by the pharmacist himself. Although this might seem an odoriferous manipulation, it can easily be accomplished, especially under a flue or in the open air, and the writer himself has done so on numerous occasions with but very little trouble.

II. The preparation of a solution of fresh sulphurated potassa in water. Strange to say, *the solution* of this unstable chemical is *very stable* and the writer takes pleasure in exhibiting specimens which are one and two years old respectively. The chemical is almost completely soluble in two parts of water, but for convenience the author is in the habit of keeping in stock a solution four volumes of which represents one part of potassa sulphurata. The preparation and keeping of such a stock solution for the quick and proper preparation of Lotio Alba has been kept quite a secret, a so-called professional secret, by the pharmacists who are favored with the prescriptions of dermatologists. The writer, who believes in the motto, "To give and take pharmaceutical knowledge," takes pleasure in herewith presenting this "secret" method for the benefit of his brother pharmacists.

DISCUSSION.

In reply to a question by Mr. Fennell, as to whether, in these dark preparations, the zinc sulphate contained any iron, Mr. Raubenheimer replied that the black color was probably due to the presence of ferrous sulphide. The sulphurated potassa contained iron due to the fact that the manufacturer made it on a large and cheap scale. He merely melted his potassium carbonate and sulphur together and poured it out into an iron tray, and it would be noticed in one of the samples passed around that it was yellow on one side, and on the other side was black. Without filtering the solution, a gray precipitate would be had. He had filtered it, with the result as shown.

H. A. B. Dunning, of Baltimore, said that in his establishment they used much the same method as Mr. Raubenheimer had outlined for preparing solution of sulphurated potash. To insure the strength of the sulphide solution, they selected that portion of the sulphide which was yellow. He had found it necessary to keep the substance tightly stoppered, otherwise there was more or less change in the condition of the sulphide. It seemed remarkable that there were in the United States, in any of the cities from which these samples came, concerns that would send out such products as were to be seen on the table before the members. He thought it was not expressing it in language too strong to say that it was a disgrace that this should be true.

Mr. Raubenheimer stated that these samples came from all parts of the country, some from New York, some from Brooklyn, and some from Philadelphia; but none had come from Baltimore, nor had any come from Cincinnati.

A PRESCRIPTION AND A QUERY.

A. W. BENDER, DETROIT.

The following prescription was compounded by a local pharmacist:

R Atropinae sulphat .....	.004
Argenti nitrat .....	.1
Bismuth subnitrat	5.
Magnesii oxid	5.

M. et div. in pulv. No. XV.

Sig.—One powder after meals and one an hour later.

During the first day six powders were taken according to directions and no ill effects were experienced. On the second day after having taken two powders in the morning, the patient began to feel dizzy and noticed that the pupils of his eyes were greatly dilated. An overdose of atropine was suspected and he stopped

taking the powders, but during the remainder of that day found it very difficult to read or to use his eyes in any way.

The following day the prescription was compounded in this laboratory using an analytical balance, sensitive to 1/600 grain, to weigh out the ingredients. After resting a day the ill effects experienced from the powders put up by the local pharmacist had entirely passed away and the patient began taking the new powders. He took them for a week according to directions and they caused no ill effects.

The difference in the action of the powders led to an investigation. Mr. W. M. Jenkins of this laboratory, who is thoroughly familiar with alkaloidal assays, analyzed the powders and found 1/100 grain Atropine Sulphate in each powder instead of approximately 1/250 grain which the prescription called for. This showed that the patient was getting the maximum dose of atropine sulphate instead of the prescribed minimum dose.

The facts in the case were presented to the pharmacist and inquiry was made as to the method used in compounding the prescription. It was found that he had weighed 1/16 grain atropine sulphate on a Torsion balance and had rubbed it up with the other ingredients. He stated that it had always been his practice to weigh out such small amounts on this balance and he believed it to be sensitive to this amount. After a short discussion he decided that thereafter he would use Dispensary Tablets or Tablet Triturates, in a prescription of this kind.

What is the correct way to compound this prescription providing there is no analytical balance at hand? Ought a pharmacist to have an analytical balance?

SCIENTIFIC LABORATORY, PARKE, DAVIS & Co., Detroit, Mich.

DISCUSSION.

G. F. Payne, of Atlanta, said he had occasion to use the prescription balance a great deal, as he had found it out of the question to use the analytical balance in many cases. It was too delicate, and had to be adjusted each time it was used. To weigh out whatever quantity the balance was accurate for, and then divide it very carefully by the eye, would be found to be a very accurate method when done properly.

C. T. P. Fennell, of Cincinnati, thought there was no trouble with the balances on the market, but where pharmacists did make a great mistake was, that they would shove their balances around from one place to another, and did not keep them properly leveled.

W. C. Alpers, of New York, thought the analytical balance should not be used in the drug store, as it required too much adjusting. It took a great deal of experience to weigh accurately upon it, and it was not expected of the average pharmacist that he should have the deftness to be able to handle it.

I. A. Becker, of Chicago, said he would like to bear testimony to the various weighings that could be made on a scale by not having it perfectly level. He had found that the ordinary box prescription scale, not furnished with a leveling device, would not do on the prescription counter, as its sensibility was very much affected by its being out of level.

NECESSARY APPARATUS IN A RETAIL PHARMACY.

JEANNOT HOSTMANN, HOBOKEN, N. J.

The subject of this paper has been discussed so often from its many sides in recent years, that it may seem a wasted effort to spend any further time in bringing it before this Association.

Agreeable to Mr. Lascoff's request, I will limit myself as much as possible to the chemical side of the question, he having made this suggestion knowing that I spent fifteen years in the retail drug business previous to my connection with the Department of Chemistry of the New York College of Pharmacy.

Having had considerable experience in testing and assaying prescriptions that had been compounded in New York City and Newark, as well as ordinary everyday counter samples, the writer believes that, although there exists, and always will exist, many cases of wilful adulteration and sophistication, that many a pharmacist who is hauled over the coals by Boards of Pharmacy, Health, Food Commissioners, and newspapers, is guilty only so far in that he has been lacking in giving the proper care to the kind of drugs he is purchasing as well as neglecting absolutely to convince himself that what he purchases is really up to the official requirements. It may seem very radical to suggest that every pharmacy should have as an adjunct to an up to date Prescription Department, a complete set of chemical apparatus, such as is necessary to perform the simpler tests and assay methods of the U. S. P., but the writer can see no other way in which the real pharmacist can protect himself from unnecessary trouble and expense except by not only making such installation as well as employing it faithfully and continuously.

It may be easier to buy from responsible firms and simply take their guarantee as being all that is required but this, at the best, is risky. Only recently, the writer in using some hydrogen peroxide sold by a firm possessing the highest reputation, discovered that it contained a considerable amount of barium; in another case, a sample of alcohol, labeled U. S. P. not only responded very vigorously to the aldehyde test, but also contained 10.5% of water. These examples prove conclusively that it is imperative that the pharmacist must protect himself and the only way he can do this is by being in a position to make the simpler tests himself.

The initial expense will not be very large, and will repay the owner many times in a short space of time.

I take it for granted that every pharmacy ought to be equipped with a real prescription balance in good order as well as accurate weights and graduates. The lack of these is the cause of much trouble. Impossible as it may seem, many pharmacists in a penny-wise-pound-foolish policy, purchase cheaply, never regarding quality. I have come across weights as much as 15% out of the way, and graduates run still worse. This is uncalled for as standard graduates can now be secured at very reasonable prices.

The above are necessary parts of a prescription department and as far as the

necessary chemical utensils are concerned, they will not take up very much space nor will the cost be prohibitive. I will mention a few that I consider absolutely necessary:

A rack of test tubes, a bunsen burner, a small assortment of beaker glasses and evaporating dishes, a water bath, some separatory funnels of various sizes, two burettes, a small assortment of pipettes, a set of metric weights from one milligram up and a balance sensitive thereto, test paper as well as the indicators employed in official methods. The U. S. P. list of reagents is very complete and the majority require no more than usual care in their preparation; for the making of volumetric solutions a few measuring flasks are absolutely needed. The majority of the reagents are fairly stable and if made up in small quantities, the more or less unstable ones will last the required time if conscientiously used. Of course, if they are prepared and placed upon the shelf and not made use of, they will naturally deteriorate and become useless.

With some glass tubing of various bores, a file, a cork-borer and some rubber stoppers, many pieces of apparatus can be prepared in short time and with little expense. An assortment of chemical flasks of various sizes is as necessary from a pharmaceutical as a chemical standpoint. A few crucibles—porcelain is adapted for most work—are also necessary as well as supports for same. A microscope magnifying to at least 350 or 500 diameters I consider absolutely essential, not so much for chemical as for pharmacognostical purposes.

Some few small glass funnels and small filters, particularly some of the quantitative kind, should be at hand.

The determination of specific gravity of many substances is of such very great importance that the necessary apparatus must be at hand. The principal one of course is the pycnometer or specific gravity bottle.

The specific gravity and solubility of substances being determined at certain stated temperatures, one or two accurate chemical thermometers must be at the worker's disposal.

I think that the above list covers the most important and needed pieces of apparatus although undoubtedly some have been forgotten.

Considering the time spent in getting the methods of tests of identity and for impurity and strength, as well as the assay methods for galenicals, given in the Pharmacopœia in such splendid working shape specially adapted to the pharmacist and also considering the high class and thorough education received by students in the better class of colleges of pharmacy to-day fitting him particularly for such work, it seems almost a crime that so few pharmacists are making proper use of the knowledge at their disposal in such a way that could not but raise their professional standing as well as increase the financial returns of their business.

In view of the fact that there is a continuous discussion being carried on as to whether pharmacy is going backward or forward, it appears to the writer, that there are many pharmacists scattered throughout our country who are making not only an enviable, country-wide reputation, but also getting large monetary returns from the professional side of pharmacy as practiced by them as real pharmacists, principally by employing the highly scientific knowledge at the disposal of every pharmacist who chooses to make use of it.

The writer's ideas will probably be regarded by many as radical, but he thinks that in the very near future it will become necessary to compel the pharmacist to have the proper chemical apparatus essential to carrying out the tests and assays mentioned above, just as it is now compulsory by law in certain states, that every pharmacy possess a U. S. P. and N. F. When this time arrives and the pharmacists perform the necessary work, we will hear much less about saturated solutions being deficient in strength, and many other cases now quoted, showing or trying to show the offending pharmacist as a law breaker and offender, in many cases unknowingly, will disappear.

COLUMBIA UNIVERSITY COLLEGE OF PHARMACY, August 15, 1913.

DISCUSSION.

Otto Raubenheimer said it seemed a pity that, after a pharmacist had received his training in a college, and in chemical and analytical work, he should forget all about it, and should not any more handle burettes or pipettes, but devote himself to the commercial end of the business. How much more profitable it was to devote a little time in the store to the professional study of the business, and do a little analytical work, especially as, when once commenced, he would come to like it. Another object, after the wholesaler once came to know that the pharmacist kept track of him, he would send him the best he had. He would not advise anyone to keep his chemical apparatus in the back of the store, but it should be kept in front.

F. W. Nitardy, of Denver, said his experience had been that, whereas the jobbers did not at first carry such things as U. S. P. alcohol, turpentine and linseed oil, they were now obtainable, as the result of shipping back a few things not of standard quality.

SELLING AN ANTISEPTIC.

Every household ought to have a harmless antiseptic on hand for emergency use, and every druggist ought to have the same on sale as a leader and business builder. In this day of wide information, everybody knows about germs, and a great many people believe in being prepared. These people will buy your antiseptic without any urging on your part. All you have to do is to put the stuff on display. Other people may be easily educated into keeping an antiseptic constantly on hand. If they don't know, teach them. You are doing them a good turn and building business for yourself.

A POUND OF PREVENTION
MAY BE WORTH A TON OF CURE.

Such is the sign one enterprising druggist has posted over a pyramid of pound bottles containing a harmless and popular antiseptic. His reading matter explains how an antiseptic applied in time renders a cut or wound aseptic, hastens the process of healing, may prevent lockjaw, and so on. This simple arrangement increased his sales over 500 percent. This is the way to build business. Help the community, and at the same time build business for yourself.—W. S. Adkins in *The National Druggist*.

Papers Presented to Local Branches

EFFICIENCY IN THE DRUG STORE.*

A. K. LOBECK, PHILADELPHIA.

The word efficiency comes from the same Latin root from which the word *effect* is derived, a root meaning *to make* or *to do*. The accepted definition of the words efficient or efficiency comprises the causing of *effects* or the producing of *results*. Let us hold on to this idea so that as we proceed deeper into the subject we will have something to which we can return when we go astray.

The owner of a drug store, to be efficient has two ends to accomplish. He must serve his customers with the best goods for the lowest prices possible, and he must make money for himself.

When we focus our eyes on the proprietor of a store we discover several factors with which he has to deal. Reduced to simplicity these are the factors: himself, as a personality; his clerks and other help; his stock in trade, store and utensils; and finally his customers. The efficiency of his whole business depends on how he controls these four factors, i. e., how he manages himself, his help, his stock, and his customers.

Himself. The proprietor of a business must be *interested* in it. That sounds like a very commonplace remark but, unfortunately, there is reason for it, for there are too many listless, uninterested men in business to-day.

When a proprietor feels that his interest is waning, there is nothing in the world will wake him up or invigorate him so much as an attempt to study his business with the view of making it more efficient. Of course it seems very illogical to expect a man who has fallen into such despondent and sluggish condition, which borders on despair, to turn in a moment and take the supreme interest in things which a study into efficiency demands. But, just the same, that is exactly what I say should occur. It is like a religious revival. And there is a psychological reason for it too. Professor James, the great psychologist, has said that it is indispensable, when a person is going to break off a bad habit, that he should adopt a new one in the most vigorous way possible, so as to destroy the old channels of thought.

The reason I bring up the question of the proprietor first is because I am sure that if the proprietor is not vitally, enthusiastically, and constructively interested in his business the end sought for will not be reached.

The Help. Shall we class the help with the cash register, the soda fountain, the mortars and pestles and the bottles on the shelves? Isn't the help part of the machinery of the store? You start at the suggestion but I am quite con-

* Read before the Philadelphia Branch, January, 1914.

vinced that every one of you is so classifying help in actual practice. You rent your store for so much a month; the interest on your investment for stock and fixtures is so much a month; you pay your clerk so much a month; apparently there is no difference. When I urge now that a clerk, and even a janitor, should be paid a regular salary and then a bonus depending on profits, many of you will say that it is all very well with some stores but not with yours. Do you know that that is just the cry that everybody puts up when improvements are suggested? We all think that the principles of scientific management are all very good in the case of other people but that we are an exception, or that we have peculiar conditions which have to be overcome some other way.

Another reason why we are unwilling to pay a clerk a bonus on the profits of the store is, not because we are stingy, but because we do not know what the profits are. We have no basis upon which to figure a bonus.

This plan is not proposed in order that the clerk will receive more money, but that he will know his income depends upon the success of the business, so that his whole attitude toward the business will be changed. Instead of being classed with the stock in trade and the machinery of the store, he joins hands with the proprietor as an active co-worker. It is a change in his attitude of mind which is greatly to be desired.

Then there is something else about the help which is even more important than how he is paid, and that is, what his responsibilities are. Every man in the store should know definitely where his duties begin and where they end. There should be an understanding so that everyone can work in unison. Unless there is an exact division of labor some things are certain to be neglected and the proprietor usually blames such neglect upon the nearest clerk. When there is a proper distribution of the responsibility, it does not mean that one man can not do another man's work when necessary, but it means that there is a basis for discipline. One man says, "Discipline is the keynote for the highest efficiency. Have each man's duties mapped out for him." No matter how small the establishment, this is vital.

The Stock in Hand, i. e., the Machinery of the Business. One of the most important parts of the machinery of the business is the money. The money that goes in and out of the business stands on just the same plane as the drugs and medicines which go in and out of the business. The money that is on hand stands on the same plane as the drugs which are on hand. The only difference between the two is that money is a universal medium of exchange while the drugs are not. It is handier to have money than it is to have a stock of drugs. But money is really quite in the same category with all other commodities. This is a basic economic principle.

The point, then, is that the druggist has a certain stock of business machinery on hand, among which is money. This business machinery he has to handle, manage and care for in various ways. In general these things all have to be cared for in the same way, as for instance keeping records of the amounts on hand, and keeping safely what is on hand, but specifically different methods are used to attain these ends.

Money being the most important of these commodities, simply because it is a universal medium of exchange and on account of this fact being the *meter* by

which the business man knows whether his business is producing results or not, it is essential that its records be kept with the greatest care.

This is ordinarily done by a device known as bookkeeping. Bookkeeping may be exceedingly complex or very simple, depending on the facts which are desired and the nature of the business. The ultimate fact which the druggist desires to know is what the net profit on his business is for a given period of time. But while this one fact is being learned a great many facts in the form of by-products may be produced. Some of these, for instance, are:

1. Amount of profit or loss every month on a given line of goods.
2. Percent of profit or loss on the investment for the different lines of goods showing which is really the most profitable.
3. Proportionate cost of handling different lines of goods based on rent of floor space, etc.
4. Distribution of the sales throughout the season, week, or day, giving a basis for the employment and relief of help.
5. Record of purchases of various lines of stock, giving data which will show whether it pays to buy in quantity or not.

Have you ever heard the expression that "a druggist can not see farther than the cash register"? I have that statement from an efficiency expert who has that belief because he knows very well that many of them are quite satisfied if they know what comes in each day and what goes out each day or simply if they know whether they are gaining or not.

Isn't it true that there are some proprietors whose pockets are simply an extension of the cash register drawer? The man who fails to appreciate the fact that his business is an organic entity which deserves to have an account by itself, is the kind of a man who doesn't know whether he is making money or not, and there are many of these.

There is another reason why the druggist should keep a rather accurate account of things. Every day the druggist is in business means so much valuable experience for him. And he is paying for this experience too. Should he fail to make it useful to him by not keeping a record of what is happening? The principle is the same as the case of a salesman who is on the road for a large firm. Everything he does he has to record, and all of these records are sent back to the home office to be sorted over, arranged and systematized to form the backbone for the firm's policy.

It may seem to be out of the question for the druggist to engage in a detailed system of bookkeeping. However, this is what he should do, and this is about the minimum.

He should have:

1. A columnar cash book in a handy place all the time in which are entered each day, from the cash register slips, on the left-hand side in the proper column the receipts from each line of goods, and on the right-hand side, in suitable columns, the amounts paid for salaries, for supplies, for each line of goods separately, and for miscellaneous and petty expenses.

Very little effort is needed to keep the cash slips entered up to date. The principle of the operation consists simply in sorting out the income into several incomes, and in sorting out the amount which is paid, into the several accounts corresponding to the incomes.

In a store doing more or less of a merchandise business the columns on the left side of the cash book would be something as follows: Proprietaries, Drugs, Cigars, Candies, Stationery, Prescriptions, etc. On the right hand side of the book would be similar columns so that when the columns on the right are totaled and subtracted from the totals of the respective columns on the left plus the inventories, the differences will equal the profit on the different lines of goods, from which should finally be deducted the right proportion of the overhead charges such as rent, to obtain the net profits.

Whether there are several cash registers in the store, whether there is only one with several keys, or whether there are none, this system of cash book can be readily adapted to the business. Moreover, as the business changes and new lines of goods are taken up or old ones subdivided, new columns can be added.

2. A second book which the druggist needs is his check book. When he makes out checks, he transfers the amounts from the stubs to the proper columns on the right-hand side of the cash book. When he deposits cash on hand in the bank he makes no record in the cash book, whatever, but he keeps a record in the check book. However, before he deposits a check which comes in he must be sure to record it properly in the appropriate column on the left side of the cash book. The difference between the listed deposits in the check book and the checks drawn equals the bank balance. The difference between the two sides of the cash book (when the left exceeds the right) equals the cash balance. The difference between the cash balance and the bank balance equals the cash on hand in the cash drawer.

At intervals the bank pass book should be balanced at the bank and the check book should be reconciled to it. Thus the indicated bank balance in the check book plus the amounts of checks not returned by the bank equals the bank balance shown in the bank pass book.

3. When the store does a credit business a third book is needed. This is the ledger of accounts of customers. The simplest and most effective form of this which I have seen, is handled as follows:

When an account prescription is filled the prescription blank is stamped with a numbering machine and placed on a file. In the same way when a credit customer gets other articles in the store, a charge record is made out on a simple pad, this being kept usually in the cash register drawer (or it can be written directly upon the bill with the duplicate sheet beneath). Every week or so the prescriptions and charge slips are entered on bills. The bill head is made in a duplicate form which is folded over so that a carbon paper may be placed between the two sheets. With the typewriter the various items are entered upon the bill, the prescriptions by number only. The lower sheet which is therefore an exact duplicate of the bill, forms a page for a loose leaf ledger. When the upper sheet is sent as a bill to the customer the lower sheet is torn off and inserted in the ledger. When the bill is paid it is stamped so, and at the same time the corresponding page in the ledger is so stamped. Moreover, when a bill is paid the various amounts are entered in the left side of the cash book in their proper columns.

These three books constitute all the bookkeeping necessary but there is an additional device which is important. It is an order book. The order book is kept in a definite and convenient place. As soon as it is noted that an article is needed it is entered upon the book in the first column. There are several other columns so that when the article is ordered, opposite the original entry in the other columns, are entered the initial of the firm, the date, the quantity ordered, price, etc. Then, when the goods arrive, they may be checked.

When the bills come in from the wholesale houses, they can be checked either from the goods or from the order books already checked. The bills until paid should then be kept together in a folder with memoranda of all other items which require payment for which bills may not come to hand. This folder represents then the liabilities of the firm, in the same way that the account ledger represents the resources, and these two lists should be taken into consideration when profits and losses are being figured. When the bills are paid they are removed from this folder and the various items making up the bill are distributed in the proper columns on the right side of the cash book.

While some of these phases of the accounting may seem complex, it is all really simple and very readily done without consuming much time and with a very small chance of error. Practically all of the desired facts are readily available when wanted; profits on any line of goods can be figured in a very short space of time, and the cash account is always in a form so that it can be checked with both the cash drawer and the bank balance.

A good feature of such a system is that as much as possible is kept in the original entry.

This concludes that part of our discussion which has to do with the taking care of the money. The next problem is the taking care of the other commodities in the store, and in the handling of these commodities. Let us go to the prescription counter first. The following are some of the things that have to be taken care of here and arranged so that they can be found readily: poisons, chemicals, proprietary chemicals, tablets, tinctures, pills, clear and colored bottles, corks, vials, pill and powder boxes and other small containers, capsules and caps, all of varied sizes.

The poisons, chemicals, etc., should each have a special compartment and should be arranged alphabetically therein. There are certain difficulties in this connection and one of the greatest of these is the fact that these chemicals, etc., are kept in their original containers, and that these containers vary so in size and shape that a lot of shelf room would be wasted if a strict order were adhered to. This same difficulty arises in the stock room of every line of business and is overcome by the employment of the following principle: When there is a miscellaneous stock of various sizes which it is desired to keep in a uniform way it is necessary to divide the storage space into units which will accommodate the largest class of the articles to be stored and then subdivide the units to suit the sizes of the smaller articles as they are interspersed among the large ones. The particular device which suits the drug business looks like a filing cabinet, in which the compartments are of the same size and shape. When one of the compartments is pulled out and looked at from the side it is seen to have adjustable shelves running across it so that a large bottle can be stored with small ones and in a minimum of space. This device is supreme over all other methods and is almost indispensable where space is limited.

Very often some of these chemicals, etc., are bought in a rather large quantity and transferred to small shelf bottles to be kept in the cabinet while the main quantity is stored away. In such cases it is suggested that on the front of the cabinet where the contents are listed some distinguishing mark be placed after or before the word to indicate that there is a quantity of this in stock elsewhere.

Where the expense prohibits the installing of such a filing system and where an improvement over the ordinary cabinet is desired, a very effective cabinet is one which has double or even triple doors provided with shelves. The conservation of space by means of such a cabinet is remarkable. In such a cabinet the different doors are used, one for poisons, one or more for chemicals, etc.

In case the unit filing system is in use, lists of the contents are attached to the outside of each division, of course in alphabetical order, and each class of articles relegated to its own sections, this arrangement being designated by large conspicuous labels. When ordinary cabinets are used, the alphabetical order is preserved but it is frequently convenient to have in addition, in each cabinet, a little stock list indicating the exact location of stock on the shelves. In the best stores that I have visited this was done.

The bottles, corks, vials, pill boxes, etc., are conveniently stored in drawers, beneath the prescription counter, these being divided into suitable compartments. It is essential that these drawers be labeled conspicuously on the outside. Capsules, caps, etc., are usually placed in drawers, above the counter, which should be accurately labeled. At the end of the prescription counter nearest to the store, should be the typewriter and beneath the typewriter a drawer for labels and paste. Many little details in arrangement suggest themselves here but any man who is on the lookout for efficient methods will devise just as good ones for himself. For instance, the caps and corks are kept near this end of the counter. Just beneath the ball or box from which the red cord hangs which is used for tying up the caps, there is kept attached to the counter, a stout piece of cord which is wound around and pulled tightly on the cap just after placing it on the bottle, thus giving it a good permanent crease which it retains when the more delicate red cord is applied.

When a prescription is filled this is about the routine to be followed:

First. Hang the prescription in a clip right in front of the counter where the dispenser can see it all the time.

Second. Take from the shelves the bottles of chemicals, etc., needed for the prescription and stand them in line at the right of the center of the counter.

Third. Weigh out each ingredient in order and incorporate it in the prescription, at the same time placing each bottle, immediately after weighing, to the left of the scales together with the weights which were used. By placing the used bottles at the left, one is sure that the ingredients on the left are in the mixture and those on the right are not in the mixture.

Fourth. Upon the completion of the prescription, have the ingredients and their weights checked, preferably by another individual.

Fifth. Label the bottle and wrap it up.

Sixth. Return the bottles to their proper shelves. This is facilitated and mistakes avoided if each class of bottle is designated by a certain bright-colored sticker which is placed on every bottle of that class. For instance, every poison bottle might have a red sticker, every chemical bottle a green one, every tincture bottle a yellow one, etc.

Seventh. File the prescription away. The ordinary method, of course, is the wire file. This has many objections, but it has some decided advantages. The advantage this method has over pasting into a book, is that, not only is time saved, but memoranda can be made on the backs of prescriptions, which is often done. Then, of course, books take up more room. The method of

filing prescriptions in sliding drawers has the advantage of keeping them neater, but they are less available, it seems to me, and it takes up a little more room and is more expensive. The best stores I visited in several cases still retain the old style long wire file with one or two minor improvements, and I admit its superiority.

Eighth. Wash up the pestle and mortar, graduates and other dishes instead of standing them around in the sink.

In connection with the prescription counter it is almost essential to have a list of the usual customers of the store with addresses and a mark indicating C. O. D. or O. K. for charge, so that when the messenger delivers the articles he has at the same time instructions as to whether collections must be made. Usually back of the prescription counter, there is a shelf reserved for books such as Pharmacopœias and Dispensatories, and if space is available also for current pharmaceutical literature. There is also a definite place, either a drawer or shelf, for catalogues of wholesale houses. In one store I visited almost half the space on the prescription counter was filled with a pile of miscellaneous journals and pamphlets, many still unopened; this to the great discomfort of the clerk who was at that time filling a prescription.

The criterion which shows whether a store is well arranged or not is the time and trouble that is required of a new clerk to find the things he needs.

Inspection of the cellars of several stores developed much of interest. The cellar is usually the stock room, and the ideal stock room, as intimated before, is divided into uniform sized units, which are subdivided to meet necessary requirements. The advantage of this, as mentioned before, is that it enables one to adopt any method of arrangement he desires, regardless of the size of the articles. He can arrange proprietaries together, or all the products of one firm together, or he can divide the stock into classes and arrange each class alphabetically. The division into unit compartments lends itself to any method of subdivision. The compartments are numbered and a stock-index of the goods refers to the unit compartment only, so that slight variations and adjustments are always possible without spoiling the system. No store visited, utilized the possibilities of this arrangement to the fullest extent.

In most stores inspected, the cellar was dirty and the stock subject to more or less dust. A very simple contrivance to prevent this, now in only very limited use, was suggested to me by a student who found it more than satisfactory. It consists in placing rolling window shades in front of the stock shelves. One roller is placed near the ceiling, the shade rolling about half way to the floor, at which point another roller is placed reaching the remaining distance. At the edges of the shades are nailed strips of wood behind which the edge of the shade passes. This keeps the shade close up against the shelves, and prevents the entrance of dust.

As soon as goods come into stock it is well to price-mark them immediately, as they are unpacked, and at the same time the wholesaler's bill should be checked.

In the main part of the store a strict logical arrangement of things cannot always be adhered to because display is often essential. The usual arrangement is that which tends to keep articles most in demand near at hand, and in many cases already wrapped or put up in small packages. Patent medicines are classi-

fied, with cough syrups together, liniments together, and so on. Wrapping paper cut in several sizes and kept in handy compartments just under the counter, saves time during the busy part of the day, and the use of elastic bands to snap around small packages adds materially to the speed of serving customers, but, owing to expense, should be used only during rush hours.

A drawer of labels similar to those in the prescription room should be kept in the front store, also corks and bottles. Many stores have auxiliary devices to help the clerk. For instance a stamp-vending machine saves much annoyance and I have assurance that it pays for itself.

In a large store the general arrangement is important. For instance, the aisles between counters should be opposite each other to facilitate the movements of clerks.

The Customers.—The final problem which confronts the manager of a store is his relation to the public. In this is comprised advertising, window dressing, etc., the details of which will not be considered here.

In closing I will summarize:

First of all, the proprietor himself must be interested in maintaining a standard. He must keep himself keyed-up by visiting other stores, by meeting other men, and by reading periodicals relating to his business.

Second, the proprietor must organize the work of the store so that all employees know exactly the extent of their duties and for what things they are responsible, and he must see to it that all including himself, have suitable hours for rest and recreation.

Third, he must look after the machinery of his business, including money and stock in trade, with an eye to the conservation of movements and time. He must have suitable arrangements for perfect cleanliness and order.

Fourth, he must study his customers.

After this exposition some of you may be reminded of the incident at the War Department at Washington just prior to the Spanish-American War. For several years the whole system was pervaded with an inordinate desire to get things in the most systematic condition possible in preparation for that event, and perfection was almost realized in every branch of the organization. During the war one of the clerks was heard to remark, "Oh, dear, I had this office in such fine shape, and then along came the war and upset everything." Evidently he had the idea that the war was an unjustified interruption of the work of the War Department. It may occur to some of you that after the store is systematized a rush of customers will come and upset the whole system. Therefore as a final suggestion let me add—organize the store while it is in action, so that every new arrangement will be put to an immediate practical test.

I stop now with the remark of a student: "Efficiency saves time and money, and the spirit of efficiency is the knowledge that one has trained himself to do all things well. It is full of inspiration to any worker. Being armed with that spirit he does his daily work better and looks beyond his daily work to further and to greater things."

STANDARDIZATION OF VOLUMETRIC ACID AND ALKALI SOLUTIONS.*

JOSEPH L. MAYER.

The U. S. P. VIII recognizes but one substance for the standardization of volumetric acid and alkali solutions—potassium bitartrate. This salt after being purified, as per directions of the Pharmacopœia, is employed to standardize the alkali, which then serves to standardize the acid.

This method is a very good one and leaves little to be desired with reference to accuracy.

Notwithstanding this fact, we constantly hear complaints concerning the method, mainly due to the time and trouble necessary to properly prepare the bitartrate, with the result that many students and pharmacists are inclined to employ some other method of standardization.

To determine the relative accuracy of other commonly used methods as compared with the pharmacopœial one the following work was undertaken.

The Bitartrate Method was employed by following the directions on page 532 of U. S. P. VIII for the purification of the salt and the method for standardizing V.S. KOH on page 552.

The H_2SO_4 V.S. was standardized by measuring 25 cc. into a 100 cc. Erlenmeyer flask and titrating in boiling solution with the above KOH solution employing phenolphthalein indicator. The factor for the H_2SO_4 V.S. was found to be 1.0391.

The Ammonium Sulphate method was carried out by accurately weighing 2 small beakers, adding 25 cc. of the H_2SO_4 V. S., an excess of redistilled ammonia water, evaporating to dryness on a water bath, then heating in an air oven at 110°C for periods of 20 minutes until the weight became constant, when the weight of ammonium sulphate was calculated to sulphuric acid. To avoid contamination with silica, at the time of making the test, strong ammonia was placed in a test tube and the gas distilled into distilled water.

The factor for the H_2SO_4 V.S. was found to be 1.0385.

The Sodium Carbonate Method was carried out by employing Merck's reagent anhydrous sodium carbonate, heating in a platinum dish a few minutes, quickly transferring to a stoppered weighing bottle and after cooling weighing off a portion for analysis, which was dissolved in water and titrated against the V.S. H_2SO_4 using methyl orange indicator.

The factor for the H_2SO_4 V.S. was found to be 1.0409.

The Oxalic Acid Method was carried out by weighing off portions of Merck's reagent oxalic acid crystals, dissolving in water and titrating against the potassium hydrate solution, using phenolphthalein indicator.

This potassium hydrate solution was then employed to standardize the acid

*Read before the New York Branch of the A. Ph. A., April 13, 1914.

using 25 cc. of the latter, titrating in hot solution, employing phenolphthalein indicator.

The factor of the H_2SO_4 V.S. was found to be 1.0398.

The Silver Chloride Method was carried out by taking 25 cc. of HCl V.S., about 200 cc. distilled water, adding an excess of one drop of silver nitrate solution, heating to boiling, allowing to stand until granular and filtering and washing on Gooch Crucibles, which after drying on the hot plate were weighed. From the weight of silver chloride the quantity of HCl in the solution was calculated.

This V.S. HCl was then run against the KOH solution, titrating in hot solution and this KOH run against the V.S. H_2SO_4 in hot solution, phenolphthalein being the indicator employed.

The factor for the H_2SO_4 V.S. was found to be 1.0367.

The Barium Sulphate Method was carried out by precipitating the H_2SO_4 in 25 cc. quantities of the V.S. H_2SO_4 , the barium chloride solution which was boiling being added from a pipette drop by drop, to the boiling H_2SO_4 solution which had been diluted with water.

The material was allowed to stand on the hot plate until the solution became clear and then filtered through Gooch Crucibles, which after being washed, dried and heated were weighed as barium sulphate from which the quantity of H_2SO_4 was calculated.

The factor for the H_2SO_4 V.S. was found to be 1.0440.

All the determinations were run in duplicate and yielded remarkably close checks.

The following table shows at a glance the results by the various methods:

Potassium Bitartrate Method (U. S. P. VIII)	Factor	1.0391
Ammonium Sulphate	"	1.0385
Sodium Carbonate	"	1.0409
Oxalic Acid	"	1.0398
Silver Chloride	"	1.0367
Barium Sulphate	"	1.0440
		<hr/>
		6 | 6.2390
		<hr/>
		1.0398

With the exception of the barium sulphate figure the results agree closely, but notwithstanding the fact that this is a trifle higher it has been included in making up the average to derive the factor.

Numerous determinations made on sulphuric acid solutions always yielded a higher result by this method than by others.

This sulphuric acid was originally standardized on June 4, 1912, and the factor which was the average of all the methods was 1.0388.

Considerable fungus growth being present in the solution the work detailed in this paper was begun and carried out on November 12, 1913, the factor which was the average of all the methods being as above noted 1.0398 the difference between the two figures after about 17 months being 1.0398—1.0388=.001, which proved that the age of the solution and the growth in it had not affected it.

As pointed out by Clark, (Proc. Amer. Pharm. Ass'n, 1910, page 978) a volu-

metric solution whose factor has not changed more than four points in the third decimal place in titrating 25 cc. of one solution against 25 cc. of another solution is regarded as not having changed its strength.

These results indicate that any of the above methods may be used with perfect safety for the standardization of volumetric acid and alkali solutions although our personal preference is for the ammonium sulphate, sodium carbonate, and potassium bitartrate methods.

I would take this opportunity to acknowledge my indebtedness to my assistant, Dr. I. Swartz, for his work in carrying out some of the duplicate determinations.

SOME FACTS AND DEMONSTRATIONS ON LLOYD'S REAGENT AND ALCRESTA ALKALOIDS.*

DR. GUSTAV REHFELD, ST. LOUIS.

I am very glad that you afforded me an opportunity to address you to-night and I hope to be able to interest you.

I feel that Lloyd's Reagent and the Alcresta Alkaloids will prove to be, in the near future, a matter of great importance in the fields of exact and applied sciences.

It has occurred many a time in the past, that apparently trifling circumstances were instrumental in revolutionizing the fields of human endeavor. Every one of you is familiar with the cause that gave the first impulse to the evolution of the laws of gravity, how the swinging of a candelabrum affected the science of physics, how an accidental arrangement of lenses fostered the invention of the telescope and the microscope, how the insignificant popping of the lid of a tea kettle brought about the wonderful development of steam power. It is unnecessary to enumerate any further; you know that most discoveries had their starting point in just such every day occurrences; millions and millions of times they happened and millions and millions of times they passed unrecognized until some one somewhere caught the revelation and thereby enriched human knowledge generally, opening up new view points and thus engraved his name indelibly on the pages of historical record.

I feel that the discovery of Dr. John Uri Lloyd is destined to do just such a thing, to change our viewpoints considerably, to make our knowledge more exact in a field that is not altogether easy of treatment and which will, thereby, benefit mankind generally, as it affects chemistry, medicine and pharmacy.

I wish to say to you though, that some time will elapse before the far reaching results, which we expect to get, will be realized. However, enough facts have been established to leave no doubt whatever, that this discovery will affect chemical research in alkaloids; that, already, it has given the medical profession a most valuable addition in *materia medica*, and to the pharmaceutical profession a means of rendering intensely bitter substances absolutely tasteless.

A few years ago Dr. John Uri Lloyd, of Cincinnati, discovered that a very

* Read before the St. Louis Branch, March 20, 1914.

common substance, aluminum silicate, in hydrated colloidal form, acted as an alkaloidal attractive. He investigated this phenomenon for a long time together with Dr. Waldbott, of Cincinnati, and about a year later Dr. Felter established the physiological action of its strychnine compound.

Some time after, Drs. Wiley, Wilbert and Kebler, all of Washington, D. C., were made acquainted with the alkaloidal energies of this substance, and toward the middle of 1913, Drs. Gordin and Fantus, of Chicago, contributed the first general papers on the subject. And this is about all that is known on this subject to date, as far as published reports are concerned.

Through the courtesy of Eli Lilly & Co., whom I have the honor to represent, I am enabled to-night to exhibit before you as a representative body of the St. Louis Branch of the A. Ph. A., the first samples of Lloyd's Reagent and a few Alcresta Alkaloids. These names were given to these products to individualize them, as standing in a class of their own. Your Branch is the first in the world to see and possess these preparations, as I have been permitted by Eli Lilly & Co. to present them at the end of my talk to the St. Louis College of Pharmacy.

Lloyd's Reagent, as stated before, is hydrous colloidal aluminum silicate. However, the various forms of natural aluminum silicate possess usually very slight alkaloidal affinities in their crude condition. In order to obtain uniform results, it became necessary to prepare it in a particular manner from a specially selected quality of natural hydrous aluminum silicate. Through the well directed efforts of our scientific department, we are enabled to-day, to supply Lloyd's Reagent of uniform attractive strength.

You will have noticed that I used the word attractive, where another word, reagent, would, apparently, have been more appropriate, but I did so, because our ideas of chemical reagents are pretty well established, and as Lloyd's Reagent acts electrically, it seemed the better word.

Lloyd's Reagent is practically insoluble in all liquids, and an excess is therefore inconsequential. Please bear this in mind when I shall demonstrate its energies before you to-night. When we add Lloyd's Reagent to a solution of alkaloidal salts, they are at once removed and held firmly in aluminum silicate combination. This holds true with the natural alkaloid compounds investigated to date; however, one exception should be noted and that is caffeine. It takes repeated treatment with Lloyd's Reagent to remove it from solutions, and this confirms our findings that caffeine is a feeble alkaloid. It certainly is feebly attracted by Lloyd's Reagent, and removed with difficulty, as I said before.

A very noteworthy feature of this Reagent is, that it has no affinity for other substances, especially those that are usually associated with alkaloids in plant-glucosides. It is, therefore, possible, as a matter of fact it has been successfully accomplished, to remove the alkaloids from fluidextracts without disturbing any of the other active or inert constituents as in the case of ergot. In order to facilitate the action of Lloyd's Reagent, the solutions should be acidulated.

As this reagent acts electrically, you will not be surprised to learn that the alkaloidal salts do not undergo any chemical change at all. In other words, quinine sulphate, morphine sulphate, strychnine sulphate, etc., will be removed as quinine sulphate, morphine, or strychnine sulphate as the case may be. But, note the remarkable phenomenon, that as long as these salts are in aluminum silicate

combination they are absolutely tasteless and not soluble in acid solutions any longer, while alkaline solutions destroy the electrical affinity gradually, and the alkaloids regain their bitter taste and previous solubility. This is of immense importance to internal medication. The Alcresta Alkaloids, being enteric, can be introduced into the system and directed to the very seat of the trouble without disturbing the functions of the stomach. Think what this means, for instance, in the case of ipecac; in fact with all, when employed in the treatment of intestinal disorders. The great usefulness of Alcresta Alkaloids becomes at once apparent, does it not? You readily will understand also, that these preparations are not intended nor destined to replace the old form of alkaloids, as both will have large fields of usefulness in therapeutics.

The affinities of Lloyd's Reagent for the different alkaloids vary greatly, as can be seen from the limited number of alkaloidal solutions investigated and listed; for instance, to precipitate:

- 1 Gram Cocaine hydrochlorate requires about 10 grams of Reagent.
- 1 Gram Cinchonine sulphate requires about 10 grams of Reagent.
- 1 Gram Cinchonidine sulphate requires about 10 grams of Reagent.
- 1 Gram Brucine sulphate requires about 7 grams of Reagent.
- 1 Gram Morphine sulphate requires about 4 grams of Reagent.

A correct list of all alkaloids investigated, will, no doubt, be given to investigators interested, by Eli Lilly & Co., upon request.

With your kind permission, I shall now demonstrate to you the efficacy of Lloyd's Reagent on various alkaloidal salt solutions. In order to remove any doubt, as to the presence of the alkaloids in these solutions, I shall first prove their presence by Mayer's Reagent, and after removing them by means of Lloyd's Reagent, shall demonstrate their absence by Mayer's Reagent.

I have chosen for this demonstration solutions of berberine sulphate, morphine sulphate, quinine sulphate and strychnine sulphate, all of the same strength, that is 1 percent.

Now as far as the recovery of alkaloids is concerned from their aluminum silicate combination, it is easily accomplished by means of ammoniated chloroform. In most instances the alkaloids can be removed from the dry powder, but where the alkaloid does not yield readily, the addition of a little distilled water is sufficient to bring about the desired result.

It probably will not be amiss to express the hope that later investigations of Lloyd's Reagent will bring about abbreviated and reliable methods of assay. Unfortunately, I am not in a position to-night to say whether or not we shall be able to do so. But let us hope that some one may be successful to evolve a short and reliable method by means of it. It would be an achievement of considerable moment.

I would like to call your attention also, to another matter which occurs to me should be investigated since we became acquainted with the mysterious activities of Lloyd's Reagent, and, that is, our filtering media. We are using talcum powder, pumice stone, kieselguhr, and others to help clarification of pharmaceutical preparations containing active ingredients. You know now what would happen if you were to filter an elixir containing alkaloids through Fuller's earth.

It seems to be that the electrical energies of the different media should be investigated, as unusually brilliant and otherwise elegantly appearing liquids may be devoid of active constituents, after filtration. As long as we do not possess positive knowledge about the electrical character of those substances, it may be wise to use paper pulp.

In conclusion, I wish to say to you, that Dr. Lloyd, as well as Eli Lilly & Co. stand ready at all times to render all possible service to further earnest scientific investigation. All inquiries for experimental supplies should be made to Eli Lilly & Co., Indianapolis, Ind., where they will find prompt attention.

INDISPENSABLE INSURANCE FOR PHARMACISTS.*

FRANKLIN M. APPLE, PHAR. D., PHILADELPHIA.

History has shown that it is the practice of shrewd, hard-headed, far-thinking men to protect their most valued possessions by some form of insurance. The greater the possibilities that they will suffer a severe loss from destructive forces, the more the desire to protect themselves from these agencies, and to increase the amount of the protection.

Our government has always recognized the wisdom of protection against all forms of invading and destructive forces by establishing agencies to conserve the desirable assets, as well as to repel the destructive invaders.

Our Army and Navy are supported and maintained chiefly to ensure peace to the nation by moral influence, and our Federal Public Health Service is depended upon to protect us from injury from organisms that would greatly distress, if not annihilate us if permitted to carry on their destructive work unimpeded.

Within recent years the wisdom of calling a halt upon the wasteful methods of handling our natural resources has been more apparent, and has given rise to an era of greater conservation, for we must admit that we, in large measure, are guardians of these wonderfully rich possessions for posterity, as they have been handed down to us by our forefathers. This conservation is but another name for insurance against waste and extinction.

Before me, as I pen these lines, lies the advertisement of a large bonding and insurance company, in which is described a form of insurance for almost everything that has a monetary value—even re-insurance of other forms of insurance; but to the pharmacist the most vital form of insurance is not included in the long list of classes of risks, viz., insurance of Professional Pharmacy, the backbone and sinew of the profession.

The omission of this form of insurance is excusable, for it is impossible for any company to write this kind of policy. It can only be obtained by co-operative action of pharmacists in a society, founded upon principles recognized to be honorable, unselfish, uplifting, ethical and of mutual benefit to its members and to society generally.

Such a praiseworthy assemblage of men and women is exemplified by the oldest

* Read before the Philadelphia Branch, March, 1914.

of pharmaceutical associations—The American Pharmaceutical Association, which was organized in 1852, in this city.

Why should a pharmacist neglect to protect his dearest possession—his professionalism, that for which he labored diligently and for which he was educated by special courses of instruction?

In these days of commercial greed and encroachment upon the domain of others' fields of endeavor, our calling has not been protected from the efforts of barons of wealth, to drag our profession down to the level of ordinary bartering and trading, to the great detriment of those specially educated to prepare and dispense medicaments for the sick and dying members of society; and to the ultimate, lasting disadvantage of the public, who oftentimes fails to appreciate the benefits it is enjoying until they are lost to it.

In the effort to find some means to protect us against the dangers which threaten our rights and liberties as a distinct professional calling, it is imperative that each pharmacist should seriously consider the necessity of affiliating himself with the American Pharmaceutical Association, which has an unsullied record of constant vigilance for the interests of pharmacy and its votaries for more than sixty years.

Just as the "Minute Men" of '76 gave instant heed to the call to duty in defense of their rights and liberties so to-day it is imperative for every true and loyal pharmacist to gather under the banner of the A. Ph. A., enroll himself upon its muster-roll and fight in defense of his profession and his existence.

The marvelous word "Drugs" has been seized upon by parties possessed of wealth to serve as a cloak for conducting mercantile establishments that are the worst cases of mis-branding known to me, and as such, should be punished as those who mislabel their goods are penalized by the provisions of the Food and Drugs Act. It is only by concerted, strenuous, untiring effort that we can hope to resist and repel these forces.

Do not be asleep and awaken too late to protect yourselves, but join with us to-day to repel those who would destroy the good name and fame of professional pharmacy.

I have intentionally avoided saying anything concerning the premiums charged by the Association for this insurance. Practically speaking, it makes no charge for the many benefits its members enjoy.

The mere pittance, five dollars per year, charged for membership, which includes The Journal of the American Pharmaceutical Association, is a ridiculously low charge for the post-graduate course of instruction in pharmacy that comes to one by mail in convenient installments monthly, to say nothing of the handsome cloth-bound volume known as "The Year Book," and in these days of enlightenment and advancement no one can worthily call himself a pharmacist who does not keep himself abreast of the times.

To describe the lines of activity of the Pharmaceutical Association is to cover every phase of pharmacy, as its many sections indicate the wide scope of its work.

It is impossible to speak of an effort to uplift, advance or to protect pharmacy without quoting from its archives; hence no one engaged in the drug business can honestly say that he has not and is not benefitted by the efforts of his co-

workers, who have banded themselves together to protect pharmacy, under the respected and revered banner of the American Pharmaceutical Association.

The moral effect of a large membership is well known to all thinking men; hence if the effort of the present members and workers should be reinforced by your co-operation, even greater results could be obtained; therefore why delay doing your part to increase the effectiveness and stability of the protection you enjoy as a member of a respected profession.

Come, join our ranks and help to protect pharmacy against those who would destroy it.

Let me call your attention to the words of Lowell: "No man is born into the world whose work is not born with him; there is always work and tools to work withal; for those who will and blessed are the horny hands of toil."

THEORIES UNDERLYING THE USE OF ANTITOXINS AND VACCINES.*

A. PARKER HITCHENS, M. D., GLENOLDEN, PA.

The action of antitoxins has so definitely passed beyond the stage of pure speculation that I think there will be little difficulty in expounding the theories underlying their use. With regard to vaccines, likewise, we have come to describe more clearly their mode of action without the use of a terminology recognized only by the initiated few.

Out of studies in immunology—the science dealing with the mechanism of contagious diseases—have developed methods by which the body may be assisted either to prevent disease-producing germs from gaining a foothold, or to eliminate them after they have become established.

The disease-producing bacteria are classified in various ways according to their functions. For our present purpose, the classification of most interest is that which considers the bacteria according to their manner of causing disease. Thus we find that one group of bacteria produces definite, soluble, and diffusible poisons and that all the symptoms of the disease are dependent on the action of these poisons upon the tissues for which they have an affinity. The second group of bacteria, on the contrary, do not produce soluble and diffusible toxins in appreciable quantity—their effect is brought about by a much more complicated process. We believe the production of disease by this class of bacteria is not a function in which they alone participate, but is the result of their interaction with the body cells.

Belonging to the first class of bacteria, the only organisms of interest to us are the *diphtheria* bacillus and the *tetanus* bacillus. These produce soluble and diffusible poisons—*toxins*; and spontaneous recovery from these diseases depends upon the generation by the tissues of a substance which will neutralize the toxins—*anti-toxins*. The requisite antitoxins can be easily produced in animals and

*Read before the Philadelphia Branch, April 7, 1914.

transferred to the bodies of patients by administering the blood serum of the treated animals.

For obvious reasons, horses are generally selected for the production of antitoxin. The germs in question are developed upon a fluid artificial culture medium, veal broth. After the bacteria are removed from the full-grown culture, the sterile filtrate, containing the specific toxins, is injected subcutaneously into the horses. The horses react by the production of antitoxin. Enormous quantities of toxin are administered, and consequently enormous quantities of antitoxin are generated and stored in the blood serum of the animal. The antitoxins on the market then, consist of this blood serum either native or chemically treated so that the pseudo-globulin constituent of horse serum which carries with it the antitoxin principle is removed and furnished, in solution, in as pure a state as possible.

The strength of the antitoxin is determined by titrating it against toxin, the guinea pig being used as indicator. In defining a unit at present, there is no more reason to say that it is the amount that will neutralize 200 fatal guinea pig doses of a theoretically pure toxin, than there is, in defining an inch, to say that it has a definite relation to the circumference of the earth. Twelve inches make 1 foot, 36 inches 1 yard; 1000 units of diphtheria antitoxin constitute the immunizing dose, 5000 units the average initial curative dose; 1500 units is the official immunizing dose of tetanus antitoxin.

The action of diphtheria antitoxin may be clearly illustrated by imagining the disease to be due to a mineral acid generated within the body and poured into the circulation in constantly increasing quantities. According to the urgency of the case, let us inject a corresponding quantity of a harmless alkali. The acid is neutralized, the disease is controlled, and the fate of the patient now depends only upon the amount of damage done to the tissues before the alkali was administered.

In tetanus the case is slightly different. Tetanus toxin has a strong affinity for the nerve tissues, and the compound formed by this union cannot be split up by antitoxin. After symptoms of the disease have developed, there is but one hope in treating tetanus with antitoxin. If the treatment has begun before the lethal quantity of toxin has been fixed by the nervous tissue, and if the amount of antitoxin then administered be sufficient to neutralize the free toxin in the blood, there is a chance that recovery may ensue.

Bacterial Vaccines. For a clear understanding of the action of bacterial vaccines, it may be helpful to consider this subject from the standpoint of our knowledge of anaphylaxis. Anaphylaxis, in its derivation, means a lack of resistance—it is the opposite of prophylaxis. Richet, in his investigation of certain poisons derived from sea urchins, noted that an injection of these poisons into a dog, instead of rendering the animal immune to a second dose, actually made him more susceptible. The work of Rosenau and Anderson showed still more clearly the operation of this phenomenon.

Anaphylaxis concerns the effect of proteins or albuminous substances upon animals; it concerns *all* proteins whether they are poisonous in themselves or not; for instance, egg white and normal horse serum act precisely as the proteins of the plague bacillus or of the typhoid bacillus. And furthermore, the proteins of

dead bacteria act practically in the same way as the proteins of living bacteria. It must be remembered, however, that anaphylactic symptoms can be produced only by proteins foreign to the animal; that is, anaphylaxis cannot occur in a guinea pig from the repeated injection of guinea pig serum, nor can the symptoms be produced in a horse by the injection of horse serum.

If we inject a normal guinea pig with a dose of protein parenterally—that is, by any route except by the gastro-intestinal canal—it does not appear to suffer the slightest inconvenience. If, however, we inject this animal two or more weeks later, with the same protein, it will die within one or two minutes and with very definite symptoms accompanying death. This is a manifestation of anaphylaxis.

For an explanation of this phenomenon we must go back to the work of Prof. Victor V. Vaughan upon the chemistry of the protein molecule. Vaughan has shown that a protein, treated chemically according to his method, is split into two parts—the one poisonous, the other non-poisonous. The *poisonous* part obtained from all proteins is the same whether it results from the splitting of egg white or from the splitting of typhoid bacilli, the symptoms leading to death in the guinea pig are identical. This poisonous part then is a poison and has no other function nor effect; one dose has no bearing upon the effect of a subsequent dose, no hyper-susceptibility is produced, and no tolerance, even by repeated administration.

The *non-poisonous* part, on the other hand, is specific in its action. The non-poisonous part of typhoid bacillus protein will immunize an animal against typhoid infection, but not against infection with colon bacilli; the non-poisonous part of horse serum will sensitize a guinea pig to horse serum, but not to goat or sheep serum.

These results of Vaughan's work upon the chemistry of proteins suggest an explanation of the mechanism of anaphylaxis; they show us that instead of being the opposite of immunity, anaphylaxis is merely one of its manifestations; and furthermore they give us a clearer understanding of immunity itself.

When foreign proteins are injected into the tissues of an animal, the body cells at once set to work to remove this protein. They prepare a ferment capable of splitting the protein molecule, which possibly because of its size is not diffusible, into smaller fractions able to pass into the circulatory system and be thence eliminated. These fractions of the protein molecule are similar to those obtained by Vaughan in his chemical splitting; that is, a *poisonous* part which, after the first injection, is liberated slowly and is therefore harmless in its effect, and a *non-poisonous* specific part which stimulates the body cells to produce a specific ferment-like substance. About two weeks after injection, the protein has been entirely removed from the tissues, the poisonous part has been eliminated so gradually that no symptoms have resulted, and the non-poisonous part has stimulated the tissues to generate a large amount of specific protein-splitting ferment.

At this point we must pause to note that according to Vaughan, the protein-splitting ferment includes the anti-bodies so difficult to understand in the theories of the German and French schools of immunity. This theory of the American school does not contradict the fact established by Metchnikoff, and further eluci-

dated by Wright, that the white blood corpuscles play an active part in the removal of foreign proteins whether they be cells or fluids; nor is it out of harmony with the theory of Ehrlich, who gives to the group of anti-bodies—collectively the “ferment” by Vaughan—different names according to their functions.

The guinea pig, then, at the end of two weeks after the first injection of, let us say, horse serum, contains in his tissues no trace of horse serum; but he does have within his body a large quantity of protein-splitting ferment, which may remain in the tissues for a long time; and even if it disappears, the power to generate this ferment upon demand may remain permanently. If we now inject into this guinea pig a second dose of horse serum the proteins contained therein are at once attacked by the specific ferment; digestion occurs almost immediately, resulting in the liberation of a large quantity of the poisonous part of the protein molecule; the animal is overwhelmed by it and dies, usually in less than five minutes. A dose sufficiently large to cause death depends upon the method of injection; if injected into the circulation or into the brain 1/20 cc. is sufficient; if injected subcutaneously, however, at least 5 cc. is usually necessary.

Now as to the bearing of this phenomenon upon infectious disease—Vaughan has used typhoid fever as a typical illustration. Infection results from the entrance of a few typhoid bacilli into the tissues under circumstances which permit their growth and multiplication. There is normally present in the body a small amount of a non-specific protein-splitting ferment which attacks the typhoid bacilli, liberating the non-poisonous part which in turn begins to stimulate the tissues to the production of a specific anti-typhoid ferment. We know that in guinea pigs it takes from 8 to 14 days to produce enough ferment to cause serious symptoms of intoxication upon the injection of a second dose of the protein. Now this period corresponds exactly to the incubation period in typhoid fever. It is during this time that the typhoid protein-splitting ferment is produced in increasing quantities while the typhoid bacilli are rapidly growing in numbers. The ferment sets free the poisonous part in gradually increasing quantities with the appearance and progressive increase of fever and the other symptoms of the disease. This process continues up to the point where the number of typhoid bacilli destroyed each day equals the number reproduced in the lesion. This balance is maintained for a time until the number of bacilli destroyed exceeds those reproduced.

A patient recovered from typhoid fever, has remaining in his tissues a large amount of typhoid protein-splitting ferment, so that when typhoid bacilli again gain entrance to his tissues, they are at once attacked and destroyed before they have a chance to develop. Obviously there is no intoxication because the amount of typhoid proteins is infinitesimal compared to the amount necessary to result in anaphylactic shock.

It is now easy to understand the action of typhoid vaccine. When we inject beneath the skin a number of typhoid bacilli, their disintegration is started by the normal proteolytic ferments in the body. A second and third dose given at intervals of about 10 days increases the quantity of specific typhoid protein-splitting ferment. The theory of typhoid immunity by means of bacterial vaccines applies equally to the production of immunity to other infecting bacteria. The theory underlying the use of bacterial vaccines in disease is based on the

fact that the tissues affected are unable to produce a sufficient quantity of the specific ferment to overcome the infection. The injection of bacterial proteins in a healthy part of the body leads to the production there of these anti-bodies which are conveyed to the focus of infection through the circulatory system and thus assist the local cells.

It will now be clear that the requisites to success in vaccine therapy are, (1) that the vaccine injected must contain bacterial proteins identical in kind with those causing the infection; (2) that the ferment produced locally must come in contact with the infecting bacteria. For one with proper training it is not hard to determine the kind of bacteria causing an infection; nor is it hard to obtain either a stock vaccine representing these bacteria or to prepare an autogenous vaccine identical with them; and it is a very simple matter to inject these bacterial suspensions beneath the skin of the patient.

If the patient is not in the last stages of disease, there is not one chance in many thousands that his tissues will fail to produce the proper anti-bodies or ferments. If the patient shows no improvement as result of the treatment, it behooves the physician to use means by which the ferments may be induced to perform their function.

In some infections, as in staphylococcic infection, accessory measures are seldom needed, while in streptococcic infections they are nearly always necessary. In gonococcic infections of the urethra and prostate, the mere injection of vaccines accomplishes but little; in gonococcic infections of the joints, however, the vaccine is apparently sufficient.

We are indebted to Besredka of the Pasteur Institute in Paris for an improvement upon bacterial vaccines which constitutes a real advance in vaccine therapy. As said above, when the bacterial vaccine is injected beneath the skin a small quantity of the protein is split up by natural ferments and the specific non-poisonous part thus liberated stimulates the production of ferments which continue the disintegration until the maximum effect of the vaccine is obtained.

The ferment itself is composed of at least two constituents; one is specific and by Ehrlich has been called *amboceptor*; (the *opsonin* of Wright is a similar anti-body). This substance has the power of fixing itself to the bacteria, thus preparing them for digestion by another substance which is not specific but is always present in the blood of healthy animals, and because the latter completes the ferment action, it is called *Complement*. Besredka proposed that amboceptor be utilized to prepare the bacteria for the immediate action of the complement. Bacteria thus prepared for the action of the complement were said to be "sensitized" and the suspensions of such bacteria were called by him "sensitized vaccines." The advantage they have over ordinary bacterial suspensions is that they eliminate the period during which the specific ferment is being formed. "Sensitized vaccines" have already been used extensively in France and also to a certain extent in England. The published reports amply attest their superiority.

Anti-bacterial Serums. The so-called "therapeutic or anti-bacterial serums" include anti-streptococcic, anti-pneumococcic, and anti-meningococcic serums. These are prepared by the injection of horses, first with dead, and then with living bacteria. In the case of anti-meningococcic serum, injections of autolysed bacteria are alternated with the cocci themselves. The autolysate contains a toxic

substance which causes the production of some antitoxin. This serum, like anti-dysenteric serum, partakes therefore of the nature of both an anti-toxic and an anti-bacterial serum.

These serums depend for their activity upon substances called ferments by Vaughan, but according to the nomenclature of Ehrlich, "Anti-bodies;" that is, substances antagonistic to the bacteria. Used in sufficiently large doses, anti-bacterial serums have undoubtedly great value. The chief difficulty lies in the fact that no method has so far been found by which anti-bacterial serums can be produced comparable in potency with diphtheria antitoxin.

It is well known that a much larger dose of any curative serum must be used if it is injected subcutaneously than if injected intravenously. Realizing this fact and the relative weakness of anti-bacterial serums, there is but little doubt that their use intravenously will be resorted to in the future with increasing frequency.

Summary. 1. There are two classes of bacteria with regard to their method of producing disease: (a) those that produce soluble and diffusible toxins, and (b) those that do not.

2. The toxin-producing bacteria are the diphtheria bacillus and the tetanus bacillus.

3. Antitoxins, produced by injecting horses with the specific toxins, are antagonistic to the specific toxic products of the bacilli in a manner very similar to the antagonism between acid and alkali.

4. To the second class belong the great majority of the disease-producing bacteria.

5. The symptoms in the diseases caused by the latter, are probably the result of the action of their specific metabolic products, combined with the effect of the liberated poisonous part of their protein molecule.

6. Recovery from such infectious diseases depends upon the production of sufficient specific protein-splitting ferment to remove their causative bacteria from the tissues.

7. The amount of this specific protein-splitting ferment may be increased by injecting bacteria of the same kind beneath the healthy skin.

8. Immunity from infectious disease depends upon the existence in the tissues of sufficient specific protein-splitting ferment to dissolve invading bacteria before they have a chance to develop.

9. The rational administration of bacterial vaccines presupposes accurate diagnosis and the administration of bacteria identical in kind with those causing the infection. It depends furthermore upon the ability of ferments and antibodies to come in contact with the infecting bacteria.

10. "Sensitized vaccines" are superior to ordinary vaccines because they reduce the preliminary period during which the injected bacteria are being split up so that the non-poisonous part may be available for the production of specific antibodies.

11. Anti-bacterial serums—anti-streptococcic and anti-pneumococcic—depend for their activity upon their content in specific anti-bodies or ferments.

12. The amount of these ferments in even the best serums is relatively small and the serums must therefore be used in larger doses than has been customary in the past.

13. Anti-meningococcic serum is both anti-bacterial and antitoxic.

14. Since the efficiency of curative serums is increased many fold when administered intravenously, this route will be used more frequently than has been the custom in the past.

A CONSIDERATION OF AUTOGENOUS VACCINES.*

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Empiricism is dying. Throughout the last century and particularly its latter decades, the searchlight of truth has lighted up many of the heretofore dark places in the study and practice of medicine. The discovery of the causation of many diseases through bacterial agencies was epoch-making and led the way naturally toward the introduction of measures able to cope with such a foe.

During the last thirty years scores of men have been at work on this problem and have each added their little to the sum total of our present knowledge and from the time of Jenner one startling etiologic and therapeutic discovery has followed another, so that among the names destined to live will always be found those of Pasteur, Koch, Pfeiffer, Ehrlich, Behring, Wassermann, Nogouchi and others.

Bacteria are divided into two classes, the good and the bad—Saprophytic and Pathogenic. The Saprophytic bacteria are scavengers; they thrive best on dead tissues and assist in freeing the body of many waste products. Pathogenic bacteria thrive best on the living tissues of the host in whom they are capable of producing disease. Their pathogenic action is due to the liberation of the toxins they contain or the elaboration of poisons in the tissues of the host.

Of these bacterial toxins there are two main types: The Exo-toxins, contained in bacteria whose poisonous principles are capable of being dissolved out of the bacterial cell. To this class belong the Bacillus of Diphtheria and the Bacillus of Tetanus. The great majority of bacteria, however, produce Endo-toxins, or poisons which are incapable of separation from the cell bodies by any of our known filtration methods. Examples of this are the Bacillus of Typhoid Fever and the Streptococcic and Staphylococcic groups.

While bacteria are capable of producing disease it is not through their mere presence *per se*, for as we know, our persons in health permit of the culturization of numerous pathogenic bacteria, therefore, other factors must enter in and these factors comprise the natural defensive mechanism of the body against disease.

Natural Resistance: This varies greatly with the individual and has a certain selective action, for why is it that one person can harbor in his mouth virulent Pneumococci and Streptococci and yet can go through life without a single attack

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of pneumonia and, conversely, be subject to repeated attacks of tonsillitis, whereas, another individual harboring the same organisms may have several attacks of pneumonia during his life time and none of tonsillitis. This is due to the development of what we call *immunity*, which is the power of resistance the body tissues are capable to exert against bacterial poisons. *Immunity* may be divided into *species* and *racial immunity*.

Species Immunity: It is well known that many animals are naturally immune to disease common to man and that it is only with the greatest experimental difficulties that infections with these diseases can be made successful.

Racial Immunity: Also among the different races of the same species there appears to be a natural immunity against certain diseases, which have long been prevalent in that particular section, and which when carried to another section where fresh soil is obtained immediately light up into virulent epidemics. This is seen in the ravages of tuberculosis among the Negroes and the American Indians, and it is seen conversely in the immunity from yellow fever that has long been enjoyed by the Negro.

Acquired immunity is the protection that is afforded an individual who has passed through an attack of one disease, this conferring a greater resistance to that disease in the future. This is commonly observed in diseases like typhoid and yellow fever. Acquired immunity may be either active or passive. The process of conferring protection by treatment with either an attenuated form or a sublethal quantity of the infectious agent of a disease or its products, is spoken of as "Active Immunization," because the immunized individuals gain their power of resistance by taking an active physiological part in the acquisition of this new property of "Immunity." Thus active immunity can be acquired by repeated injections of attenuated cultures, as in Pasteur's work in hog cholera; by injections of sublethal doses of virulent bacteria as demonstrated in the protozoan disease of Texas fever; by injections of killed bacteria, first suggested by Chauveau. This method of active immunization with gradually increasing doses of killed bacteria, has been carried out successfully against many bacterial diseases. It is particularly useful against those groups of bacteria producing Endo-toxins and finally by injections with bacterial products from poisons excreted or liberated from the bacterial cell body. These measures comprise *vaccination*.

Passive immunity, on the contrary, is that gained by the host through no active formation of anti-bodies on its own part, but rather accepting ready to hand the anti-bodies prepared by the tissues of another species. The most conspicuous types of this are the anti-diphtheritic and anti-tetanic sera. These are both designed to meet bacterial exo-toxins and it is this type of sera that is most successful. On the contrary anti-gonococcic, anti-streptococcic sera and the like, which depend for their activity on the lysin, opsonin and other anti-bodies they contain, are not blessed with a like therapeutic success. Allen states that "these sera are not always curative, indeed, their use during active disease may not be altogether free from danger. Thus the administration of anti-cholera or anti-typhoid serum, which each depend for their activity on the lysin they contain, may result in the extra-leucocytic lysis of so many bacteria that the resultant

flooding of the tissues with large quantities of their contained endotoxin may imperil the life of the recipient from the additional toxæmia."

Bacteria have a selective action, not only must they gain access to the body in large enough numbers and possessing sufficient virulence, but they must also gain entrance to a tissue that is suitable for their further development. For instance, you can rub a typhoid culture into an abraded surface of the arm or a culture of streptococci can be swallowed, both with equal impunity, but reversing the conditions a bacterial infection is sure to follow.

Now what are the general defenses of the body against this bacterial invasion? They are fourfold:

1. *Antitoxins*, or substances manufactured by the tissues which are capable of neutralizing the soluble toxins produced by certain groups of bacteria.

2. *Agglutinin*, a substance which causes bacteria free in the tissues of blood stream to be clumped together in masses and held nearly immovable and therefore more accessible for phagocytosis. This is the more conspicuous where it concerns the motile bacteria. Though originally observed in 1889 by Charrin and Rogers, in studying the *Bac. Pyocyaneus*, the agglutination reaction is commonly associated with Widal, who first applied the phenomenon in the diagnosis of disease by an unknown organism.

3. *Lysin*, a substance or substances elaborated by the body which has the property of dissolving certain bacteria. Pfeiffer noted that guinea pigs which had been immunized against cholera bacilli could withstand the intra-peritoneal injection of further virulent cultures without harm and found that the peritoneal fluids dissolved the organisms.

4. *Opsonin*, discovered and named by Wright, is a substance that prepares or sensitizes the bacteria for ingestion by the phagocytic elements of the white blood corpuscles.

There are two types of bacterial infection, local and general. The former is best represented by boils, the latter is seen in diseases like typhoid fever, pneumonia, puerperal sepsis and the like. When a person recovers from a bacterial disease like typhoid fever, it is by the body having gradually elaborated the foregoing anti-toxins, agglutinins, lysins and opsonins in amount sufficient to cause the neutralization, destruction and solution of the bacteria. The time required in the manufacture of these substances varies in different diseases, 21 to 28 days, as a rule, in typhoid fever; 9 to 11 days, as a rule, in pneumonia, etc. So we have two biologic methods of treatment, serum and vaccine treatment, and the principle of the former is to supply these protective substances ready made (passive immunity), and in vaccination to stimulate the tissues to reproduce them more quickly, and, in as much as diseased tissues are more sluggish, in locally manufacturing them, to utilize or exploit healthy tissues for the advantage of the enfeebled ones. This then is the scientific basis for the action of vaccines. And now what are vaccines?

Vaccines are emulsions of the bodies of dead bacteria killed in various ways and suspended in suitable dosage in a solution of normal saline.

There are two types of vaccines—heterogenous and autogenous. Heterogenous vaccines are prepared from infections similar to the case which is to be

treated, but from infected material not derived from the patient himself. This type of vaccine may be and usually is polyvalent; that is, cultures are obtained from several infections of the same nature, and therefore represent, possibly, several "strains" of the same organism. These heterogenous vaccines are commonly called "stock vaccines," perhaps, because they are prepared in quantities and held in readiness to be used in a given case on demand.

Autogenous vaccines are prepared from cultures grown from infected material and obtained from the patient himself. In other words they represent, and are specifically, the organism from the effects of which the patient is suffering and toward which you are assisting the patient to establish an immunity. Knowing these differences, it is not difficult to understand that biologists, bacteriologists, serologists and clinicians of the thinking type, are agreed that the autogenous group of vaccines fulfill best the scientific therapeutic requirements. Let me quote from an article recently published by a man whose authority is unquestioned: "With the exception of certain organisms, such as tubercle bacillus and the gonococcus, there is little reason for employing stock vaccines instead of autogenous, and there is abundant ground for believing that the use of stock vaccines will not only lead to carelessness of diagnosis and misinterpretation of the probable nature of the infection, with consequent administration of the wrong species, but will sometimes be directly harmful. I am well aware that the argument has been advanced that laboratories are not sufficiently available to practitioners in all sections to make it possible for them to obtain autogenous vaccines, and would reply that, in a measure, this may sometimes be true, but the general demand for stock vaccines has been artificially stimulated by manufacturers, and the practical application of this method of treatment has out-distanced the scientific investigation of its merits. Instead of wholesome growth with the gradual provisions of local agencies where autogenous vaccines could be obtained, an unwholesome growth of this mode of treatment has been stimulated and those who seek to keep up with the latest pronouncement of advertised literature find themselves in a position of dependence upon stock vaccines in many cases. There can be no doubt that in some instances stock vaccines are satisfactory. Staphylococcus and typhoid and tuberculosis vaccines are instances, but the other forms, and especially streptococcus and pneumococcus and mixed vaccines, are of very doubtful efficacy.

"Here we come upon the field or variability in the organisms themselves and unless a growth has been prepared from the patient himself, the strain may be entirely different and inappropriate. It avails little to use mixed strains which require the reduction of dosage of the one possibly present and available strain below the point of usefulness, because of the simultaneous injection of several other strains in the mixture, which are of no use, or practically useless.

"As for stock mixture of heterogenous organisms designed for the treatment of cases in which no sort of accurate bacteriological diagnosis has been made, too vigorous condemnation cannot be phrased."

In my own personal experience I have met with many cases referred to me by other practitioners, cases on whom various stock vaccines had been tried for various lengths of time, in various dosages, with absolutely no improvement, and which have responded with surprising promptness to an autogenous vaccine

and have established an immunity that in many cases has lasted for years, and I, personally, have used in some cases stock vaccines of differing types, giving them a thorough trial, only to become discouraged at their non-success, and have discarded them for autogenous vaccines, with gratifying results.

On the other hand, I believe that stock vaccines of a single or of a polyvalent single organism type have their place, and a very important place, of usefulness in the (46-69) hour interval that is often necessary to prepare the autogenous vaccine, after the bacterial identification in the specific case has been established, and I, almost uniformly, use this period to give one and sometimes two injections of the appropriate stock culture. Appropriate stock vaccines may also be used with advantage in association with autogenous vaccines in suitable cases.

A word or two now to ensure success in getting the proper bacterial results in culture taking:—The first principle is to obtain your material free from contamination, and this requires the observance of special precautions according to the kind of material that is to be cultured.

Urines: Should always be obtained by sterile catheter, after the external meatus has been properly cleansed, and drawn off into a sterilized flask or bottle to which no preservative is to be added. It is better to catheterize the day specimen into one receptacle and the night specimen into another.

Feces: Should be obtained urine free, and specimens from first and last portion of the stool obtained and studied.

Sputum: Should be obtained with greatest care, because for practical purposes no mouth is germ free, and alveolar pyorrhœa, infected tonsils and the like are so common. Before retiring, the mouth should be carefully rinsed with sterile water and the teeth brushed with a sterilized tooth-brush, and a closed vessel containing sterile water, placed at the bedside. In the morning, the mouth should again be rinsed thoroughly with the sterile water, gargled, and with the brush re-sterilized, by dipping in boiling water, the teeth should be thoroughly brushed, and then a few mouthfuls of clean sterile water should be swallowed. After this, the sputum should be expelled by coughing and caught in serial, sterilized, wide-mouth bottles (with sterile corks). It is best that only one or two masses of sputum should be expelled into any one bottle, and the bottles labeled and sent at once to the bacteriologist for immediate examination.

The sputum should, after direct examination of stained specimens to determine morphologically the different types that may be present, be then "whipped" through several petri dishes containing sterile water, to further free the bacteria from surface contamination, and the final washed specimen planted upon the different culture-media that appears best suited for their recovery in pure culture, as judged from the findings on the first direct examination.

Cultures taken from boils or from infected sinuses, from acne pustules, from tonsillar follicles, and the like, should be made only after thorough appropriate cleansing and disinfection of surface relations, and then taken from a second or third portion of the material, discarding the first, by means of a platinum wire or a sterile capillary glass pipette inserted well within the cavity.

Cultures from eye, ear or nose should be taken with appropriate measures to ensure success.

Blood specimens should always be obtained from a vein, preferably that at the bend of the elbow, by means of an all-glass sterilized syringe of a capacity of not less than 5 cc. It is rarely, if ever, necessary to cut down on a vein, but the arm should be thoroughly sterilized by tincture of green soap and water, by 5-10 percent lysol, by absolute alcohol and finally by ether—personally, I prefer not to use iodine. It is better to moderately tourniquet the upper arm before sterilizing in order to prevent thin-walled veins from collapsing under the pressure. The blood should be immediately plated and flaked in peptone and dextrosed-broth.

In pulmonary abscesses, in suitable cases material may be obtained by lung puncture in the following way:—after sterilizing the chest wall in the same manner as for blood cultures, the needle attached to an all-glass syringe containing 3 cc. of peptone broth should be plunged into the lung at the proper point, as determined beforehand by clinical means, and 1 cc. of the broth introduced and reaspirated as far as possible and tubed. This measure will yield results in many cases properly selected clinically.

After getting suspected infected material, direct examination by means of variously-stained slide specimens should be made to determine morphologically and by staining reactions and relations, whether one or more types of organisms are present and if the latter how many and what types, and then, aided by this knowledge, proceed to utilize the various culture media that will best ensure recovery of each organism in pure culture. Here is where the thoroughly trained bacteriologist will succeed and in the shortest time. It is often exceedingly difficult to recover a shyly growing streptococcus or tubercle bacillus occurring in small numbers, let us say from a urine practically alive with the bacillus coli. This may be accomplished by inhibiting or attenuating the growth of the hardier, more freely growing organism, by treating the culture medium in an appropriate manner, but unless this is accomplished it will be seen at once how useless it is to successfully treat pyelitis of streptococcal or tubercular origin by using only the B. Coli in the vaccine preparation. Hence the failure of many autogenous vaccines that are bacteriologically imperfect or incomplete.

In many cases of chronic gleet, however, the gonococcus is absent, and the catarrhal inflammation is kept alive by secondary invaders which may then, in combination, serve for cure in absence of the primary invader.

After getting out every bacterial group contained in a given specimen, each in pure culture, these should then be studied with a view to ascertain their share in the production or continuation of the disease in question and guided by experience, clinical as well as bacteriological, a final judgment of the organisms concerned may be passed and the proper ones selected for use in the vaccine. They may all be combined in a single ampoule or may be placed singly or in pairs. Only the lower dosages, however, can be reached by making a mixed vaccine composed of many elements on account of the combined dosage being too high to permit of safe injection.

We can now proceed to prepare the vaccine, in which the following steps are concerned:

1. To obtain an emulsion containing the bacteria impurity—an emulsion with a uniform suspension and as free from bacterial clumping as possible.

2. To standardize the emulsion—that is to determine how many bacteria are contained in each cubic centimeter.

3. To kill the bacteria in the emulsion and tube them—or

4. To decide upon the dosage of each ampoule or set of ampoules; to tube them still alive and then kill them.

5. To label, effectively, each ampoule and place them in sets of ten in compartment-boxes or cartons, the lids of which are to be specifically marked with the names of the organisms they contain and in what dosage and, most particularly, with directions for their use.

6. To be sure that all “controls” are sterile before allowing the vaccine set to leave the laboratory for use.

I shall not, in this paper, enter in detail into the technique required in the actual preparation of the vaccine, but I want to say a word or two of caution regarding the best ways of killing the bacteria without impairing their immunizing properties. This can only be accomplished by a thorough knowledge of an observance of the thermal death-point of each group of organisms; a knowledge that will tell you which bacteria should be killed by heat, and which by chemical measures, or by a combination of the two. If by heat, at what temperature and for how long sustained? If by chemical sterilization, by what chemical and in what strength? I have known many autogenous vaccines—otherwise quite appropriately selected bacteriologically and faultlessly prepared, to be inert and to fail absolutely therapeutically, for no other reason than that the thermal and chemical death-points were not carefully ascertained. And I doubt not that this applies equally to many stock vaccines.

Have we in vaccine therapy a means sufficient to combat all types of bacterial infections? I would answer emphatically “No,” and I would add that harm may often come from their indiscriminate use and from use in the hands of the inexperienced and careless.

In epidemic meningitis, in typhoid fever, in pneumonia, in generalized bacteraemia, with or without ulcerative endocardial lesions, the use of vaccines for curative purposes has not been attended with great success, although, occasionally, a case is seen in which amelioration in severity of symptoms has taken place which rightfully or wrongly has been ascribed to the use of the vaccine. I am by no means yet convinced that their use in such cases is unjustifiable and believe that we may yet arrive by experience at some method of establishing appropriate dosage and proper intervals of injection for this class of acute fulminating infections that will produce better results.

The most suitable field for vaccines, and the field in which the most brilliant results have been obtained, lies in treatment of diseases, acute or chronic, that have local foci of infection, such as, furunculosis, carbuncles, abscesses, various bone diseases, such as osteomyelitis, various skin diseases, such as acne-vulgaris, infected sinuses, pyelitis, empyema, various infections of the mouth, such as pyorrhœa alveolaris, infections of the nose and nasal passages, various post-gonorrhœal conditions and various diseases of the respiratory tract, such as pulmonary abscesses.

And now a final word as to why vaccines fail in the hands of many workers, even in the above field of election—it is chiefly because of insufficient knowledge

governing the general laws of dosage and time intervals of injection; by selecting inappropriate points of injection; by disregarding the best time of day at which injection should be given, so that the patient is not protected during the "negative phase" period, at which his anti-body formation is at the lowest ebb, etc., etc. For information upon many of these points I would refer the student or interested worker, to a close perusal of monographs on this subject, notably, Allen on "Vaccine Therapy."

Finally, I would call attention to a common cause of failure from a neglect to realize that autogenous vaccines need to be freshly renewed—i. e., a new culture taken and a new vaccine prepared from cultures that represent more nearly the *status praesens* of the case, for it frequently happens that, in long chronic conditions, the bacteria by mutation or other biological properties, become adapted more or less to the anti-bodies formed in the tissues of the host.

I was asked, before reading this paper to this body, whether I did not think it quite feasible and proper for druggists to establish autogenous and stock vaccine departments for the purpose of themselves *making* these products. I do not think it is practical, nor fitting that you should, nor do I believe that the attempt would prove, commercially, a success. And I will close with the words of Sir Almroth Wright, one of the pioneers in this work, who states that for such skilled service as that demanded for vaccine therapy,—“is required a man who has spent years of study to master the technic; to know how to make the vaccines; to know where to look for the microbes; to know how to isolate them; and, most of all, a man with sufficient experience and ability to apply all these things.”

DISCUSSION BY DR. JOSEPH HEAD.

Vaccine treatment is only successful when all the depots of infection of the body have been first eliminated by careful diagnosis and judicious treatment. This is particularly the case with pyorrhea alveolaris which I have treated with autogenous vaccines in over seventy cases. Judicious co-operation with the family doctor should be established. All local depots of infection in the mouth should be removed by surgical means in order that the antibodies formed in the blood by the vaccine should have full opportunity to come in contact with the areas of infected tissue. If this is not done and the bacterial masses are left around the teeth and in the gums the antibodies can only attack the exterior portions of this bacterial mass and failures will inevitably result from the vaccine treatment.

I have found in my bacterial examinations of pyorrhea-pockets that there are six principal germs, viz., staphylococcus, streptococcus pyogenes, streptococcus viridans, micrococcus catarrhalis, bacillus influenza, pneumococcus and diphtheroids. In the cases just mentioned these predominate in over 95%, there being an occasional scattering of tetragenus, Friedlander's bacillus and an occasional unrecognizable germ. The reason that my results have been so consistent is probably due to the fact that the technique used for obtaining the material for the autogenous vaccine is such as to exclude the extraneous flora of the mouth.

This technique is as follows: A thin platinum spear of 1/3000 of an inch in thickness is used for obtaining the material for the vaccine. The external portion of the pocket is cauterized with a cautery, then the thin platinum spear heated to a cherry red is plunged to the bottom of the pocket. When this is withdrawn the material contained thereon is supposed to come from the deep walls of the pocket where the controlling infection is supposed to reside. The spear, on being removed, is streaked across the blood agar and sent to the laboratory the same day, where the bacteria are carefully segregated and mixed, according to their species, in the sterile salt solution. Streptococci, micrococci catarrhalis, pneumococci

and bacilli influenza are made up 50 million to the cc. and staphylococci made up 300 million to the cc.

The dosage is a very important factor in this treatment. We should remember in giving vaccines that we are dealing with a substance as vital for good or evil as strychnine or belladonna. Vaccines are not simple remedies as Vaughan's investigations have so beautifully shown. It is my habit to start with a dose containing about five million streptococci and thirty million staphylococci. This is increased steadily week by week until either the full cubic centimeter is given or the patient shows signs of reaction which is made evident by nausea, congestion of the forehead, faintness, purging of the bowels or sharp neuralgic or gouty pains. When these are developed and last for over twenty-four hours, it is always a sign that the dose should be stopped temporarily for a week and then given in very much reduced quantities,—one-half at least. This should be slowly and cautiously raised again, and if possible, kept within the amount that will reproduce the reaction, as it has been my experience that small doses give better results than large. We should always be on the lookout for reaction in giving our doses. Sometimes five or six doses of the same size can be readily accepted and the seventh dose will give a sharp severe reaction. This, according to Vaughan, would indicate that the digestion of the vaccine in the blood has not been complete, and the protein poison is being developed faster than the body can eliminate it.

In closing, I would say that the vaccine treatment is of unquestioned value and in obstinate cases should always be given a fair trial.

A WORD ABOUT PACKAGES AND LABELS.

People are very exacting as to what comes from a drug store; not only must the goods be of the best quality, but the packages in which they are put up must appeal to the sense of neatness. The dry-goods clerk, the shoe clerk, the grocer—in fact, salesmen in all other trades—do not care much about the appearance of the packages they send out. A sheet of paper twisted or rolled around the article, a piece of string, and the thing is done; and nothing better is expected. But with the druggist it is different. We wonder how many druggists appreciate the effect of a neatly-tied package or a simple, neatly-printed label, upon their customers. And yet we know of people who prefer a certain store to another for no other reason than that the goods sent out of it are neater than those coming from the other. What is true of parcel wrappings also holds for labels. A great deal of improvement is noticeable in this respect within the last twenty years. We remember the fantastic labels sported in many drug stores at the time the Japanese art craze swept this nation. Label makers swam with the stream, and some of their efforts were gorgeous beyond belief—so gorgeous that the lettering on the labels was completely lost in the maze of decorative detail. Labels of this kind are seldom seen nowadays, but they turn up once in a while in some obscure village. The intelligent public would not tolerate such things nowadays.

Have your packages neat and your labels plain.—*National Druggist*.

Contributed and Selected

INFECTION AND IMMUNITY—A REVIEW.

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DETROIT, MICH.

(Continued from page 568.)

6. SPECIAL PHENOMENA OF IMMUNITY. It has been shown that antitoxins, according to Ehrlich's scheme, are cast-off receptors of the first order, and that in order to explain other phenomena occurring in immunity, as agglutination, precipitation, cytolysis, bacteriolysis, and hemolysis, it becomes necessary to demonstrate other orders of receptors.

Agglutinins. In 1895 Grüber and Durham discovered that when a few drops of an antibacterial serum were added to a suspension of homologous or corresponding bacteria, the micro-organisms within a short time would be found in clumps. This phenomenon was termed agglutination, and was said to be due to definite bodies in the serum called agglutinins. The practical application of this reaction to the diagnosis of typhoid fever was brought out independently by Grünbaum and Widal, although Widal was the first to publish his results. The Widal reaction, or the phenomenon of agglutination, may be produced by most of the antibacterial serums, and observed, therefore, in many of the bacterial infections, although the reaction is variable, and is more specific and definite in some than others. The cast-off receptors or agglutinins, which have to do with the formation of the clumps in the phenomenon of agglutination, have not only a haptophore affinity as in the case of receptors of the first order, but also another group, called a zymophore group. When an animal is immunized to a certain micro-organism, these receptors of the second order are formed along with others, and many of them of course are liberated. These cast-off receptors or agglutinins, therefore, attach themselves to the specific bacteria by means of the haptophore affinity, and produce the agglutination by means of the zymophore group acting upon these attached micro-organisms. The haptophore group selects and picks up the bacteria, while the zymophore group produces the reaction.

Precipitins. The receptors concerned in the precipitation reaction are formed similar to those in the agglutination reaction. When the blood or serum of a human being is repeatedly injected into the peritoneal cavity of a rabbit, the serum of that rabbit acquires the property of precipitating the human serum, if mixed in the test tube. The receptors or precipitins are formed and liberated

during the injections of serum into the rabbit. These receptors have a haptophore affinity which attaches itself to the serum of the human being, while the zymophore group produces the precipitation. If the serum of this rabbit is mixed with the serum of any other animal, the reaction will not take place, for this haptophore group can only attach itself to human serum, and the zymophore group can only react when the haptophore group is thus attached. The reaction is, therefore, a specific test for the presence of blood.

Cytolysins. It has been found that when suspensions of various cells are injected into an animal, certain substances are formed in that animal and found in the serum which are injurious to cells similar to those injected. The cells injected may be bacterial cells, blood cells, epithelial cells, renal cells, hepatic cells, and others, but it must be borne in mind that the destructive bodies are specific only for the kind of cells injected. For instance, if we inject red blood cells from a human being into a rabbit, then the serum of that rabbit will be injurious to human red blood cells but not to kidney cells or liver cells, and not red blood cells of any other species. It can be seen that in order to explain this phenomenon it becomes necessary to have a more elaborate receptor or side chain than for any of the previous combinations. At least two distinct substances are formed which react upon the cells in question, and these two substances must be able to combine with each other before the reaction can take place. These two combining substances are termed amboceptor and complement. The amboceptor, the immune body or receptor, is formed by the body cells during the process of injecting the red blood cells, bacteria or other cells, while the complement is always present, and, therefore, a normal constituent of the serum. The immune body or amboceptor, which is the cast-off receptor, must not only be able to unite with the specific cell, similar to the antitoxin of the first order, and the agglutinin of the second order, but go a step further and unite with another substance or body, the complement. It therefore must have two haptophore affinities, one for the complement and one for the specific cell. The final reaction, the destruction of the cells, is produced, however, by the complement, and although this is present in the normal serum, it cannot perform its function without the aid of the amboceptor, which is only formed by the injection of the cells.

Opsonins. In studying the action of phagocytes on bacteria, it has been found that it is not primarily a reaction between the leucocytes and bacteria, as was thought by Metchnikoff and his school, but is a more complicated reaction. Wright and Douglas have demonstrated that certain substances in the blood serum are necessary before the reaction can take place. These substances which act upon the bacteria and prepare them for the leucocytes, are called opsonins. What sort of changes the opsonins produce in the bacteria, rendering them susceptible to the action of the leucocytes, is not known.

Hektoen and Rurdiger have shown that the opsonins resemble the toxins, in that they apparently have a toxophore and haptophore group, one to unite with the bacteria and the other with the leucocytes. The relationship between the opsonins and the other immune substances, as the agglutinins and cytolysins,

has practically been proven, so it appears that the opsonic theory represents a connecting link between the phagocytic theory of Metchnikoff and the side-chain theory of Ehrlich. It may possibly be demonstrated, in the future, that Ehrlich's theory is simply an aid in explaining the action of the phagocytes in infection, and that, after all, the leucocytes may have the most important part to play in the phenomena of immunity.

7. ANAPHYLAXIS AND SERUM SICKNESS. One of the best descriptions of anaphylaxis is given by Hiss and Zinsser. "By anaphylaxis is meant the following train of phenomena: When a foreign proteid is introduced by subcutaneous, intraperitoneal, intravenous or subdural injection (or in some cases by feeding) into the animal body, after a time there will appear a specific hypersusceptibility of the animal for this proteid. After a definite interval, a second injection of the same substance, harmless in itself, will produce violent symptoms of illness and often rapid death in an animal so prepared. The phenomena are not limited to any given class of proteids, but are manifest in the case of animal, vegetable and bacterial proteids, and within certain limits are specific." A typical reaction may be seen in a guinea pig which has been injected with normal horse serum. Following an extremely small initial dose of the proteid (0.004 cc.) the anaphylactic state usually develops after ten to fourteen days. After a large dose the time required for the development of the anaphylaxis is usually longer; it may even extend over weeks or months. Many theories have been offered for the explanation of the phenomenon of anaphylaxis, but none are at all satisfactory. Without going into the exposition of these different theories, we will take up one which seems to offer the most plausible and at the same time the simplest interpretation of all.

It has been found that the proteid molecule, on being split up by chemical methods, contains a toxic and a non-toxic substance. It has also been determined that this toxic substance is unlike the toxin formed by the diphtheria bacillus, in that it does not produce a neutralizing body similar to antitoxin, when injected into an animal. It does seem to produce, however, a substance or body resembling the hemolysins, termed proteolysin, which is capable of breaking up any molecule of the same substance, which may be subsequently injected after a certain length of time. The hemolysins break up the red blood cells, setting free the toxic portion. The toxic portion of the proteid molecule is extremely poisonous, and if enough is set free in the animal, fatal results will follow within a few minutes. By making a direct application of this theory, let us see how anaphylaxis may take place in a guinea pig. A small amount of horse serum (0.004 cc.) is injected into a guinea pig. The proteid of this serum contains a toxic substance, which, acting upon the guinea pig, produces a body we have called proteolysin. The body does not form at once, but appears to take about ten days, and when once formed will remain in the guinea pig for the remainder of its life. Now after the required interval the guinea pig is again injected with horse serum, this time, however, with a much larger dose. The body or substance, the proteolysin, which was formed by the guinea pig following the first dose of serum, now acts upon the proteid of the second dose of

serum, splitting it up at once into the toxic and non-toxic parts. On account of the large amount of serum constituting the second dose the amount of toxin set free must be relatively large, and acting upon the tissues of the guinea pig produce a train of symptoms recognized as the phenomenon of anaphylaxis. Vaughan and Wheeler, of Ann Arbor, were able to separate the proteid molecule into a toxic and non-toxic portion, and with the toxic portion experimentally produce symptoms similar to anaphylaxis, so it would seem that the theory so far is well founded.

The facts as regards anaphylaxis of which we are practically certain are as follows:

1. A condition of hypersusceptibility or hypersensitiveness is produced when a small quantity of proteid is injected, and a condition of immunity is produced when a sufficiently large dose is given.
2. The symptoms are more severe and specific the smaller the first or sensitizing dose, to a certain limit.
3. If a dose is given the animal some time between the first or sensitizing dose, after the first day, and the second or fatal dose, a condition of antianaphylaxis is produced which immunizes the animal to the fatal dose.
4. The condition of anaphylaxis may be transmitted from a sensitized animal to another through the serum, which is termed passive anaphylaxis.
5. The condition of anaphylaxis may be transmitted from mother to offspring.
6. Animals sensitized to one proteid are not sensitive to subsequent injections of other proteids; the reaction, therefore, being more or less specific.
7. The quantity for the second injection should be considerably larger than the first or sensitizing dose.
8. Animals recovering from the second injection are thereafter immune to the same substance.
9. After ten days following the sensitizing dose the animal is always susceptible to the second dose.

Other phenomena somewhat of this nature, which probably depend upon the principles involved in anaphylaxis, or at least in hypersensitization (allergy), are seen in the tuberculin and mallein reactions. The animal or individual is probably sensitized by the primary infection, while the injection of the mallein or tuberculin produced the typical reaction, which is slight, and which is due to the small amount of the dose. If the dose is large very severe symptoms or even death have been known to follow. Another condition or reaction, which has been compared to anaphylaxis, is that of serum-sickness. It has been known for several years that the injection of antitoxic sera in human beings is often followed by various skin eruptions, pain in the joints, swelling of the lymph glands, often albuminuria and fever. These symptoms appeared after an incubation of from two to ten days. It was also early found that these symptoms had nothing to do with the antitoxic reaction of the serum, but were dependent upon properties peculiar to the serum itself. Normal horse serum will produce

the same symptoms. It seems certain that anaphylaxis has something to do with these conditions, but we are unable to determine the exact relationship. Anaphylaxis in animals only follows the second injection, whereas serum-sickness often follows the first injection. The patient is the more liable to the condition the greater the number of injections given. The size of the dose does not seem to make much difference in serum-sickness. The phenomenon of serum-sickness is seen in about 20 per cent. of the cases injected with antitoxic serum. The symptoms may at times be troublesome, but fatal cases traceable to serum-sickness are unknown, or at least have not been proven. There are a few cases on record where death followed suddenly on the injection of antitoxic serum, but these are very rare, although very magnified by opponents of serum-therapy. This condition has been termed sudden death. While it would appear, in explanation of this condition, that the fatal symptoms were traceable in some way to anaphylaxis, other suggestions have been offered which seem much more plausible, as they have been to a certain extent, backed up by the post-mortem findings, such as the shock of the injection upon an already overburdened heart, or upon one suffering from the condition known as status lymphaticus.

Knowing that the larger part of the antitoxin is contained in the globulins of the serum, it has been found advantageous to use these globulins in the prophylaxis and treatment of diphtheria in place of the whole serum. As a result, the percentage of cases of serum sickness have been greatly reduced. This is explained on the assumption that as the amount of proteids injected are necessarily decreased, the chances of proteid poisoning are lessened. Although serum sickness is of less frequent occurrence than formerly, showing the relative increase in the safety of the globulin over the whole serum, yet a point has been raised as to the relative immunizing value of the globulins as compared to the whole serum, and, along the same line, the relative value of serums of high antitoxic potency as compared to those of low. It has been suggested that we do not obtain the same results, unit for unit, with serums of concentrated antitoxic content as we did when this method of specific therapeutics was first inaugurated and large quantities had to be injected due to the low antitoxic content of the serums. That is to say, some maintain that we do not obtain relatively the same therapeutic results, from the immunity point of view, with 1 cc. of a globulin containing 3000 units per cc. or 3 cc. of a serum containing 1000 units per cc. as we did with 10 cc. of a serum containing only 300 units per cc. This is a point which only time and experience can answer.

The following table will compare fairly well the three conditions, according to the facts we have been able to obtain up to the present time:

Anaphylaxis.	Serum Sickness.	Sudden Death.
1. Condition is manifest only after second injection.	1. Condition often manifest after first injection.	1. Condition usually manifest after first injection.
2. Symptoms appear within an hour. Difficult to kill within five minutes.	2. Symptoms usually appear after an incubation from two to ten days.	2. Symptoms appear immediately.
3. Very severe symptoms, usually resulting fatally.	3. Symptoms disappear within a few days and leave no bad results.	3. Symptoms always result fatally.
4. Fatal dose must be very large in proportion to therapeutic dose for man. 5 cc. for a guinea-pig, corresponding to 3 mints for a man.	4. Size of dose of little importance.	4. Size of dose apparently not important.
5. Animal must be "sensitized" by a previous dose of the same proteid, with an interval of at least 10 days.	5. Previous dose apparently not necessary.	5. Previous dose apparently not necessary.
6. If a dose is given the animal some time between the first dose and the fatal or second dose, the animal will be immunized to the last dose.	6. Not known; experimental.	6. Not known.
7. The condition of anaphylaxis may be transmitted from a sensitized animal to another through the serum (Passive Anaphylaxis).	7. Not known.	7. Not known.
8. The condition of anaphylaxis may be transmitted from mother to offspring.	8. Not known; may be possible.	8. Not known.
9. Animals sensitized to one proteid are not sensitive to subsequent injections of other proteids.	9. Not known; probable.	9. Not known.
10. Animals recovering from the second injection are thereafter immune to the same substance.	10. The patient is the more liable to the condition the greater the number of injections given.	10.

8. RELATION OF BIOLOGIC PRODUCTS TO IMMUNITY.

Bacterial Vaccines (dead bacteria), active immunity.

Smallpox Vaccine (attenuated virus), active immunity.

Blackleg Vaccine (attenuated organisms), active immunity.

Anthrax Vaccine, Pasteur (attenuated organisms), active immunity.

Antitoxic Sera (blood serum), passive immunity.

Antibacterial Sera (blood serum), passive immunity.

Tuberculin (dead bacteria and bacterial products), active immunity.

Rabies Vaccine (attenuated virus), active immunity.

PREVENTION OF GASTRIC DISTURBANCE BY SODIUM CARBONATE, IODIDS, OIL OF SANDALWOOD AND SIMILAR DRUGS.

EDGAR G. BALLENGER, M D., AND OMAR F. ELDER, M. D.

For a number of years we have been working to discover some method of obviating the gastric disturbance which is produced by remedies such as potassium iodid, oil of sandalwood, sodium salicylate, sodium carbonate, etc. This we have finally and satisfactorily accomplished. Remedies, such as oil of sandalwood, creosote and oleoresins administered in soft gelatin capsules may be prevented from disturbing the stomach by the process of hardening with formaldehyde the capsules in which they are placed.

Only slight hardening is necessary, especially if the capsules are kept for some time, as additional hardening comes with age. At first we immersed the filled capsules for one minute in a dilution of 1 part 40 percent formaldehyde solution to from 40 to 60 parts of water. The strength should vary with the aging allowed.

From the time that the dilution mentioned is used two weeks should be allowed to intervene before administering the capsules. A more satisfactory method of preparing the capsules is to place them in open boxes in a closed vessel in which they are subjected to the vapor of the solution of liquor formaldehydi. About 15 cc. of the solution should be used for each cubic foot of space in the closed vessel. The solution should be placed on cotton or gauze in a saucer or tray. The time required for hardening the capsules varies with the temperature and with the time that is to be allowed before they are administered. Six hours' exposure or less is enough for capsules which are not to be administered at once, while twelve hours may be necessary in preparing capsules for immediate use. These estimates are made for ordinary soft gelatin capsules at the ordinary room temperature, from 70 to 75° F. The capsules become hardened so that they are not digested by the gastric juice, but are digested by the intestinal secretion, if they have not been subjected too much to the vapor, in which case they may pass undigested. If dilatation of the stomach is present and the capsules or food do not pass into the intestines within the usual time, a greater degree of hardening of the capsules may be necessary. For the ordinary normal person capsules prepared as previously described will prevent gastric disturbances by carrying the medicament into the intestines before the capsules burst.

An even more satisfactory method of carrying through the stomach such remedies as sodium carbonate, potassium iodid, sodium salicylate, etc., is obtained by combining the desired remedy with mutton-suet and paraffin. When incorporated in such a mass the medicament is uniformly carried into the intestines without dissolving, as the stomach does not secrete a fat digestant. The suet is digested as it passes down the intestines and thus

gradually the drug embodied in it is liberated. The paraffin is added to give additional hardness. The following combination is recommended:

	gm. or cc.	
℞ Sodii carbonatis monohydrati.....	90	℥ iii
Potassii iodidi.....	90	℥ iii
Sodii salicylatis.....	90	℥ iii
Sevi	30	℥ i
Paraffini	16	℥ iv
M. et fiat mass.		

All the ingredients should be melted over water and while melted encapsulated in 00 gelatin capsules. The capsules may be filled with a fruit spoon. The melted mixture should be of a creamy consistency, and the salt used should be previously powdered. The encapsulated product is a mass of the salt, the suet and the paraffin, is hard and remains unaffected by the gastric juice.

In the use of sodium carbonate, in the treatment of Bright's disease, as suggested by Martin H. Fischer, we have found this method of administration of decided value, as formerly it was quite difficult for the patient to take alkali in sufficient amounts to render the urine neutral or alkaline without producing gastric disturbance, with coated tongue and other symptoms.

The manner in which albuminuria and casts have disappeared under this treatment has been quite remarkable. A number of patients who had been declined as risks by insurance companies because of albuminuria and casts have been passed by the insurance examiners after a few months of alkaline treatment. In order to secure the desired result we have added $\frac{1}{4}$ grain of phenolsulphonephthalein to each capsule of the monohydrated sodium carbonate preparation and have advised the patients to take from five to eight capsules daily as indicated to keep the urine light pink. This method constantly assists in regulating the amount of alkali to individual and varying requirements. The patients do not object to the use of the monohydrated sodium carbonate when so administered and can continue it over a prolonged period, when necessary. Potassium iodid so administered does not disturb the stomach, but produces its other physiologic and therapeutic effects.

In the use of remedies such as pancreatin, which it is desirable to liberate at once in the intestines and not to have dissolve slowly, ordinary gelatin capsules should be subjected to the formaldehyde vapor as suggested for the soft gelatin capsules. These capsules do not digest in the stomach and therefore carry the remedy they contain through without its being acted on by the gastric secretion. The remedies which we suggest to be incorporated in the suet and paraffin cannot well be given in ordinary gelatin capsules, as they may cause intestinal disturbance by liberating the entire amount of monohydrated sodium carbonate or potassium iodid at one point in the intestine instead of gradually freeing the mass as they pass down the tract.

We advise that in preparing the capsules controls of methylene blue and oil of sandalwood be used in test capsules. If the capsules have been insufficiently hardened a glass of carbonated water taken two hours after the

capsule has been administered will show by the eructation whether or not the capsule has broken in the stomach. If the capsules are subjected to formaldehyde vapor too long or if the gas be too strong the urine may be slow in becoming blue, or may remain unchanged. Capsules intended for immediate use may be subjected to considerably more formaldehyde than may be used on those which are to be kept for a few months.—*Journal A. M. A.*, Vol. 62, p. 197.

THE ART OF ADVERTISEMENT WRITING.*

A. W. BROMLEY.

Advertising is a branch of the art of business, but advertisement writing is a branch of the art of literature. If we could question the men who are writing the best of the advertisements we see in the daily press I am sure we should find that the majority of them have passed to that work from the ranks of journalism, not from business. But the ability to write anything well consists principally of natural aptitude. Training is of less importance and is useless without the first qualification. The saying, "Poets are born, not made," is almost equally true of other writers. This sounds as though the chemist could not hope to write effective advertisements for himself. I do not think that is so. In the first place, it is impossible to write upon any subject without knowing something about it. and pharmacy is a difficult subject for an outsider to master. Secondly, the services of the really good men in the advertising business are not available for small retail shopkeepers in our business or any other. They are nearly all employed by the big agents and engaged upon the work of advertisers who are spending many thousands a year. I have seen the work of some of the self-styled experts, who offer their services to the drug trade, and I am convinced that the average chemist could produce better copy than anything I have seen from them.

Good Writing. I propose first to consider some of the ideals of good writing in general, and then to discuss their application to advertisement writing. You must remember that in writing you are setting the reader a task—to grasp, put together, and consider the thought you are expressing. You can make that task easy or difficult. Just take up in imagination a good but difficult novel of the Victorian period, and a bad but popular one published last year. You may find the former tires you if you are not very eager to read it, while the latter you can go on reading in spite of a gradually developing contempt. The reason is that the newer novel possesses the quality known as "readableness." You will see at once that this quality is absolutely essential in advertisement writing. The man who is reading a novel or a text-book may tolerate a style lacking this merit, because he hopes to enjoy or profit by his reading. But if he is reading an advertisement he has no particular desire to go on; he has only begun because

* Read before the North London Pharmacists' Association.

you have tricked him into doing so by means of a catchy headline or in some other way.

To write clearly you must have, first, a clear idea of what you want to say. Second, you must present your thoughts accurately and briefly, yet completely, and with a sense of proportion, emphasizing if possible what is most important. And you must avoid certain faults which will be likely to distract or confuse the reader. It is to the third requirement that I wish particularly to direct your attention. Suppose, for example, you drag in something that does not matter and does not help your argument. The reader may neglect your argument to consider it. Or, if you make a grammatical error or use a wrong expression, he will stop to criticise it. In either case, his mind is diverted from your argument to something else, and he does not grasp your meaning with the same clearness as if nothing had occurred to withdraw his attention.

Faults in Writing. The chief faults of a bad writer are—using words without considering their exact meaning, using too long sentences, and straining after effect. Some people write without thinking, using stock words and phrases. One of the worst offenders is, strange to say, a professional writer—the inferior journalist. With him a fire is a “devastating conflagration,” an oyster is a “succulent bivalve,” every funeral is a “solemn cortege,” and a pathetic incident is always either a “touching” or a “heartrending” scene. It was a man of this type who announced the death of a celebrity as having occurred after a “short but protracted illness.” Other expressions that would be avoided by thinking what a word means before writing it are “cheap prices,” “very moderate,” “very exceptional,” “unqualified pharmacist.” It is best for a writer who is not sure of his literary skill to use short sentences. There is far less risk of confusing himself and the reader. Always in advertisement writing I would recommend short sentences. Many short sentences following each other have a bad effect sometimes, but only in long compositions.

It is curious how a business man will write a dozen business letters in good English, and then write something for publication containing gross blunders. The reason is that he tries to be clever. I will not say, “Don’t try to be clever,” because if nobody tried to be clever probably nobody would be, and the world would be poorer. But the only cleverness desirable in writing is that which increases the clearness, force, or beauty of what you write.

A common fault in writing is to use too many words. This is called in different cases circumlocution, verbosity, tautology, and pleonasm. Circumlocution is an elaborate statement where a shorter, simpler one would convey the meaning quite as fully. All writing is a compromise between brevity and completeness; circumlocution errs on the side of the completeness. That sounds as though it were a good fault, but it is not; it is one of the worst. If you announce that your purse and money have been stolen, there is no need to mention that the money was in the purse. Legal language is often circumlocutory, but no doubt that is necessary. Verbosity is a form of circumlocution in which pompous language, out of proportion to the subject, is used. Sometimes circumlocution has a rhetorical or a humorous intention, in which cases it is justifiable. A schoolmaster once said to a boy who had left his study door open, “Let the

guardian of our secrets revolve upon its hinges." Tautology is where the same meaning is conveyed twice in different words; for example: It will cure your cough and drive it away. Pleonasm is the fault of including words in a sentence where the sense is complete without them, as in "They are both alike," "This is the better of the two." Pleonasm is often justifiable; it may make the meaning clearer. But in general superfluity is a bad fault in writing. Try to be as concise as possible. We can all think faster than we can read or speak; therefore, reading and speaking always delay thought. Superfluity delays it still more. That is why pictures are of such great value in advertising. A picture will convey in half a second what could not be conveyed in words in less than half a minute.

Slang to be Avoided. The word barbarism is used to indicate various outrages upon the language. Some would say that all slang is barbarism. I do not agree, but one must be very careful about slang. Consider the character of your composition before deciding to use a slang expression. Slang is inimical to dignity, but it may give vividness and force to a sentence. In general I would not use slang in advertisements. The ordinary writer must remember that he is not entitled to coin words; he must take the language as he finds it. Personally, I regard the use, by English business men of American business jargon, as barbarism—"loan" for "lend," "mail" for "post," "carry" for "kept in stock." "Gent." is an abomination of which tailors are very fond; also I do not like "Xmas" for "Christmas," though it may be used sometimes. A few days ago I saw the word "expensiveless," I hope I shall never see it again. Metaphors and metaphorical expressions are so common and add so much to the vividness of language that we use them every minute of the day. To say "see," and "feel," for "understand" and "think," is metaphorical. Metaphor brings an image to the mind, and the metaphor is bad if that image is a grotesque one. It is also bad if the metaphorical meaning can be confused with the literal one. To say, "He made a fatal mistake in the Minor," is a metaphorical use of the word "fatal," and quite a proper expression. But, "It is fatal to take a baby up every time it cries," is a bad use of the same metaphorical expression.

Ambiguity is another common fault. It often arises from incorrect or omitted punctuation. "William said John is a fool," is ambiguous; it requires either one or two commas. Ambiguity may also arise through putting a qualifying clause in such a position that it appears to refer to the wrong word. "Room to let for single gentleman, fifteen feet by ten." The woman who advertised, "Respectable woman wants washing," may have announced a fact without intending it. The commonest form of ambiguity arises in the use of pronouns. "He said that if he did that again, he would dismiss him at once," is quite clear, but it is an accepted rule that such sentences should not be written. Pronouns must not be used in such a way that the reader has to sort them out, as it were, and study the context to find their antecedents.

Anacoluthon is beginning a sentence in one grammatical form, and finishing it in another. "A hot-water bottle will make you nice and cozy and ensures sound refreshing sleep." Two verbs occurring like that must agree in tense. In this connection I would mention that a short composition must not be written

alternately in the first and the third persons. You must not say, "John Jones has opened the above premises," and later, "I keep only the best and purest drugs." Nowadays the first person is generally preferred for such announcements, but whichever you choose you must keep to it for that announcement. Solecism is the kind of mistake foreigners make. It is the mistake of a writer who knows a language but is inexperienced in the use of it. There are rules which we all observe, but none of us can quote, called Rules of Syntax. They direct us how to make our sentences; we master these rules in childhood without learning them. Solecism can generally be detected at once. We should say, "It sounds wrong," and perhaps the only explanation we could give would be, "We don't say that." Well! that is good enough. A living language is what the people speak, established more by custom than by rule. Remember that writing is subordinate to speaking. That brings us to a golden rule—when you have written anything of importance, read it aloud to see if it "sounds right." The best unskilled writers, and often the best skilled ones, are those who write just as they would speak.

I am not going to deal at great length with the merits of good composition. Most of the points I might be inclined to dwell upon make for elegance rather than force and clearness, and it is the latter qualities that are wanted in advertising. But in all writing, one quality is needed—judgment to decide what is, and what is not, worth saying, considering the object in view. Many a good idea is rejected because it will not be effective as an advertisement. I have seen advertisements containing philosophical reflections. They are not wanted. Get to the point quickly, and save the printer's ink you have paid for, and the time the reader values.

The Choice of Words. And the next great essential in advertisement writing is the habit of choosing the most vivid language possible, without overstepping the border line between sense and absurdity. Short words are more vivid than long ones, specific terms are more vivid than general terms, concrete terms are more vivid than abstract terms, definite terms are more vivid than indefinite terms. Metaphor and simile give vividness. "Icy wind" is more vivid than "cold wind." "Hard as a rock" is more vivid than "very hard." Just compare these as I repeat them: Sank rapidly, sank quickly, sank at once, sank like a stone, sank like lead. The last two are most vivid, because the idea is conveyed in concrete terms. Of the others, you would prefer "sank quickly." I will tell you why in a moment. Now compare these: Has cured many, cures everybody who tries it, has cured thousands. The last is most vivid and therefore best, because it is definite, in spite of the fact that the second makes a more sweeping claim. Again compare: "Relieves all distressing symptoms," with "cures the nasty headache and the disagreeable giddy feeling." The second is better because it is specific.

Even among words which are not figurative some are more vivid than others. Onomatopoetic words, that is words which are an approximate representation of sounds or things they indicate, are the best examples of vivid words—crash, bang, whistle, tinkle, crackle, whine, howl, chatter. Below these, in the scale of vividness, are many words which seem to have at least some sympathy with

their meaning—quick, slow, mournful, terrible, horrible, enormous, tremendous, magnificent, tiny, rush, dash, rattle. All these are vivid because the sound, as well as the meaning conveys the thought expressed. Now consider the little word “very.” It may be described as a word that has failed. It is the reverse of vivid, and it has had its punishment. In every age, probably, we have put aside this little word with a big meaning in favor of something else. Today the substitutes are “awfully” and “beastly,” ugly but vivid words. In the eighteenth century, “vastly” was, I believe, the favorite pseudo-synonym.

How to Secure Attention. An ordinary advertisement has to do three things in succession. First, to secure attention; second, to argue its case; and, third, to give the information the reader will require if he intends to respond. There are many ways of securing attention, but the commonest, and one of the best, is by means of a “striking” headline, which would be better called a “catchy” or “interesting” headline. The inferior advertisement-writer seems to think that any three or four words in big type is a good headline, but a really good headline must be interesting, it must promise to talk about something that will interest the reader. This is where the journalist excels, for it is part of his training to value news items according to their interest. Here are a few of the commonest interests. General—humanity, news, topical, puzzling, humorous. Masculine—success, politics, sport. Feminine—personal adornment, children, domestic affairs. There are also special interests as, for example, a person suffering from rheumatism is interested in that complaint. Now if your headline contains such words as, let us say, man, woman, girl, child, sensation, amusing, mystery, money, fortune, football, golf, beauty, baby, home, or if it contains a reference to some political or other event of the moment, it will catch the eye of hundreds of people as they glance over the paper. Unconsciously they will read on and so get your message. If the argument is a good one, and it appeals to their want, there is a chance that business may result. Now for the argument. Deal briefly and as vigorously as you can with the point or points most likely to appeal to the reader. Don’t spoil things by trying to say everything that can be said. And, in choosing those points, the chemist, working day by day at his own counter, has an immense advantage over the professional advertisement writer. Note what questions the public ask, when you push your own specialties at the counter. Finally, don’t leave the reader without the information he will want if he is going to respond to your advertisement—name of article, price, and your name and address.

The best advertisements of all are those which appeal to the imagination, because the writer makes use of the reader’s brain, and, by means of, perhaps, a dozen words, causes the latter to think out an argument that could not be conveyed in less than a hundred. “Good morning, have you used Pears’ Soap?” is, I consider, the finest advertisement in the English language. It makes use of the reader’s brain, though not quite in the way I have indicated. Here is an example of what I mean. As an apprentice I used to pass a shop bearing the legend, “Where Maggie got her home for £6.” Think of the tremendous effect that sign would have upon the working-class couple who were prepared to spend, say, £12. They would feel that they were in a position to furnish a

palace—that they had got £6 to spare for luxuries—things that Maggie who, none the less, got a complete home, had to go without.

I have brought with me a few instructive advertisements which I will show you, and we will consider their points. One thing you will gather is this—if you want to learn how to advertise, study the advertisement columns of papers where space is expensive; if you want to see how not to do it turn to those papers where you can get about six inches of double column for a sovereign.—*Pharm. Jour. and Pharmacist (London.)*

THE INTELLECTUAL LIFE OF AMERICA.

While the sum total of American intelligence is undoubtedly impressive, it is more by reason of its quantity than its quality. I mean that the educational system of the country has rather raised a great and unprecedented number of people to the standard of what we in England should call middle-class opinion than raised the standard itself, and that as a consequence the operative force of American politics is middle-class opinion left pretty much to its own devices and not corrected by the best intelligence of the country. And middle-class opinion, especially when left to its own devices, is a fearsome thing. It marks out the nation over which it has gained control as a willing slave of words, a willing follower of the fatal short-cut, a prey to caprice, unreasoning sentiment and the attraction of “panaceas,” and stamps broadly upon its face the hall-mark of an honestly unconscious parochialism. Such, to be quite candid, appears to me to have been too much its effect in America. I know of no country where a prejudice lives so long, where thought is at once so active and so shallow and a praiseworthy curiosity so little guided by fixed standards, where a craze finds readier acceptance, where policies that are opposed to all human experience or contradicted by the most elementary facts of social or economic conditions stands a better chance of captivating the populace, or where men fundamentally insignificant attain to such quaintly authoritative prestige.—*Sydney Brooks.*

Of General Interest

MINUTES OF A MEETING OF THE EXECUTIVE COMMITTEE OF THE NATIONAL DRUG TRADE CONFERENCE HELD AT THE NEW WILLARD HOTEL, WASHINGTON, D. C., WEDNESDAY, MARCH 18, 1914.

The Executive Committee of the National Drug Trade Conference met in the Gridiron Room of the New Willard Hotel, pursuant to the call of the President of the Conference, Wednesday, March 18, 1914, at 10 o'clock a. m.

Present: All the members of the Committee.

Mr. John C. Wallace and Mr. Chas. M. Woodruff were, respectively, unanimously chosen Chairman and Secretary of the Committee.

The minutes of the last meeting of the Committee as printed were approved without reading.

On motion of Prof. Jas. H. Beal the Committee proceeded to consider the Harrison Bill as amended by the Finance Committee of the Senate and on the Senate Calendar under No. 213, Report No. 258. The following amendments were duly recommended:

Page 1, line 1. Make "January" read "October."

Page 2, lines 1, 2 and '3. Strike out the words "or hypodermic syringes or needles adapted to administer any of the above drugs," or else insert the words "except veterinary hypodermic syringes and needles, and hypodermic syringes and needles designed and used for the administration of serums, vaccines, toxins and analogous products."

Page 2, lines 12 and 16: If the hypodermic syringe provision is stricken out, then strike out the words "or articles."

Page 2, line 18: Note typographical error in the word "provided."

Page 2, lines 20, 21, 22, 23, 24, and page 3, lines 1 and 2: "Strike out all after the word "section" in line 20 to the end of the paragraph on page 3, line 2, and insert in lieu thereof the following:

"Provided, further, that officers of the United States Government who are lawfully engaged in making purchases of the above named drugs [and articles] for the various Departments of the Army and Navy and for government hospitals and prisons, and officers of any state government, or of any county or municipality therein, who are lawfully engaged in making purchases of the above named drugs or articles for state, county or municipal hospitals or prisons and officials of any territory or insular possession of the United States who are lawfully engaged in making purchases of the above named drugs for hospitals or prisons therein shall not be required to register and pay the special tax as herein required."

Page 3, line 3: Insert after the word "person" the words "obliged to register under the terms of this Act." The Act requires *every one* having anything to

do with the production, manufacture, sale, giving away or dispensing, to register and then excepts certain officers of the Federal and State Governments.

Page 3, lines 5 and 21: "If the hypodermic syringe provision is stricken out, then strike out the words "or articles."

Page 4, lines 1 and 2, also line 9: If the hypodermic syringe provision is stricken out, then strike out the words "or articles."

Page 4, line 19: If the hypodermic syringe provision is *not* stricken out insert the words "or articles" after the words "drugs."

Page 5, lines 6 and 7: Strike out the words "registered under this Act."

Page 5, line 2. After the word Act add the following provision:

"Provided also that a record of the drugs thus dispensed shall be made in a suitable book kept for that purpose, and shall be preserved for two years in such a way as to be readily accessible to inspection by the officers, agents, employees and officials hereinbefore mentioned."

Page 5, lines 4 and 17: If the hypodermic syringe provision is *not* eliminated insert the words "or articles" after the word "drugs."

Page 5, lines 5 and 10: Make the word "pharmacist" read "dealer."

Page 5, line 11: Strike out the letter "s" in the word "prescriptions."

Page 5, line 12: Make the words "each prescription" read "the same."

Page 5, after subsection (c) add the following:

"(d) To the sale, barter, exchange or giving away of any of the aforesaid drugs (or articles) to any officer of the United States Government or any state, county or municipal government lawfully engaged in making purchases thereof for the various departments of the Army and Navy, and for government, state, county or municipal hospitals or prisons."

Page 6, line 23: If the hypodermic syringe provision is eliminated strike out the words "or articles."

Page 7, line 5: If the hypodermic syringe provision is eliminated make the word "articles" read "drugs"; if not, insert the words "drugs or" after the word "said."

Page 7, lines 1, 3, 11 and 21: If the hypodermic syringe provision is eliminated strike out the words in italics.

Page 7: Insert after the first paragraph and between lines 5 and 6 the following:

"The provisions of this Act shall apply to the United States of America, the District of Columbia, the District of Alaska, the Territory of Hawaii, the Insular Possessions of the United States, and the Canal Zone. In Porto Rico and the Philippine Islands the administration of this Act, the collection of said special tax, and the issuance of the order forms specified in Section 2, shall be performed by the appropriate internal revenue officers of those governments, and all revenues collected hereunder in Porto Rico and the Philippine Islands shall accrue intact to the general governments thereof, respectively. The courts of first instance in the Philippine Islands shall possess and exercise jurisdiction in all cases arising under this Act in said Islands. In the Canal Zone, the administration of this Act, the collection of the said special tax, and the issuance of the order forms specified in Section 2, shall be performed by such officer or officers in said Canal Zone as the President may designate for that purpose. The courts of the Canal Zone having jurisdiction of crimes and offenses committed

in said Zone shall have jurisdiction to hear, try, and determine all actions and proceedings in which any person shall be charged with having violated any of the provisions of this Act within the limits of said Canal Zone."

Page 8, lines 2 and 24: If the hypodermic syringe provision is eliminated strike out the words "or articles."

Page 8, lines 5 to 11 inclusive: Strike out all after the word "Act" to the end of the section and insert in lieu thereof:

" , or to any person who shall deliver any such drug or article which has been prescribed or dispensed by a physician, dentist or veterinarian who has been specially employed to prescribe for the particular patient receiving such drug or article."

Page 10, line 5: Make the word "one-twelfth" read "one-fourth."

Page 10, lines 16, 17 and 18: Strike out the provision reading: "Provided, that the amount of any drug herein mentioned shall be shown upon the label of the container of such remedy or preparation."

Page 11, lines 7 and 8: If the hypodermic syringe provision is eliminated strike out the words "or articles."

Page 11, line 12: After the word "person" insert the words "or to a nurse under the supervision of a physician, dentist, or veterinary surgeon registered under this Act." *This amendment will not be necessary if the hypodermic syringe provision is stricken out of the Act.*

Page 11, line 13: If the hypodermic syringe provision is *not* stricken out of the Act insert the words "or occupation" after the word employment.

Page 11, lines 14 and 18: If the hypodermic syringe provision is *not* stricken out insert the words "or articles" after the word drugs.

The Conference then took a recess for lunch and re-convened about 2:30 p. m.

On motion a number of bills which had been referred to the Executive Committee by the last Conference (see page 9, Proceedings of the National Drug Trade Conference held January 13, 1914), were referred to a special committee consisting of Prof. Jas. H. Beal, C. Mahlon Kline and Chas. M. Woodruff, with instructions to prepare briefs to be submitted to the chairman of the proper congressional committee after they had been first submitted to and approved by the members of the Executive Committee.

On motion, duly seconded, put to vote and carried, the Secretary was requested to inquire of the Chairman of the Committee on Revision of the United States Pharmacopœia what probable action would be taken by the Revision Committee in the way of adopting standards of shapes, colors, etc., of Mercury Bichloride tablets.

On motion of Prof. Jas. H. Beal, duly seconded, put and carried, the Secretary, Dr. A. R. Dohme and Dr. J. C. Stover were appointed a special committee to interview the proper authorities of the Postoffice Department respecting some law or regulation that would permit the mailing of medicinal preparations containing poisons; and that the Committee be authorized to use discretion in pressing an early settlement of the question.

Bill H. R. 13305 was then read, and on motion duly seconded, put and carried, the Secretary was instructed to inform the Chairman of the House Committee to

which it was referred that the Executive Committee of the National Drug Trade Conference favored the principle of price standardization involved in the measure, although the Committee was not prepared to express an opinion upon the bill in all its details.

A communication was then read asking that the Conference endorse the following resolution:

"Resolved, That the National Food Trades Conference does hereby recommend the appointment of a competent Federal Commission by the President by and with the consent of Congress authorized and directed to investigate the pure food and drugs laws of such foreign nations as may appear most advisable, and their administration and enforcement and to report fully the result of such investigation, which report shall include a statement of the existing laws, regulations, standards, methods and such other information as may be of interest, which report shall be published and made available for general use."

On motion duly seconded, put to vote and carried the resolution was received and referred to the Conference.

On motion, duly seconded, put to vote and carried, Dr. A. R. L. Dohme was requested to confer with the Revision Committee of the National Formulary and induce them to reduce the quantity of heroin in official mixtures from one-third to one-quarter grain per fluidounce.

There being no further business to consider, the Committee adjourned.

CHARLES M. WOODRUFF, Secretary.

KNOW WHAT YOU WANT—THEN GO AFTER IT.

"Half the failures, half the fellows who never get beyond holding down an unimportant job at only a small salary," said an employer of many men the other day, "have quite as good brains and education as the chap who goes by them like an express train past a post. Only he knows exactly what he wants, and goes after it with all there is in him. You can't stop the one kind—and you can't boost the other."

How about you? Do you know what you want?

If you do know, thoroughly and clearly, and want it hard enough, you'll get it. Or at least you'll come mighty close to getting it, and you'll certainly be one of the movers, not one of the stickers in life.

If you know what you want you won't be haphazard in your aims, and your energies will be directed into a single channel. There won't be what efficiency experts call "waste movements."

Try then, right away, to arrive at a clear understanding of what you want. After that study out the steps necessary to get it and begin on the nearest one.

You will be more than astonished to find how this distinct knowledge helps—how the things you do begin to count, how the waste wood is cleared out and the trail you mean to follow grows plainer.—*The Western Druggist.*

The Bulletin Board

SECTION ON EDUCATION AND LEGISLATION.

To the Members of the American Pharmaceutical Association:

It is desirable that at the 1914 convention of the Association there be provided for the Section on Education and Legislation a program of papers and discussions that will be commensurate with the importance of this division of the organization. The chairman therefore would ask that the members, not only those who are interested directly in educational and legislative matters, but particularly the practicing retail pharmacist who is directly affected by all conditions arising under educational and legislative practices, to contribute papers for the section or to acquaint him of their willingness to participate in the discussion of topics of general interest.

In this connection he wishes to offer the following topics as of general interest:

1. The comparative real and permanent benefits to the student of laboratory work and lectures.
2. The comparative advantages of practical experience and general education as a prerequisite of instruction in a college of pharmacy.
3. The advantages of the Association itself formulating standards for pharmaceutical teaching institutions and pharmacal examining boards.
4. The necessity for getting representation of the various interests embraced by the Association in the consideration of legislation.

It is not the intention of the chairman to limit papers or discussions to these topics, as he quite well recognizes the variety of subjects that may well be brought before the section.

Very truly yours,

HUGH CRAIG.

THE WOMEN'S PHARMACEUTICAL ASSOCIATION.

The regular monthly meeting of the Women's Pharmaceutical Association of the Pacific Coast was held in the assembly hall, Pacific building, San Francisco, March 27,

1914. Mrs. R. E. White, the president, was in the chair.

Difficulties in spreading asafetida plasters; syrup of hypophosphites and syrup of hypophosphites comp., acetic acid in eye drops, London purple and taka-diatase were discussed during the roll call.

Mrs. White had a very carefully prepared paper on various methods of preparing cold cream and samples of U. S. P., G. P. and B. P. cold creams. Miss Roehr read a paper prepared by Mrs. Rees on "Ventilation in Drug Stores." The discussion of the evening was on the proposed Recipe Book of the American Pharmaceutical Association and was opened by Dr. Winslow, followed by Mrs. White, Mrs. Kane and Miss Roehr.

The next meeting of the Association will be held in San Francisco, April 24, 1914.



UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

The 54th commencement of the University of Illinois School of Pharmacy (Chicago College of Pharmacy) was held at Howard's theatre, Chicago, on Wednesday afternoon, April 22. The principal address was made by Prof. John Uri Lloyd on the subject, "The Young Pharmacist's Opportunity." President Edmund J. James, of the University of Illinois, conferred the degree of Graduate in Pharmacy upon a class of thirty-three candidates as follows: Albert F. Anderson, St. Johns, Ariz.; Edna Becker, Davenport, Ia.; August C. Bosch, Gratiot, Wis.; J. Burdette Brown, Tampico, Ill.; Floyd W. Bryant, Elizabeth, Ill.; George E. Canham, Neponset, Ill.; Lawrence Converse, Chicago; Walter A. Endee, Chicago; Oscar Fisler, Chicago; Jeremiah G. Garrity, Spring Valley, Ill.; Harry F. Haines, Farmer City, Ill.; Philip I. Hildebrandt, Lake Mills, Wis.; Elwood J. Hollinshead, Morrisson, Ill.; Harry E. Johnson, Rockford, Ill.; Jonathan G. Jordan, Chicago; Elmer C. Lane, Kankakee, Ill.; Paul I. Mendelsohn, Chicago; Richard W. Merschat, Chicago; Abraham Myerson, Chicago; Charles C. Orr, Chicago; Irving F. Pearce, Chicago; Elmer E. Rueckert, Lake Mills, Wis.; Harold Schmid, Chicago; Ralph H. Thompson, Earlville, Ill.; Adrian Ton, Chicago; Clio Vavra, Chicago; Ladislaus J. Warzynski, Chicago; Albert J. Cook, class of '13, Terre Haute, Ind.; George C. Kraemer,

class of '13, Chicago; Wm. A. Lee, class of '13, Chicago; Alva W. Rackaway, class of '13, Mt. Vernon, Ill.; Chas. F. Wach, class of '13, Chicago; Mary L. Smith, class of '09, Dallas City, Ill.

Seven others received certificates as follows: Paul W. Edgett, Earlville, Ill.; Hubert S. Huston, Carthage, Ill.; Gennaro D. Lavieri, Chicago; Fred L. Leib, Anna, Ill.; Albert Schreiner, Batavia, Ill.; Frank J. Vondrasek, Chicago; George Vaupell, Chicago.

Prizes were awarded as follows: The Becker prize, Jeremiah G. Garrity; the Herman Fry prize, Miss Edna Becker; the faculty prizes, consisting of A. Ph. A. memberships: in materia medica, Albert Anderson; in pharmacy, Albert Schreiner, Jr.; in chemistry, George Vaupell.

In the evening the Alumni Association held its annual reception and banquet at the Congress hotel. The members of the graduating class were the guests of the evening. A feature was the reunion of the class of 1889, which celebrated its 25th anniversary. Toasts were responded to by President Edmund J. James, of the University; Mr. L. L. Abbott, of the board of trustees; Mr. George P. Mills, President of the Alumni Association; Acting Dean W. B. Day; Mr. Wm. A. Converse, of the class of '89, and Mr. Ralph Thompson, President of the class of '14. Professor A. H. Clark presided as toastmaster. About 150 of the alumni and their friends attended.



COMMENCEMENT OF THE ATLANTA COLLEGE OF PHARMACY.

The commencement of the Atlanta College of Pharmacy for the class of 1913-14 took place at the Atlanta theater on the evening of March 30, and in spite of a tremendous downpour of rain during the day and night, there was an excellent attendance. There were forty-two graduates who took the degree of Ph. G., and two who took the degree of Ph. C. All the exercises of the evening were carried out by the faculty and the students without any assistance from outside speakers. Mr. William Tee Morgan, of Alabama, was the salutatorian; Mr. S. C. Davis, of North Carolina, the historian; Mr. R. C. Powell, of Georgia, the poet, and Mr. S. C. Moon, of Georgia, the valedictorian. All four

acquitted themselves in a most excellent manner. The degrees were conferred by the president and the professors, five out of the six professors are licensed pharmacists as well as graduates in pharmacy; all of them have been successful in the drug business. The attendance of the college during the past college year has been made up by students from every state from North Carolina to Texas and west to Arkansas, with a good sprinkling of Cubans.



UNIVERSITY OF THE STATE OF NEW JERSEY.

DEPARTMENT OF PHARMACY.

A series of lectures is given at the College of Pharmacy of the University of the State of New Jersey, which is located at 96 Summit Ave., corner Clifton Place, Jersey City.

The third of these lectures was given Friday, January 30, in the lecture room of the college. The subject was, *Preparation, Sterilization, Preservation and General Uses of Modern Vaccines and Anti-Sera*. The lecturer was Dr. Max Lederer, Pathologist to the Jewish Hospital of Brooklyn, who is a man of reputation and who is well known in medical as well as pharmaceutical circles.

The lecture was well attended by the faculty and the students of the college as well as by pharmacists and physicians of Jersey City.

These lectures will be continued throughout the winter and will deal with subjects of interest to the pharmaceutical and medical profession.



ALUMNI ASSOCIATION OF THE MASSACHUSETTS COLLEGE OF PHARMACY.

At the annual meeting of the above association held at the College Building in February, the following officers were elected for the ensuing year:

President—Prof. E. H. LaPierre.

Vice Presidents—R. Albro Newton, G. W. Russell, T. J. Connors.

Secretary—John D. Glancy.

Treasurer—Leon A. Thompson.

Auditor—Harold Jenness.

Council—Frank Piper, A. W. Balch, T. J. O'Brien, C. E. Tracy and Paul C. Klein.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio

ERNEST C. MARSHALL, Associate Editor,
63 Clinton Building, Columbus, Ohio

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Postoffice the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue



REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

100 copies, 4 pages, no cover, \$2.50, with cover, \$4.50.

200 copies, 4 pages, no cover, \$3.00, with cover, \$5.50.

50 copies, 8 pages, no cover, \$2.75, with cover, \$4.50.

100 copies, 8 pages, no cover, \$3.50, with cover, \$5.00.

200 copies, 8 pages, no cover, \$4.50, with cover, \$6.50.

50 copies, 12 or 16 pages, no cover, \$4.00, with cover, \$5.50.

100 copies, 12 or 16 pages, no cover, \$5.00, with cover, \$6.50.

200 copies, 12 or 16 pages, no cover, \$6.50, with cover, \$8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co., Columbus, Ohio.

WHY NOT?

One of the most enthusiastic A. Ph. A. workers sends this to the Editor, and the latter takes pleasure in passing it on to the officers and members:

Why not put these questions to every officer and committeeman of the A. Ph. A.?

1. What are you doing for the American Pharmaceutical Association?

2. Do you contribute any original papers?

3. Do you take an active part in the proceedings of your nearest branch?

4. Do you tell your medical and pharmaceutical friends what it means to be a member of this great organization?

5. Do you think it just to ask for further recognition without giving anything in return?

6. Why not get busy at once; you may be required to give an accounting at the Detroit meeting?



ADDITIONAL PRIZE MEMBERSHIPS.

It will no doubt interest the members to learn that two prizes of nominations to memberships in the Association are offered in the Department of Pharmacy of the University of the State of New Jersey.

One is offered by Prof. J. Leon Lascoff, Professor of Pharmacy, and is to be given to the post-graduate student writing the best thesis on a pharmaceutical subject; the other is offered by Prof. Otto Raubenheimer, Professor of Pharmaceutical Chemistry and the History of Pharmacy and Chemistry, and is to be awarded to the post-graduate student writing the best thesis on a chemical subject.



STATEMENT OF OWNERSHIP, MANAGEMENT, ETC.

Of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, published at Columbus, Ohio.

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Managing Editor—J. H. BEAL, Scio, Ohio.

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(Signed) J. H. BEAL, Editor.

Sworn to and subscribed before me this 28th day of March, 1914.

(Seal) HARRY A. ECKMAN,
Notary Public.

(My commission expires Jan. 10, 1916.)



BEWARE OF SUIT-CASE PEDDLERS.

Druggists should beware of suit-case peddlers who sell manufacturers' products at attractively low rates—lower usually than those at which even the jobber can buy. If it should appear that pharmaceuticals so purchased had been stolen, and if the druggist purchasing them should be complained of for receiving stolen property, it would be difficult to convince a jury that the circumstances had not put the druggist upon his inquiry and that the druggist had purchased in good faith. Irregular brokers are being watched by manufacturers and wholesalers who have been the victims of systematic robbery.

According to Kansas City journals, Grover Buckland, 28 years old, an employee of the McPike Drug Company, has been arrested, tried, convicted, and sentenced to a year in the penitentiary for theft of opium, morphine, etc., from his employer. The thefts were systematic and continuous; but, of course, conviction was upon a single instance. Buckland about three years ago was discharged from the Kansas City office of Parke, Davis & Co. on account of pilfering. Buckland's output was through one Miller, who is yet to be dealt with.



SCALES AND WEIGHTS.

The first step in, what is said to be, a nation-wide attempt to secure greater accuracy in the scales in use in drug-stores has been taken in Massachusetts, where the State Commissioner of Weights and Measures has directed his deputies to inspect the scales and weights used in the preparation of prescriptions, as well as those used in the sales of articles by the ounce and pound.

The Commissioner says:

"I have not yet secured many official and signed reports from the various sealers who are making this investigation. Their informal reports indicate conditions that will need extensive improvement. I am not prepared to

say what percentage of scales will be found to be defective, but there is little doubt that hundreds of scales will have to be seized.

"The point that to me has seemed most important is that the customer who goes to a drug store with a prescription to be compounded must expect that absolute accuracy shall be guaranteed by the fact that he is dealing with a competent pharmacist. Yet competent pharmacists may queer the remedies prescribed by the physician if their scales are even slightly off. The doctors expect that the ingredients of a prescription will be combined in exact proportions. It is of great importance that they shall be so combined. If the scales prevent such accuracy, the results are likely to be unfortunate in almost all cases, and it is quite conceivable that in some cases they might be serious. Lives in fact may be jeopardized.

"This to me is far more important than other aspects of the situation. The percentage of loss to the customer is likely to be small. He will not pay for any large amount of merchandise which he does not receive. Apothecaries' scales are delicate things. There is a vast difference between weighing drugs and zinc or potatoes. Quantities are smaller. The customer's gain or loss will be relatively smaller. But it is also to be considered that drugs usually cost more than potatoes."

That there is need for such inspection is shown in a paper read before the Washington Branch of the A. Ph. A. which was published in the April issue of THE JOURNAL, under the title of "The Laboratory Equipment of the Pharmacist," in which it was stated that one pharmacist of that city uses a prescription-balance composed in part of string and that a drachm weight in actual use weighed 71.6 grains.

If such a state of affairs exists in the Capital City of the nation, it would seem to indicate an imperative need for some general action to ensure more care and attention to be given to the very essentials of the correct and precise preparation of medicinal preparations. In Fitchburg and in Worcester, Mass., many scales have been reported as inaccurate, and in one small town it was reported that in all the stores inaccurate scales were found and in one of these stores all the scales were condemned.

The heart of a drug store may be said to be its scales and balances,—not its cash register,—and a condition which would not be tolerated in the latter should not be permitted to exist in the former, and it is to be regretted that it should require official action to ensure the correct doing of things which should be a matter of course in every drug store worthy of the name.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.



SAINT LOUIS BRANCH.

The Saint Louis Branch of the American Pharmaceutical Association met in the Saint Louis College of Pharmacy on March 20, with J. A. Wilkerson presiding.

The reading of the minutes and all preliminary matters were dispensed with to give the time to the discussion of the paper. Dr. Gustav Rehfeld gave "Some Facts and Demonstrations on Lloyd's Reagent and Alcresta Alkaloids." The paper appears elsewhere in this issue. Dr. Rehfeld was extended a vote of thanks for his paper and his interest in the Branch.

The following took part in the discussion of the paper: Miss E. Kingsland, Theodore R. Schwerdtmann, Victor H. Kremmenacher, Ambrose Muller, Francis Hemm, William K. Ilhardt, Chas. H. Horton, Leo Suppan, O. J. Cloughly, J. M. Good, F. W. Sense, M. J. Noll, David S. Ralston, Paul L. Goodale, Stephen E. Ludwig, W. F. Kahre, J. A. Sanger, Edmund D. Amour, Ward H. Lee, Gustav Kring, John O'Kane, A. C. Boylston, O. L. Biebinger, Chas. E. Caspari, C. T. Buehler, Chas. Gietner, J. A. Wilkerson and J. W. Mackelden.

JULIUS C. HOESTER, Secretary.



CITY OF WASHINGTON BRANCH.

The stated March meeting of the City of Washington Branch of the American Pharmaceutical Association was held at the Na-

tional College of Pharmacy on March 18, 1914, and called to order by the President, W. S. Richardson, at 8:15 p. m. A good attendance was noted.

The first subject of the evening was "Price Standardization," by Mr. J. Leyden White. Mr. White graphically described conditions in pharmacy today and traced the origin of cut prices to monopoly. He presented House Bill 13305, a bill "to prevent discrimination in prices and to provide for publicity of prices to dealers and to the public." The history of this bill, as well as the origin of the Fair Play League, was related, and also the "ins" and "outs" of price protection.

While the reception of this bill before noted has not been overly cordial in Congress, Mr. White stated that a number of those who had radically opposed it at the outset had been won over, without the loss of any of the original supporters.

After hearing his address, the branch tendered Mr. White a vote of thanks.

Mr. Martin I. Wilbert then read a paper on "Russian Oils," wherein he gave a complete history of their origin, use in medicine, their preparation, and alleged medicinal virtues. He further invited attention to the fact that the average retailer can purchase these oils at 80 cents a gallon and bottle them himself and have a product superior to that for which he is paying 40 to 60 cents a pint under fancy names.

In the absence of Mr. S. L. Hilton, who has made extended observations of these Russian oils recently, Dr. H. E. Kalusowski read his paper, which covered his experiments with all the leading brands of oils on the market. Samples were exhibited and their merits reported. In addition, Mr. Hilton has made many experiments to produce a wholly satisfactory aromatic oil. Samples of these, thirty or more in number, were exhibited and passed among the members for inspection. The samples flavored with cardamom, natural wintergreen and the combined oils used in aromatic elixir (compound spirit of orange) attracted much favorable comment.

Following a full discussion of the matters which had been brought before the branch by the addresses made and the papers read, the branch adjourned.

The next meeting will be April 15, 1914.

HENRY B. FLOYD, Secretary.

CINCINNATI BRANCH.

Prof. John Uri Lloyd presided at the March meeting of this branch, which was held at the Lloyd Library on the tenth of the month. The report of the Secretary was read and approved, and letters were read from Hon. William Gordon and Hon. W. Gard in approval of House Bill No. 1.

Miss Lydia DeCourcy read an admirable paper entitled "Woman in Pharmacy." At its conclusion she was given a vote of thanks and it was voted to request the JOURNAL to publish the paper in full.

Mr. H. W. Jones gave a very interesting address on "Digitalis and Opium." He described the action of the active principles of digitalis, and said that the tincture was not the most efficient form in which to administer this drug; that the best form to exhibit it is the official infusion made from properly selected leaves. Speaking of opium he called attention to the variability in morphine content of different samples, and said that absorption by the drug of moisture from the air or the abstraction of water from the drug by a dry atmosphere was responsible for that variation, which was often a difference of 5 to 6 percent from normal. The drug therefore should be kept in air-tight containers and should be assayed just prior to its use in manufacturing official preparations. He described "normal opium" as having a percentage composition of morphine 12 percent, narcotine 5 percent, codeine 6 percent, meconic acid 1 percent. There was a general discussion of the paper by the members, after which Mr. C. A. Apmeyer read a paper entitled, "Notes on Heat and Temperature," in which he described the various kinds of thermometers in use, and the reasons for the selection of alcohol and mercury in their construction. He called attention to the fact that in melting ice in a capsule over heat, that the temperature remains constant to 0° C., although heat is continuously applied, until the ice is melted, and after that occurs and the liquid begins to boil, the temperature remains constant to 100° C. until the last particle of water disappears. From these facts we may reason that some relation exists between the state of aggregation of a substance and that agent which we call "heat." It was heat which liquefied the ice and it was heat which converted the water into steam, yet the temperatures remained constant to

0° C. and 100° C. A certain amount of heat is unaccounted for. What has become of it? He explained the production of heat by friction and said that an intimate relation existed between the amount of heat generated and the amount of energy expended, which connection was stated as The Law of the Correlation of Energy. We must come to the conclusion that heat is associated in some way with the condition of the molecules of which all bodies are composed. He explained the kinetic energy and the potential energy of molecules, and said that when heat was applied to a body it either increased the motion of the molecules (the kinetic energy) or made a change in the position of them (the potential energy), or it may produce both effects. When the movements of the molecules are accelerated, there occurs a rise in temperature, which can be measured by a thermometer. What is called "temperature" is the degree or intensity of the sensible heat of a body. Heat is absorbed whenever solids pass into the liquid state or when liquid bodies pass into the gaseous condition, as in the manufacture of artificial ice or in a freezing-mixture. The heat added to a body without producing increase of temperature, is absorbed in changing the relative arrangement of its molecules and is known as "latent heat." Mr. Apmeyer concluded his discourse with a discussion of the "Increase of Volume Caused by Heat," referring particularly to the expansion and contraction of gases, in which connection he quoted The Law of Charles: "If the pressure remains constant, the volume of the gas increases regularly as the temperature increases and decreases as the temperature decreases." An interesting discussion followed the reading of this paper, in which Professors Lloyd and Wetterstroem and others participated.

On account of the convention of the American Chemical Society, which was held in Cincinnati, April 6-10, the meeting was adjourned until May.

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NEW YORK BRANCH.

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of March 9, with Dr. H. V. Army presiding.

The minutes of the previous meeting were read and approved, as was also the treasurer's report.

The membership committee introduced Dr. M. R. Smith as a new member of the local branch and parent association.

As Professor W. C. Anderson, Chairman of the Committee on Legislation, could not be present, his report was read by Dr. Joseph L. Mayer, which report reviewed such proposed legislation affecting pharmacy as was pending at Albany and Washington.

Mr. McElhenie, representative of the branch in the Council of the American Pharmaceutical Association, read a letter from G. M. Beringer, President of the A. Ph. A., favoring the adoption of the coffin-shape as the official form for tablets of mercuric chloride in the new edition of the U. S. P. He indicated that, while the Norwich Pharmacal Co. had applied for patent on this form of tablet, they would be willing to assign all rights to the A. Ph. A. Mr. McElhenie stated that he favored the acceptance of this firm's offer and indicated that he had voted accordingly.

A letter from Mr. Hugh Craig, addressed to the Council, was read, and in this letter he indicated that in his opinion it was a waste of time to endeavor to formulate a restriction as to the shape of tablets of mercuric chloride. Mr. Craig further indicated that it appeared to him that the Association should not take a hand in the manufacture of, or the supervision of the manufacture of any article of commerce.

Mr. McElhenie also read Mr. Beringer's reply to Mr. Craig's letter, in which Mr. Beringer expressed the belief that Mr. Craig had failed to grasp the real situation presented in the Council letter and stated that the question of the official shape of tablets of mercuric chloride is only one of the means of safeguarding the careless handling of the tablets, and the idea was not presented as the sole means that should be adopted. Mr. Beringer agreed with Mr. Craig that it was necessary to educate the public to the importance of exercising the proper care in the handling of all poisons.

Mr. Berger, Chairman of the Committee on Professional Relations, reported that a joint meeting of the County Medical Association and the branch would not be held during this season, but that a propaganda meeting would be held in May, at which Professor Remington would be invited to present information concerning the progress that is being made in the revision of the Pharmacopoeia.

Doctor G. C. Diekman, as Chairman of the Committee on the Progress of Pharmacy, reported in detail on a new reaction for acetyl-acetic acid in urine and the detection of albumin in urine by means of Eschbach's reagent in presence of hexamethylen-tetramine. He also called attention to the necessity of testing cod liver oil for free iodine, especially when it was to be made into a mixture with other substances. Dr. Diekman also called attention to the fact that foreign countries were not free from the misbranding evil, and cited as an example, a product offered in Germany as boranium berries, which upon examination were found to consist of a mass of sugar to which had been added phenolphthalein, oil of peppermint, and a fruit gelatin, while the name would indicate that the item offered was a berry gathered from a plant or tree. He stated that many such instances were noted in current numbers of foreign pharmaceutical publications. This report was discussed by Messrs. Diner, Raubenheimer, Weinstein, Mayer and Roemer.

The speaker of the evening was Dr. Curt P. Wimmer. His subject was "Colloids and Their Importance to Pharmacy." Little was learned of colloidal chemistry until during the past fifteen years, although true colloidal solutions have been prepared as far back as 1802, stated the speaker. He pointed out that Thomas Graham, an English scientist, made the first systematic investigation along these lines during the early sixties, but states that the present view of the nature of colloids is diametrically opposed to that of Graham, who distinguished two worlds: the crystalline and the colloid world. The present accepted view is that there is but one world, and that the colloid state can be assumed by any substance, solid or liquid, under appropriate conditions.

The speaker indicated that the invention of the ultra-microscope gave great impetus to the work on colloids. As a general definition for colloidal solutions, Dr. Wimmer stated a colloid is a solid, liquid or gaseous substance in a certain state of subdivision or dispersion, in another solid, liquid or gaseous substance. Dr. Wimmer dealt at length with the preparation of colloids and their mechanical, optical and electric properties, together with the osmotic pressure, gravity, jellyfication, coagulation, pectinization and absorption of colloidal substances. His lecture was generously illustrated by interesting experiments.

and both Dr. Wimmer and his assistant, Dr. Jeannot Horsmann, were given a vote of thanks by the branch. A discussion followed, in which Messrs. Roemer, Diner, Raubenheimer and Mayer participated.

Under the auspices of the New York Branch of the American Pharmaceutical Association a joint meeting of pharmacists and physicians will be held on the evening of May 18th at 8 o'clock at the College of Pharmacy Building, 115 West 68th St., New York City.

The subject will be "Pharmacopoeial Revision." Professor Remington, of Philadelphia, Chairman of the Committee of Revision, will lead the discussion.

It is earnestly hoped that all pharmacists in and about New York will attend this meeting and at the same time bring with them as many of their physician friends as possible.

FRANK L. MCCARTNEY, Secretary.



DENVER BRANCH.

The March meeting of the Denver Branch of the A. Ph. A. was held Tuesday evening, March 24th, at the Albany hotel. The following members were present: Messrs. E. Powers, W. T. Hover, L. A. Jeancon, H. SeCheverell, W. S. Payne, F. J. Lord, S. T. Hensel, L. L. Alkire, W. A. Hover, S. L. Bresler, W. O. Scholtz, A. W. Clark, A. Swobodia, A. C. Cole, C. J. Clayton, B. Strickland, C. H. Skinner, S. T. Kostitch, J. P. Dow, Prof. J. Seymour and F. W. Nitardy.

The meeting was called to order by President Hover about 8:15. The minutes of the February meeting were read and approved and the Secretary reported that a copy of the resolution on the Harrison bill passed last month had been forwarded to Senators Shafroth and Thomas; also that the matter of a refund to the branch of a portion of the annual dues had been taken up in the Council.

The Library Committee reported that most of the books for the library had arrived and that everything would be in shape for the formal opening for the April meeting.

Dr. S. L. Bresler read a paper entitled, "Should Our Present Pharmacy Law be Enforced or Amended?" He called attention to the objectionable elements which had crept into the profession and queried whether these could be eliminated without more precise defini-

tion by law of the terms "pharmacy" and "drug store," a precise statement of what persons shall be given the right to conduct these two establishments, and more power being granted to the Board of Pharmacy "to revoke licenses and to close pharmacies if in their discretion the store is a detriment to humanity." He was of the opinion that a stricter enforcement of the law would result in knowledge which would be of great assistance in formulating new legislation. Dr. Hensel's paper was very favorably received and was discussed by Messrs. Hensel, Hover, Clayton, Nitardy, Clark, Scholtz, SeCheverell, Cole and Clark. Secretary Nitardy called attention to the new A. Ph. A. button and received orders for twenty of the same, which he agreed to have at the next meeting.

Mr. A. W. Clark then read a very interesting paper "On Trade Conditions," which the pressure upon our columns of other matter forces us to defer printing until a later issue.

A lasting applause showed the appreciation of those present of this valuable paper.

President Hover opened the discussion by complimenting Mr. Clark for the carefully prepared paper which furnished so much food for thought. He commented on the economic waste referred to in Mr. Clark's paper in connection with the prescription departments of the small store and expressed the hope that pharmacists would co-operate to eliminate this waste by consolidation of prescription departments or such other means as might be available.

Messrs. SeCheverell, Jeancon, Clark, Hover, Hensel, Seymour and others took part in the further discussion of this subject. Mr. Jeancon brought out the value of profitable side lines and propaganda work to help out in the prescription department, especially to help reduce the stock of many proprietaries that often have to be carried. He also stated that buying new articles short from another druggist in just the quantity called for on the first one or two prescriptions had saved him much money, as in a great many instances there was no further call for an article after the first prescription.

President Hover's paper on "Bank Credit" was, on account of the lateness of the hour, deferred to the next meeting.

There being no further business the meeting adjourned.

F. W. NITARDY,
Secretary.

PITTSBURGH BRANCH.

The regular monthly meeting of the Pittsburgh Branch was held at the College of Pharmacy, Friday evening, April 17. Owing to the unavoidable absence of the secretary, Dr. Louis Saalbach recorded the proceedings. The important feature of the evening was the illustrated lecture by Dr. L. K. Darbaker on "Medicinal Plants," in the presentation of which Dr. Darbaker was ably assisted by one of the members of the Senior class of the college, Harry B. Honaker. In opening the subject Dr. Darbaker said, "The average pharmacist is not usually familiar with many of the plants which yield official drugs, and," he added, "for that reason I propose to test the knowledge of those who are present by putting into each person's hands a sheet of paper numbered to correspond with the slides as they are thrown on the screen, and will ask that each will put down his guess as to what particular plant is as it is shown without identification. I will then run the series a second time, giving the correct names of the plants, when we shall see what we shall see."

The correctness of the doctor's statement was abundantly certified to by results, as comparatively few sheets were found to bear any appreciable number of proper identifications. The pictures formed a very instructive lesson in botany, and the entertainment furnished was valuable as well as interesting. On the whole it proved a very excellent example of the very little we know of the source and origin of many drugs with which, in their commercial shape, we are very familiar, and many of which we handle in our every day work.

The second number on the program, "Activities of Enzymes and Bacteria," by Dr. J. H. Wurdack, was fully as interesting and instructive as the preceding one, although along a widely different line of study. After a short talk covering the subject of enzymes in general, Dr. Wurdack proceeded to explain in detail the cycle which nitrogen follows in passing from one compound to another. He discussed the various nitrogenous compounds of animal excretion and decomposition and their change into ammonia salts; nitrites and nitrates which are used by plants to form the numerous proteids that serve as food for animals and are, through the latter, reverted back to the activities of ammonia,

forming bacteria, thus completing the nitrogen cycle. He also explained quite lucidly the activities of the ammonifying, nitrifying and denitrifying, nitrogen-fixing micro-organisms, ending his talk with an account of the reactions occurring in biological sewage disposal. A full discussion followed the doctor's lecture, and he was asked many questions on the subjects that had been covered, all of which he very satisfactorily responded to.

The lateness of the hour precluded the taking up of the next number on the program. "Discussion of Heroin Sale, Legal and Moral Status."



PHILADELPHIA BRANCH.

The regular monthly meeting of the Philadelphia Branch was held on Tuesday, April 7, at the Drug Club. President E. F. Cook called the meeting to order promptly at 8 p. m. During the short business session which preceded the scientific program of the evening, Mr. J. Rosin was elected to membership in the Branch, and Mr. Theodore Campbell was elected Treasurer for the ensuing year to replace Mr. M. M. Osborne, who was compelled to decline the office because of ill health.

The scientific program was particularly interesting because of the many recent developments and improvements in the use and preparation of biological products and the large attendance of physicians and pharmacists proved that the program was well appreciated.

The following papers were read:

1. Theory Underlying the Use of Serums and Vaccines—By Dr. A. P. Hitchens.
2. A Consideration of Autogenous Vaccines from the Standpoint of Their Preparation and Administration—By Dr. Vincent Lyon.
3. Phylacogens: History, Theory, Preparation, Indications, Dosage and Clinical Results—By Dr. F. C. Waldecker, of New York.
4. Clinical Results from the Use of Curative and Prophylactic Sera and Vaccines—By Dr. J. Hamilton Small.

(The first two papers are printed in this issue.)

The discussion which followed the reading of the papers was participated in by Drs. S. Solis-Cohen, Joseph Head and F. E. Stewart, and also by Messrs. F. M. Apple and W. L. Cliffe.

It was pointed out that the results obtained from the use of bacterial vaccines were not

always encouraging and that stock vaccines as well as autogenous vaccines give variable results under different conditions. In answer to a question propounded by Dr. Apple as to the length of time required for the preparation of autogenous vaccine, Dr. Lyon pointed out that the average length of time would be about seventy-two hours. Dr. Lyon further stated that he believed the preparation of autogenous vaccines would be unprofitable for pharmacists.

The next meeting will be devoted to a consideration of legislative matters.

The executive committee has outlined the following subjects to be discussed during the meetings of the coming year:

"Newer Remedies." (Joint meeting with physicians.)

"Recent Advances in Chemistry."

"Changes in U. S. P. and N. F."

"Commercial Subjects."

"Where May We Expect Modern Pharmacy to Lead?"

"Regulation of Sale of Narcotics and Habit-Forming Drugs and of Poisons."

It is the intention of the committee to arrange with the different Colleges of Pharmacy for lectures on and demonstrations of the new methods and tests of the U. S. P. IX.

ROBERT P. FISCHELIS, Secretary.



NEW ENGLAND BRANCH.

The annual meeting was held on Wednesday evening, April 22d, at the Hotel Plaza in Boston. After the dispatch of routine business, the following officers were elected for the ensuing year:

President—Fred A. Hubbard, Newton, Mass.

Vice President—F. W. Archer, Dorchester, Mass.

Secretary-Treasurer—R. Albro Newton, Southborough, Mass.

Chairman, Committee on Professional Relations—Frank F. Ernst, Jamaica Plain, Mass.

Chairman, Committee on Membership—William H. Glover, Lawrence, Mass.

The gathering was a joint meeting of the Branch and the Boston Association of Retail Druggists.

Dinner was served at 7 o'clock, after which the following speakers were heard: John R. Sawyer, William H. Glover, R. A. Newton, Frank F. Ernst, and Elie H. LaPierre on

"Individual Propaganda," Fred W. Connolly on "Liquor in the Drug Store," and James F. Finneran on "The Attitude of the State Sealer on Apothecaries' Weights and Measures." This latter subject brought out so much discussion that it was nearly midnight when the meeting was adjourned.

R. ALBRO NEWTON, Secretary.

The Pharmacist and the Law

ABSTRACT OF JUDICIAL DECISIONS.

POISONOUS INGREDIENTS—"INJURIOUS TO HEALTH." The flour bleaching case has resulted in a construction by the United States Supreme Court of sub-division fifth or section 7 of the federal Food and Drugs Act, which reads as follows: "That for the purposes of this act an article shall be deemed to be adulterated * * * Fifth, If it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health." Part of the charge of the federal District Court, excepted to by the milling company, read: "The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the government need not prove that this flour, or food-stuffs made by the use of it, would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case." On the other hand, the defendant requested the court to charge the jury substantially that the burden was upon the prosecution to prove that by the treatment of the flour by the Alsop Process it had been caused to contain added poisonous or other added deleterious ingredients, to wit, nitrites or nitrite reacting material, which might render the flour injurious to health; and in that connection that the government must prove that any such added ingredients were of such a character and contained in the flour in such quantities, condi-

tions and amounts "as may render said flour injurious to health." This charge was refused by the District Court. The Circuit Court of Appeals reversed the judgment of the District Court for error in its charge and the Supreme Court has now sustained the decree of the Circuit Court of Appeals and remanded the case to the District Court for a new trial.

The Supreme Court said (Justice Day delivering the opinion), that if the testimony introduced on the part of the milling company was believed by the jury, they must necessarily have found that the added ingredient, nitrites of a poisonous character, did not have the effect of making the consumption of the flour by any possibility injurious to the health of the consumer. "The statute upon its face shows that the primary purpose of Congress was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated foods. The Legislature, as against misbranding, intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might be bought for what it really was, and not upon misrepresentation as to character and quality. As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food-consumption, poisonous and deleterious substances which might render such articles injurious to the health of consumers. * * * The instruction of the trial court permitted the statute to be read without the final and qualifying words, concerning the effect of the article upon health [which may render such article injurious to health]. If Congress had so intended, the provision would have stopped with the condemnation of food which contained any added poisonous or other added deleterious ingredient. In other words, the first and familiar consideration is that, if Congress had intended to enact the statute in that form, it would have done so by choice of apt words to express that intent. It did not do so, but only condemned food containing an added poisonous or other added deleterious ingredient, when such addition might render the article of food injurious to the health. Congress has here, in this statute, with its penalties and forfeiture, definitely outlined its inhibition against a particular class of adulteration.

"It is not required that the article of food

containing added poisonous or other added deleterious ingredients must affect the public health, and it is not incumbent upon the government in order to make out a case to establish that fact. The act has placed upon the government the burden of establishing, in order to secure a verdict of condemnation under this statute, that the added poisonous or deleterious substances must be such as may render such articles injurious to health. The word 'may' is here used in its ordinary and usual signification, there being nothing to show the intention of Congress to affix to it any other meaning. It is, says Webster, 'an auxiliary verb,' qualifying the meaning of another verb, by expressing ability, * * * contingency, or liability, or possibility or probability.' In thus describing the offense, Congress doubtless took into consideration that flour may be used in many ways in bread, cakes, gravy, broth, etc. It may be consumed, when prepared as a food, by the strong and the weak, the old and the young, the well and the sick; and it is intended that if any flour, because of any added poisonous or other deleterious ingredient, may possibly injure the health of any of these, it shall come within the ban of the statute. If it cannot by any possibility, when the facts are reasonably considered, injure the health of any consumer, such flour, though having a small addition of poisonous or deleterious ingredients, may not be condemned under the act."

The opinion refers to the view of the English courts construing a similar statute. The English statute provides (§3 of the sale of food and drugs act, 1875): "No person shall mix, color * * * or order or permit any other person to mix, color * * * any article of food with any ingredient or material so as to render the article injurious to health." That section was construed in *Hull v. Horsnell*, 68 J. P., 591, which involved preserved peas, the color of which had been retained by the addition of sulphate of copper, charged to be a poisonous substance injurious to health. There was a conviction in the lower court. Lord Alverstone, in reversing the case on appeal, held that if the conviction proceeded on the ground that the ingredient mixed with the article of food was injurious to health, and not on the ground that the peas, by reason of the addition of sulphate of copper, were rendered injurious to health, the conviction was clearly wrong. All the cir-

cumstances, he said, must be examined to see whether the article of food has been rendered injurious to health.—*United States v. Lexington Mill & Elevator Co.*, 34 Sup. Ct. Rep., 337.

DIAMOND ANTISEPTIC TABLETS—EXCLUSIVE RIGHT TO NAME AND SHAPE OF. On the ninth of February last, Judge John D. McPherson rendered the following judgment:

"It is therefore adjudged, ordered and decreed that the complainant is entitled to the exclusive use of the name "Diamond" as a trade-mark for antiseptic tablets; and that complainant is entitled to the exclusive use of a diamond-shaped figure representation as a trade-mark for antiseptic tablets; and the complainant is entitled to the exclusive right to the conventional shape of a diamond as a shape for its antiseptic tablets. And it is further adjudged and decreed that the use by the defendants of the word "Diamond" or the representation of a diamond-shaped figure or symbol as in any manner indicating or designating antiseptic tablets, was and is a violation of complainant's rights, and, further, that the manufacture and sale of antiseptic tablets made in the conventional shape of a diamond is a violation of complainant's rights.

"And it is further adjudged and decreed that the defendants, their agents, clerks, workmen, servants and attorneys, perpetually refrain and are hereby perpetually enjoined and restrained, from using the name "Diamond" or the conventional figure of a diamond, to designate antiseptic tablets and, further, from manufacturing, selling or otherwise distributing antiseptic tablets made in violation of complainant's rights, diamond-shaped, or in the conventional form of a diamond.

"It is further adjudged and decreed that defendants surrender and deliver up to complainant, to be destroyed, all labels, signs, prints, bottles, packages, wrappers or receptacles in the possession of defendants bearing the said trade marks or either of them, or any colorable imitation thereof, and likewise all antiseptic tablets in their possession made in violation of complainant's rights, in the shape of a diamond."—*Eli Lilly Co. v. Diamond Pharmacal Co.*, *United States Court for the Eastern Dist. of Pennsylvania*.

FOREIGN CORPORATIONS—"DOING BUSINESS"—FILING COPY OF CHARTER—INTERSTATE COMMERCE. A contract with a medical company,

a Minnesota corporation, provided that N. was appointed by the company "as a traveling salesman for its products in the county of M., state of Tennessee," and that the company "agrees to take back all goods left in the possession of the traveling salesman at the time he quits work," and referred to "the expiration of the services of said traveling salesman," etc. A provision on the back of the contract provided that N. was to begin work "as soon as practicable after the goods are received and to work continuously at the agency." During the existence of the agency a note was given by several persons for the agent, to the medical company, for the uncollected price of goods shipped to the agent, namely, \$668.01. One of the makers died and in an action for the settlement of his estate in the courts of the State of Kentucky, where the deceased owned real estate, the medical company made a claim for this sum, which was disallowed. Under the statutes of Tennessee every foreign corporation is required to file a copy of its charter with the Secretary of State, and it is unlawful for it to do or attempt to do any business in the state until it shall have complied with the statute. These statutes have been construed in a number of cases in the Tennessee courts, and it has been uniformly held that, where a corporation does business in that state without complying with the statute, all contracts growing out of such business are illegal and invalid. It was held, on appeal, that the medical company was doing business in Tennessee through its agent, N., who was not a mere purchaser of its products.

The medical company contended that its transactions with N. were interstate commerce, and that therefore the note was binding, although it had not complied with the laws of Tennessee. It was held that this defense was not available, under the facts. These products were not ordered by mail and shipped direct to the company's customers. As a matter of fact, they were shipped to Memphis, and from there distributed to its agent, N., and his brother said that he never ordered any goods except from Memphis. The company's witnesses said that the goods were billed to N. in Minnesota, and were merely sent to Memphis for distribution. Even if there were any doubt as to whether or not the interstate journey ended at Memphis, the interstate journey certainly ended

when the goods were delivered to N. Upon their delivery to him their interstate character ceased; and from that time on, N. as the company's agent, proceeded to sell and deliver the goods in Tennessee. The question of the validity of the note was governed by the law of the place where the transaction was had, as well as the place where it was executed, namely, Tennessee, and not by the law of the place of payment.—*Orr's Adm. v. Orr, Kentucky Court of Appeals*, 163 S. W., 757.

SALE OF DRUGS BY ITINERANT VENDORS—PROHIBITION. The United States Supreme Court holds that a state has power, without violating the equal protection or due process of law clauses of the Fourteenth Amendment to the United States Constitution, to forbid the sale by itinerant vendors of "any drug, nostrum, ointment, or application of any kind, intended for the treatment of disease or injury," although allowing the sale of such articles to other persons. The power which the state government possessed to classify and regulate under consideration (Louisiana Laws, 1894, act No. 49, § 12), is held to be cumulatively sustained and made, if possible, more obviously lawful by the fact that the regulation in question deals with the selling by itinerant vendors or peddlers of drugs or medicinal compounds,—objects plainly within the power of government to regulate.—*Baccus v. Louisiana*, 34 Sup. Ct., 439.

SALE OF INTOXICATING LIQUORS—ATTESTATION OF PERMITS. A druggist, carrying on business in a town in Iowa, in making sales of liquors under permits, omitted to attest two of them, as required by Iowa Code, § 2394. In proceedings for violation of the statute it was held that, although there was no bad faith in the omission, the statute had been violated. An active duty is required of the permit holder in each case, and it must be performed in fact, before he can lawfully make the sale.—*McAllister v. Campbell, Iowa Supreme Court*, 145 N. W., 867.

ACTION FOR PRICE—MISBRANDED DRUGS—AGREEMENT TO ADVERTISE. Action was brought for the purchase price of a quantity of patent medicine called "Nott's Melon Seed Kidney Cure." The defenses were that the plaintiff had broken its contract in regard to advertising agreed therein to be done, and also that the goods were misbranded. The trial court instructed the jury that the only

question which they could consider was whether the drugs in question were misbranded. It was held, on appeal, that this was error, because it appeared that the plaintiff was not able to carry out the advertising part of the contract as it had agreed, and this evidence should have been submitted to the jury. In regard to the alleged misbranding, it appeared that the defendant was prosecuted by the state for having this misbranded article in its store, and that it was fined \$10, and required to pay the costs of the prosecution. It was therefore held that the plaintiff should be required to take back the goods and credit the defendant with the price thereof, in accordance with the terms of the contract of sale.—*Hessig-Ellis Drug Co. v. Harley Drug Co., Nebraska Supreme Court*, 145 S. W., 716.

GASOLINE EXPLOSION—PROXIMATE CAUSE.—An action was brought against the owner of a drug store for injuries to the plaintiff's automobile, caused in the following manner: The plaintiff's son drove the automobile to the defendant's drug store to have it filled with gasoline. After stopping the machine in front of the store and ordering the gasoline, he turned down the light of a lamp, attached to the rear of the automobile about twenty inches under the cap of the tank into which the gasoline was poured, and walked away to talk to some boys. The side of the lamp next to the defendant's store was of metal, so that the light did not show in that direction. The defendant's clerk brought out a five-gallon gasoline can, and, without noticing that the light was burning, placed a funnel in the mouth of the tank, and lifted the can to pour in gasoline, when some of the gasoline ran down, causing an explosion. There was no proof whether the cap on the tank was originally removed by the plaintiff's son or by the defendant's clerk. It was held that the plaintiff's son was negligent in merely lowering the light and removing the tank cap and walking away without explaining to the defendant's clerk that the tank was not ready to be filled. This negligence was a proximate cause of the explosion. Even if the defendant's clerk had been negligent, the plaintiff could not recover, under the rule that where the plaintiff and the defendant are guilty of acts of negligence which together constitute the proximate cause of the injury, then the negligence of the plaintiff, however, slight, bars a recovery.—*Grigsby & Co. v. Bratton, Tennessee Supreme Court*, 163 S. W., 804.

Council Business

COUNCIL LETTER No. 14.

Philadelphia, Pa., April 1, 1914.

To the Members of the Council:

Motion No. 25 (Assignment of Patent Rights to design patent for a Poison Tablet, serial number 801,748, by Norwich Pharmaceutical Company to American Pharmaceutical Association), has received a majority of affirmative votes.

Motion No. 26 (Election of Members). You are requested to vote on the following applications for membership:

No. 55. Frederic Talmage Provost, 1155 Wilson Avenue, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 56. Thos. D. Gregg, 1 N. Main St., Harrisburg, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 57. Frederick Fremont Ingram, Jr., 56 10th St., Detroit, Mich., rec. by Caswell A. Mayo and H. M. Whelpley.

No. 58. Alfred Washington Pauley, 3130 N. Girard Avenue, St. Louis, Mo., rec. by H. M. Whelpley and J. A. Wilkerson.

No. 59. George Chalmers Hall, 1422 52d Street, Brooklyn, New York, rec. by J. H. Beal and J. W. England.

No. 60. Reagan Laurence Yeargan, Acme Drug Company, Harriman, Tenn., rec. by E. A. Ruddiman and J. T. McGill.

No. 61. D. Frank Buckley, 688 Salem Street, Malden, Mass., rec. by C. H. Packard and John G. Godding.

No. 62. Burdine H. Carroll, 4734 17th Avenue, North East, Seattle, Wash., rec. by C. W. Johnson and A. W. Linton.

No. 63. F. J. Collinson, Gainesville, Florida, rec. by J. H. Beal and Ernest Berger.

No. 64. Irving Edward Steele, Sergeant, Hospital Corps, U. S. A., Pettit Barracks, Zamboanga, Mind., P. I., rec. by Gabriel Cushman and Arthur Neville.

No. 65. Turner Fee Currens, 57-59 East 11th St., New York, N. Y., rec. by Frank L. McCartney and J. Fred Windolph.

No. 66. Francis Herbert Tapley, 21 Massachusetts Avenue, Boston, Mass., rec. by Anna G. Bagley and John G. Godding.

No. 67. John Francis Correa, Jr., 47 St. Botolph St., Boston, Mass., rec. by Anna G. Bagley and John G. Godding.

No. 68. Charles Garrels, 1110 Fairmont St., Washington, D. C., rec. by H. E. Kalusowski and Henry B. Floyd.

No. 69. Arthur Henry Barnes, Jr., 32 Crown St., Meriden, Conn., rec. by C. H. Packard and Elie H. LaPierre.

No. 70. Maurice Roland Schmidt, Ph.D., 720 W. 181st St., New York City, N. Y., rec. by E. J. Kennedy and Frank L. McCartney.

No. 71. S. Barksdale Penick, 75 Oakland Avenue, Bloomfield, N. J., rec. by William Mansfield and Frank L. McCartney.

No. 72. John Varga, 2017 W. 25th Street, Cleveland, Ohio, rec. by J. H. Beal and J. W. England.

No. 73. Joseph Kepes, 2017 W. 25th Street, Cleveland, Ohio, rec. by J. H. Beal and J. W. England.

No. 74. Bradley Henry Kirschberg, Lorraine Building, Room 10, Schenectady, New York, rec. by J. H. Beal and J. W. England.

No. 75. Mrs. Caroline Wetterstroem, 2844 Colerain Avenue, Cincinnati, Ohio, rec. by Anna G. Bagley and J. H. Beal.

No. 76. Edgar Golden Atkins, Savannah, Tenn., rec. by J. O. Burge and J. H. Beal.

No. 77. Henry Osterman, 122 South Walnut, Seymour, Indiana, rec. by J. H. Beal and Carl E. Loertz.

No. 78. Russell Neely Eberly, 2601 Columbia Avenue, Philadelphia, Pa., rec. by J. W. England and Williard Graham.

No. 79. Frank J. Schmeitzer, Jr., 2567 Bank St., Louisville, Ky., rec. by Addison Dimmett and George Eisele.

No. 80. Bert A. Newhall, 3237 Western Parkway, Louisville, Ky., rec. by Addison Dimmett and George Eisele.

No. 81. Harry A. Stutzlen, 387 Springfield Ave., Newark, N. J., rec. by Frank C. Stutzlen and David Strauss.

No. 82. Hugo Edmund Wiedemann, 1105 Holland Bldg., St. Louis, Mo., rec. by H. M. Whelpley and J. C. Falk.

No. 83. Olva L. Waller, 5610 N. Market St., St. Louis, Mo., rec. by O. J. Cloughley and C. T. Buehler.

No. 84. Charles William Emery, Jr., 1901 Franklin Ave., St. Louis, Mo., rec. by J. W. Mackelden and J. A. Wilkerson.

No. 85. Hampton H. Bentz, 1823 South Jefferson Ave., St. Louis, Mo., rec. by J. W. Mackelden and Jacob Lieberstein.

No. 86. Ernest William Rose, 3032 Olive St., St. Louis, Mo., rec. by J. W. Mackelden and J. A. Wilkerson.

No. 87. Frederick W. Wolff, 6th and Washington Ave., St. Louis, Mo., rec. by J. W. Mackelden and E. H. Wolff.

No. 88. Bernard H. Griesedieck, Sarah and St. Louis Ave., St. Louis, Mo., rec. by J. W. Mackelden and Louis Lieberstein.

No. 89. Elmer G. Gerding, 3400 Chippewa St., St. Louis, Mo., rec. by J. W. Mackelden and C. T. Buehler.

No. 90. Charles Harry Biermann, 5110 Page St., St. Louis, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

J. W. ENGLAND,
Secretary of the Council.

415 N. Thirty-third Street.



COUNCIL LETTER No. 15.

Philadelphia, Pa., April 14, 1914.

To the Members of the Council:

Motion No. 26 (Election of Members; Applications Nos. 55 to 90, inclusive), has received a majority of affirmative votes.

Motion No. 27 (Election of Members). You are requested to vote on the following applications for membership:

No. 91. Roland Treiber Lakey, 271 Belvidere Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 92. Emil Bruno Kolbe, 671 Junction Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 93. William H. Allen, Detroit Technical Institute, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 94. Nathaniel Hugh Jones, 188 Kenilworth, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 95. Charles S. Elliot, Sgt. 1st Class, Hospital Corps, Reg't Hosp., 23d Infantry, U. S. A., Texas City, Texas, rec. by H. W. Riess and George F. Payne.

No. 96. William J. Remus, 127 LaGrave Ave., Grand Rapids, Mich., rec. by W. C. Kirchgessner and C. H. Packard.

No. 97. Clyde L. Thomas, Grandville, Mich., rec. by W. C. Kirchgessner and C. Herbert Packard.

No. 98. John Perley Regan, Ramblers' Way, North Weymouth, Mass., rec. by Elie H. LaPierre and C. Herbert Packard.

No. 99. George C. Sabin, Grant's Pass, Oregon, rec. by Louis G. Clarke and J. H. Beal.

No. 100. John Werner, Suite 7, Sherbrooke Block, Winnipeg, Canada, rec. by H. E. J. Bletcher and E. Nesbitt.

No. 101. Alexander Campbell, 538 5th Ave., North Saskatoon, Sask., Canada, rec. by H. E. J. Bletcher and E. Nesbitt.

No. 102. Roy L. Connell, Livingston, Mont., rec. by Wm. L. Bomme and F. A. Scheuber.

No. 103. Howard Pinkerton, 81 Grand River Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 104. George W. Crane, 421 Michigan Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 105. Andrew Palmerston Young, 153 Grand River Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 106. C. Raymond Wait, 242 Grand River Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 107. Arthur E. Chantler, 330 Grand River Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 108. Dr. James P. Casey, 424 Woodward Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 109. William Wright Fiero, 417 Woodward Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 110. Harvey S. Bowen, 357 Woodward Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 111. Thomas Alfred Buckland, 9 Municipal Courts Bldg., St. Louis, Mo., rec. by J. C. Falk and H. M. Whelpley.

No. 112. Gustav Rehfeld, 4314 Washington Ave., St. Louis, Mo., rec. by Wm. K. Ilhardt and J. A. Wilkerson.

No. 113. Otto Norbert Speckart, 3342 Franklin Ave., St. Louis, Mo., rec. by Sidney Willette and H. M. Whelpley.

No. 114. John Alphonse Sanger, 4101 St. Louis Ave., St. Louis, Mo., rec. by A. C. Schutte and H. M. Whelpley.

No. 115. Daisy Adelaide Frick, Audubon, Iowa, rec. by Zada M. Cooper and Wilber J. Teeters.

No. 116. Earl B. Putt, 641 Washington St., U. S. Food and Drug Lab., New York, N. Y., rec. by J. H. Beal and G. D. Beal.

No. 117. Thos. Jefferson Draper, Brinkley, Ark., rec. by E. A. Ruddiman and J. T. McGill.

No. 118. Fred A. Barker, 134 Main St., Gloucester, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 119. Frederic Pratt Brooks, 702 Washington St., Norwood, Mass., rec. by C. Herbert Packard and Theodore J. Bradley.

No. 120. George Henry Hartwell, Main and Central Sts., Southbridge, Mass., rec. by C. Herbert Packard and Theodore J. Bradley.

No. 121. Irving H. Robitshek, 86 S. 10th St., Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.

No. 122. Theo. Bowie, Grady Hospital, Atlanta, Ga., rec. by George F. Payne and Mrs. M. M. Gray.

No. 123. Richard Calvin Stofer, 28 Hayes St., Norwich, N. Y., rec. by G. M. Beringer and Franklin M. Apple.

J. W. ENGLAND,
Secretary of the Council.

415 N. Thirty-third Street.

COUNCIL LETTER No. 16

Philadelphia, Pa., April 6, 1914.

To the Members of the Council:

The following letter from James H. Beal, under date of April 15, 1914, has been received by J. W. England, Chairman of Committee on Publication, but in view of the peculiar urgency of the situation and the fact that if the Committee on Publication elected an Acting Editor, such action would have to be approved by the Council, and the further fact that the selection of an Acting General Secretary has to be made by the Council itself, it is thought best to bring the whole subject directly before the Council for action:

"I desire to be relieved of my position as Editor and General Secretary at as early a date as convenient, say May 1st, or after the issue of the JOURNAL for that month. My reasons for this you, of course, already know.

During the past winter the attacks from my old enemy have been coming with increasing frequency and severity. A few days of unusual mental or physical stress are sufficient to bring on quite annoying and some rather alarming symptoms.

After careful consideration, and consultation with my medical adviser, I am convinced that the only thing I can do is to free myself entirely from the constant strain and responsibility which are inseparably attached to the position which I hold. By being relieved early this spring, I can live out of doors during the summer, and take such exercise as will enable me to put myself in shape for another winter; but I never expect to be in condition to again take up any work which will confine me to an inflexible schedule of duties.

Your kindness of heart will probably prompt you to suggest that I take a vacation and look forward to resumption of the editorship at some future date, but such an arrangement would not be at all satisfactory, as I could not divest myself of a sense of responsibility, which is the thing above all that I wish to do.

I suggest that the Committee on Publication select Ernest C. Marshall as Acting Editor and Acting General Secretary until the Detroit meeting, which will give plenty of time to settle upon some one for the permanent position. I will keep in close touch with Mr. Marshall, and once relieved of the feeling of responsibility for the JOURNAL, will be able to give him all necessary advice and instructions without worry to myself.

As it would hardly be proper to allow him my salary in addition to his own, would suggest that the Committee pay him for *all of his duties* at the rate of \$3,000.00 per year from the time when he takes full charge to the first of September. This would be at the same rate as was allowed me for the same work prior to the Nashville meeting.

If the Committee will take *immediate action*, the matter should be in shape so that I can retire from the work officially not later than the middle of May, or, at the outside, the first of June."

Motion No. 28 (Acceptance of Resignation of James H. Beal as Editor and General Secretary). Do you accept the resignation of James H. Beal as Editor and General Secretary to take effect May 1, 1914, or after the issue of the JOURNAL for that month?

Motion No. 29 (Election of Ernest C. Marshall as Acting Editor and Acting General Secretary). Are you in favor of electing Ernest C. Marshall, at present Advertising Manager of the JOURNAL, as Acting Editor of the JOURNAL and Acting General Secretary of the Association until the annual meeting of the Association at Detroit during the week of August 24 next, the Association to pay him for all of his duties at the rate of three thousand dollars per year from the time when he takes full charge to the first of September?

J. W. ENGLAND,
Secretary of the Council.

415 N. Thirty-third Street.



UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the Period Ending April 15, 1914.

Cofer, L. E., Assistant Surgeon General. Directed to proceed to Boston, Mass., for conference with the medical officer in charge of the Marine Hospital relative to ration issued to patients and attendants. March 20, 1914.

Carter, Henry R., Senior Surgeon. Directed to make necessary trips between Baltimore, Md., and Washington, D. C., for the purpose of giving lectures on malaria and yellow fever to student officers now taking course of instruction at the Hygienic Laboratory. March 21, 1914.

Woodward, R. M., Surgeon. Granted leave of absence for two months from February 3, 1914. March 19, 1914.

Wertenbaker, C. P., Surgeon. Granted four days' leave of absence, on account of sickness, from March 20, 1914. March 24, 1914.

Eager, J. M., Surgeon. Authorized to attend meeting of Permanent Committee of the International Office of Hygiene at Paris, France, beginning April 21, 1914. March 20, 1914.

Nydegger, J. A., Surgeon. Directed to proceed to the Immigration Station, Ellis Island, N. Y., for the purpose of witnessing the various tests there used for the determination of mental development. March 20, 1914.

Lumsden, L. L., Surgeon. Directed to proceed to certain counties in West Virginia and Indiana for investigations of typhoid fever with special reference to rural sanitation. March 18, 1914.

Corput, G. M., Surgeon. Directed to proceed to New Orleans, La., on business connected with procuring supplies for the station when occasion demands, during the period April 1, to June 30, 1914. March 21, 1914.

Goldberger, Jos., Surgeon. Directed to proceed to Richmond, and other points in the state of Virginia, to visit insane and other institutions for the purpose of inquiring into the prevalence and origin of pellagra. March 19, 1914.

Simpson, Friench, Passed Assistant Surgeon. Relieved from duty at San Francisco, Cal., and special duty at Seattle, Wash., and directed to proceed to Washington, D. C., and report to Director, Hygienic Laboratory, for duty in investigation of occupational diseases. March 18, 1914.

Olesen, Robert, Passed Assistant Surgeon. Upon completion of present assignment to the Hygienic Laboratory for instruction, directed to report to the Director for duty. March 18, 1914.

Lanza, A. J., Passed Assistant Surgeon. Upon completion of present assignment to the Hygienic Laboratory, for instruction, relieved from duty at the Fort Stanton Sanatorium and directed to report to the Director for duty. March 18, 1914.

Directed to undertake investigations of the influence of migration of tuberculosis persons in interstate traffic in the states of Arizona and Colorado. March 18, 1914.

Grimm, R. M., Passed Assistant Surgeon. Relieved from duty at the Marine Hospital, Savannah, Ga., and directed to report to the Director, Hygienic Laboratory, for duty. March 18, 1914.

Parcher, George, Assistant Surgeon. Directed to report to the commanding officer of the U. S. Revenue Cutter Miami at Tompkinsville, N. Y., for duty in the ice patrol of the North Atlantic Ocean. March 18, 1914.

Glanville, W. E., Assistant Surgeon. Upon completion of present assignment to the Hygienic Laboratory for instruction, directed to report to the Director for duty. March 18, 1914.

Baughman, D. S., Assistant Surgeon. Relieved from duty at the Marine Hospital, Chicago, Ill., and directed to proceed to Seattle,

Wash., and report to Surgeon B. J. Lloyd for duty. March 18, 1914.

Hoskins, J. K., Sanitary Engineer. Directed to proceed to Harrisburg, Pa., for consultation with state health authorities in regard to securing sanitary data for use in investigations of pollution of the Ohio river. March 18, 1914.

Shoub, H. L., Sanitary Bacteriologist. Directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty in connection with field investigations of stream pollution. March 18, 1914.

Sharpe, W. K., Jr., Epidemiologist. Granted two days' leave of absence en route to Washington, D. C. March 21, 1914.

Stoner, G. W., Senior Surgeon. Granted five days' leave of absence from March 21, 1914, under paragraph 193, Service Regulations. March 26, 1914.

Wertenbaker, C. P., Surgeon. Relieved from duty at Norfolk, Va., and directed to proceed to Providence, R. I., not later than May 1, 1914, and assume charge of the Service at that port. March 24, 1914.

Grubbs, S. B., Surgeon. Relieved from duty at Providence, R. I., upon arrival of Surgeon C. P. Wertenbaker, and directed to proceed to Louisville, Ky., and assume charge of the Service at that port. March 24, 1914.

Lumsden, L. L., Surgeon. Referring to Bureau orders of March 18, 1914, directed while conducting investigations of rural sanitation in West Virginia to return to Washington, D. C., at intervals of at least two weeks for conference and to make bacteriological examinations of specimens collected. March 28, 1914.

Goldberger, Joseph, Surgeon. Directed, in connection with investigations of pellagra, to proceed at such times as may be necessary to Catlett, and other places in the State of Virginia, to make epidemiological studies of cases of the disease. March 27, 1914.

McLaughlin, A. J., Surgeon. Granted six months' leave of absence from April 1, 1914, without pay. March 27, 1914.

Pierce, C. C., Surgeon. Upon completion of the course of instruction at the Hygienic Laboratory, directed to report to the Bureau for duty in connection with the preparation of a Service exhibit for the Panama-Pacific Exposition. March 25, 1914.

Frost, W. H., Passed Assistant Surgeon. Authorized, in conjunction with Sanitary Chemist H. W. Streeter, to present before the section on water, sewage and sanitation of the American Chemical Society an outline of the work being carried on in the investigation of the pollution of the Ohio River and the Laboratory work in connection therewith. March 25, 1914.

Paine, Liston, Assistant Surgeon. Relieved from duty at the Marine Hospital, Boston, Mass., and directed to proceed to Cincinnati, Ohio, and report to Passed Assistant Surgeon W. H. Frost for duty in the investigations of the pollution of the Ohio River. March 26, 1914.

Ruoff, John S., Assistant Surgeon. Granted one month and seven days' leave of absence, on account of sickness, from February 24, 1914.

Stiles, C. W., Professor of Zoology. Detailed at the request of the Eighth District Medical Society of North Carolina, to attend the annual meeting of that society, to be held at Greensboro, N. C., April 2-3, 1914, and present an address on a public health subject of general interest. March 24, 1914.

Phelps, E. B., Professor of Chemistry. Detailed to attend the meeting of the American Chemical Society, to be held at Cincinnati, Ohio, April 7-10, 1914, for the purpose of presenting a paper on chemical studies of the pollution of the Ohio River. March 31, 1914.

Seidell, Atherton, Technical Assistant. Detailed to attend the meeting of the American Chemical Society to be held at Cincinnati, Ohio, April 7-10, 1914, for the purpose of presenting a paper before the pharmaceutical section of the society. March 31, 1914.

BOARD CONVENED.

Board of commissioned medical officers convened to meet at the Bureau, Monday, April 27, 1914, at 10 o'clock a. m., for the physical and mental examination of candidates to determine their fitness for appointment as Assistant Surgeons in this Service. Detail for the board: Assistant Surgeon-General W. G. Stimpson, chairman; Assistant Surgeon-General W. C. Rucker, member; Passed Assistant Surgeon Hugh de Valin, recorder. March 27, 1914.

Williams, L. L., Surgeon. Granted one day's leave of absence, on account of sickness, March 26, 1914. April 4, 1914.

Guiteras, G. M., Surgeon. Granted three days' leave of absence, on account of sickness, March 22, 1914. April 4, 1914.

Brown, B. W., Surgeon. Granted one month's leave of absence to date from arrival in San Francisco, Cal. April 3, 1914.

Clark, T., Surgeon. Directed to proceed to the states of West Virginia and Virginia for the purpose of completing investigations of the prevalence of trachoma and other infectious diseases among the mining and mountainous population of those states. April 3, 1914.

Directed to proceed to Huntington, W. Va., for the purpose of addressing the public health meeting to be held in that city, April 3, 1914. April 6, 1914.

Anderson, John F., Surgeon. Directed to proceed to Toronto, Can., for the purpose of attending the annual meeting of the American Association of Pathologists and Bacteriologists to be held in that city April 9-11, 1914. Also returning, to stop in New York, N. Y., for the purpose of attending the annual meeting of the Commission of Milk Standards, April 13, 1914. April 2, 1914.

Schereschewsky, J. W., Surgeon. On request of the Joint Board of Sanitary Control of the Garment Trade and the Commissioner of Health of New York, directed to proceed to New York, N. Y., and conduct, in co-operation with the above agencies, an investigation into the sanitary condition of the garment workers' trade and the physical status of employees engaged therein. April 7, 1914.

Warren, B. S., Surgeon. On request of the State Board of Health of Louisiana, directed to proceed to New Orleans in time to attend a conference upon April 20, 1914, of local and state health officers, mayors, and other authorities relative to public health work, with particular reference to the sanitary inspection and regulation of public buildings and places of public assembly. April 2, 1914.

Creel, R. H., Passed Assistant Surgeon. Directed to proceed immediately to Havana, Cuba, on account of plague infection at that port. April 6, 1914.

Collins, G. L., Passed Assistant Surgeon. Granted two days' leave of absence, on account of sickness, March 28 and March 30, 1914. April 3, 1914.

Spratt, R. D., Passed Assistant Surgeon. Upon the request of the Secretary of Labor, directed to proceed, at the first convenient opportunity, to Wheeling, W. Va., for the purpose of making a re-examination of aliens Sada and Barbara Nassif. April 2, 1914.

Frost, W. H., Passed Assistant Surgeon. Granted two days' leave of absence, March 29-30, 1914, under paragraph 193, Service Regulations. April 2, 1914.

Simpson, Friench, Passed Assistant Surgeon. Directed to proceed to New York, N. Y., for duty under Surgeon J. W. Schereschewsky, in connection with investigations of the sanitary conditions of garment workers' trades and the physical status of employees engaged therein. April 7, 1914.

Bryan, W. M., Passed Assistant Surgeon. Relieved from duty at the Marine Hospital at Stapleton, N. Y., and directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty; then to proceed to Martinsburg, W. Va., and report to Surgeon L. L. Lumsden for duty in field investigations of typhoid fever. April 6, 1914.

Olesen, Robert, Passed Assistant Surgeon. Directed to proceed to New York, N. Y., for duty under Surgeon J. W. Schereschewsky, in connection with investigations of the sani-

tary conditions of garment workers' trades and the physical status of employes engaged therein. April 7, 1914.

Lanza, A. J., Passed Assistant Surgeon. Directed, upon request of the Secretary of the Interior, in connection with Bureau order of March 18, 1914, to make sanitary investigations of metal mines at Butte, Mont., and Cripple Creek, Col., and vicinity, also of the mining industry in Arizona with special reference to "Miners' asthma." April 3, 1914.

In carrying out above order, directed to proceed by way of Franklin Furnace, N. J., for the purpose of inspecting the sanitation of the mines located there, and Pittsburgh, Pa., to become familiar with the operations of the laboratory maintained by the Bureau of Mines. April 7, 1914.

Ridlon, J. R., Passed Assistant Surgeon. Directed in connection with the investigations of pellagra to assume charge of the Marine Hospital at Savannah, Ga. April 6, 1914.

Watkins, J. A., Assistant Surgeon. Relieved from duty in the Hygienic Laboratory, and on request of the Secretary of the Interior, directed to proceed to Pittsburgh, Pa., for the purpose of making investigations of the sanitary conditions of metallurgical plants in the Pittsburgh district, as they affect the health of employes. April 3, 1914.

Knox, H. A., Assistant Surgeon. Granted 11 days' leave of absence on account of sickness, from March 17, 1914. April 4, 1914.

Glanville, W. E., Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to proceed to San Francisco, California, and report to the Medical Officer in charge of the quarantine station for duty, and assignment to quarters. April 6, 1914.

Thometz, H. M., Assistant Surgeon. Directed to proceed to Seattle, Washington, about April 20, 1914, and report to the commanding officer of the Revenue-Cutter "Tahoma" for duty during the summer cruise in Alaskan waters. April 6, 1914.

Treadway, W. L., Assistant Surgeon. Granted 15 days' leave of absence from April 4, 1914. April 4, 1914.

Stiles, C. W., Professor of Zoology. Detailed to attend the meeting of the South Carolina Medical Association at Florence, S. C., April 15-16, 1914. April 3, 1914.

Voegtlin, Carl, Professor of Pharmacology. Directed to proceed to Catlett, Va., for the purpose of collecting material and securing data for use in connection with investigations of pellagra. April 3, 1914.

Wells, W. F., Sanitary Chemist. Directed to proceed to Cumberland, Md., and vicinity for the purpose of making chemical and bacteriological analyses of samples of water in connection with investigations of the pollution of the Potomac River. April 4, 1914.

Kerr, J. W., Assistant Surgeon-General. Directed to proceed, by way of Providence, R. I., to Boston, Mass., for consultation with the state authorities regarding methods of sanitary administration. April 9, 1914.

Rucker, W. C., Assistant Surgeon-General. Directed to proceed to Baltimore, Md., on April 14, 1914, for the purpose of delivering a stereopticon lecture on the subject of "Bubonic Plague." April 10, 1914.

Clark, T., Surgeon. Detailed to attend the meeting of the Virginia Public Health Association, to be held at Charlottesville, Va., April 23, 1914, for the purpose of presenting a paper on trachoma. April 13, 1914.

von Ezdorf, R. H., Surgeon. Detailed to attend the meeting of the section on Malaria Eradication of the National Drainage Congress in Savannah, Ga., April 22-25, 1914, for the purpose of presenting a paper describing present and contemplated governmental activities in relation to malaria investigations. April 13, 1914.

Fox, Carroll, Surgeon. Granted one day's leave of absence April 14, 1914. April 11, 1914.

Pierce, C. C., Surgeon. Directed to proceed to New York, N. Y., for the purpose of investigating a closet-closing device now operating on certain railroads; also while in New York to visit such places as may be necessary, to collect information which may be of assistance in the preparation of the Service exhibit at the Panama-Pacific International Exposition. April 11, 1914.

Glanville, W. E., Assistant Surgeon. Directed to report, April 20, 1914, to the commanding officer of the Revenue-Cutter "Bear" at San Francisco, Cal., for duty during the summer cruise in Alaskan waters. April 10, 1914.

Jenkins, Luther W., Assistant Surgeon. Directed to report, April 15, 1914, to the commanding officer of the Revenue-Cutter "Manning" at San Francisco, Cal., for duty during the summer cruise in Alaskan waters. April 7, 1914.

Derivaux, R. C., Assistant Surgeon. Directed to proceed, when directed by Surgeon R. H. Von Ezdorf, to points in the South, particularly in the States of Arkansas, Mississippi, South Carolina and Tennessee for the investigation of the prevalence of malaria and the collection of pathological material and specimens of mosquitoes. April 13, 1914.

Treadway, W. L., Assistant Surgeon. Granted two days' additional leave of absence from April 19, 1914. April 14, 1914.

Crane, J. F., Acting Assistant Surgeon. Granted seven days' leave of absence from April 10, 1914. April 10, 1914.

Marsh, W. H., Acting Assistant Surgeon. Granted four days' leave of absence from April 27, 1914. April 11, 1914.

Smith, E. E., Sanitary Bacteriologist. Directed, when instructed by the medical officer in charge of the investigations of the pollution of the Ohio River, to proceed to such points on the Ohio River watershed, as he may designate, for the purpose of collecting samples, of water, making sanitary surveys, and laboratory investigations. April 9, 1914.

Veldee, Milton V., Sanitary Bacteriologist. Directed, when instructed by the medical officer in charge of the investigations of the pollution of the Ohio River, to proceed to such points on the Ohio River watershed as he may designate, for the purpose of collecting samples of water, making sanitary surveys, and laboratory investigations. April 9, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.

<>

BRIGGS, A.,

From 204 Bowitzer Pl., Richmond, Va.
To 204 Howitzer Pl., Richmond, Va.

BLANK, H. G.,

From 5132 Coral St., Pittsburgh, Pa.
To Springdale, Pa.

DAVIS, C. R.,

From 30 State St., Bangor, Me.
To 24 State St., Bangor, Me.

DAILY, A. D.,

From Frisco Hospital, St. Louis, Mo.
To Sherman, Texas.

ECKLER, C. R.,

From 535 Northern Ave., Indianapolis, Ind.
To 335 Northern Ave., Indianapolis, Ind.

EISENMAN, F. J.,

From H. C., U. S. A., Fort Wm. McKinley (Manila), P. I.
To Department Hospital, Manila, P.I.

GIBSON, F. L.,

From U. S. P. H. and M. H. Service, Kala-
wao, Hawaii, H. I.
To 4141 Clarendon Ave., Chicago, Ill.

HAYS, F. B.,

From 100 William St., New York, N. Y.
To Oxford, N. C.

LEE, O. W.,

From 54 E. 50th St., 1st Apt., Chicago, Ill.
To 6 5th Ave., LaGrange, Ill.

OTIS, J. F.,

From Clarion and Montgomery Sts., Cin-
cinnati, O.
To s. w. cor. Ruth and Gilbert Sts., Cin-
cinnati, O.

PEARSON, J. F.,

From Cumberland Court, Annapolis, Md.
To 272 King and George Sts., Annapolis,
Md.

WILKERSON, J. A.,

From 14th and Madison St., St. Louis, Mo.
To 2213a St. Louis Ave., St. Louis, Mo.

YOUNG, HARRY C.,

From 7939 Maderia St., Pittsburgh, Pa.
To 309 Harrison Ave., Avalon, Pa.

ZEMAN, OTTO,

From 3909 W. 26th St., Chicago, Ill.
To cor. 30th and Central Park Ave., Chi-
cago, Ill.

THE PRICE CUTTER.

A great obstacle to honest constructive effort is the *Price Cutter*. Next in line comes the blackguard who *encourages* the price-cutting and endeavors to force all competitive effort down to the dead level of mediocrity.

We met one of his ilk the other day. "What," says he, "you charge \$2.50 for that job when Faket charges only a dollar! You're a robber!" Yes, Faket does do it for a dollar and it may be as well done as my \$2.50 job. The difference is that Faket is a *one dollar man* while I'm a \$2.50 man. In this free country there is nothing to keep that blackguard from going to Faket, but in trying to bulldoze me down to Faket's level he violates all decency. I have the indisputable right to place my own value upon my own time and services. Why will one perform a laparotomy for \$50 while another asks \$500? It is generally a matter of individual attainment. The \$50 man has only a \$50 reputaion at stake, while the \$500 man assumes \$500 worth of responsibility. The \$450 difference can often be accounted for in the cheap man's lack of experience; lack of professional standing and pride; financial stress, or lack of moral stamina to ask an honest price for an honest job.

It is an odd commentary upon human nature that the man who hammers down the price is the first to raise a howl when his own toes are trod upon. He exacts the last farthing, but *you* must always make concessions. Keen competition has fixed a fairly stable price on all forms of human endeavor, as well as on commodities. These prevailing prices take into account a great many economic factors.

In the case of merchandise there must be added to the actual cost of the article, the merchant's overhead expense, which includes rent, salaries, investment, insurance, losses in deterioration and bad accounts, telephone, lighting, freight, advertising, etc., etc. If an article costs the dealer seventy-five cents, he does not "break even" until he has added on twenty-five percent or more of operating cost. This accounts for the difference in the price listed by producers and the *cost* price charged by the dealer.

As a rule staple articles allow a margin just sufficient to cover this "overhead" expense and a small excess as profit. Therefore, the man who "cuts" on such staple articles is bound to be an impostor, for the reason that he is compelled to make the difference good on merchandise, the value of which is unknown to the purchaser.

In the case of skilled labor or professional services, the factors of individual attainment and the law of supply and demand apply. A student out of college will give his services for a fraction of what he will demand later in his experience. He has no moral right to exact a *fancy price* for his services. The apprentice is not entitled to the same emolument as the master workman, although he may perform a given piece of work quite as creditably.

The Price Cutter will continue to have his following, but competition and achievement are entitled to other considerations than arbitrary calculation of dollars and cents. It is some consolation to those who have been imposed upon to know that the "cut-throat" must eventually come to grief.—*California State Journal of Medicine*.

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DR. BEAL'S RESIGNATION.

THE members of the Association, without exception, will most gladly receive the news that the resignation of Dr. Beal, as Editor of the Journal and General Secretary of the Association, has not been accepted by the Council to take immediate effect, but that action upon that matter has been practically deferred until the convention in August, at which time every friend of the A. Ph. A., and of American pharmacy, will hopefully wish that Dr. Beal's health will have been so restored that he may be able again to resume the position which he has so signally honored.

In making this statement, I beg to be pardoned for intruding a personal acknowledgment of my most heartfelt regard and esteem for my chief, Dr. Beal, and to express my most sincere thanks to him, for the kindness and courtesy with which he received me as his assistant, and to say, that nothing could give me more satisfaction than to see him fully restored to health and once more occupying the desk and place he has made for himself.

In my occupancy of the position of Acting Secretary of the Association and Acting Editor of the Journal, I earnestly solicit from the members their sympathetic consideration. That I cannot fully fill the place of Dr. Beal, it is unnecessary for me to avow, but to him who has reposed this confidence in my ability, in selecting me as the temporary occupant of his place, and to every member of the Association, from the highest to the lowest, I pledge my most earnest effort to warrant his and their confidence and esteem. Should I fail in this endeavor it will not be from lack of desire to serve the Association to the utmost extent of my humble ability, to which effort I pledge my whole heart and soul.

ERNEST C. MARSHALL,
Acting Editor and Acting General Secretary.

ASSOCIATION MEETINGS.

DURING the months of June and July many meetings of State Associations occur, and the pharmacists of the country will gather together in state conventions to consult and to deliberate as to the manner by which the interests of the profession,—and consequently their own most important interests,—can be advanced.

At these annual gatherings “many men of many minds” will convene and it is greatly to be desired that from their deliberations will come great and lasting good to the whole profession.

The members of our craft,—more than those of any other,—need the broadening influence which comes from association-work; the touching of elbows with other men of their profession; from the exchange of views with their fellows; from the tolerant listening to, and the weighing of other men’s opinions.

It is not the relinquishment of our own ideas to respectfully hear and to carefully weigh the arguments which another brain has wrought out. In this great land of ours, where education is so universally diffused, the man from the back-country, in a small store, has perhaps used his gray matter to good advantage and, from his thought, may have evolved ideas productive of much good, if adopted. Nothing advances the interests of any organization more than toleration of other’s opinions, and a desire to profit by the best thoughts of every one of its members, and we should, in all of these conventions, patiently listen to, and sift these thoughts carefully, in order that no wheat be thrown away with chaff,—nothing wasted that should be preserved.

The officers of all these associations have earnestly worked to promote the interests of the Association and the profession during the past year. They have kept a vigilant eye upon all legislation and have guarded against unwise attempts to fetter and to curb the general and natural advancement of the trade. To them should be accorded an unqualified support and an earnest loyalty. They have not worked for self-aggrandizement, but for the good of all. Let us then go to our State Conventions with an earnest purpose to support loyally all the efforts these officers have made in the interests of our craft. Let us listen thoughtfully and weigh well, all that is said at these meetings upon every question which is presented, and let us dedicate this period to the uplift and the advancement of the profession to which we look for our welfare and support. Not alone to play and to pleasure should these gatherings be devoted, but our Association meetings should mean work for every one, and let us from this work derive an enthusiasm, a loyalty, not alone to our state organizations, but to the great national organizations which make the profession of pharmacy a power in the nation. From this inspiration maybe will come a desire to go to Detroit to participate in the great national convention of the American Pharmaceutical Association from whose annual gatherings no one ever returned without being a better, a broader and a wiser man. What glorious results might follow if every pharmacist in the country came to the Detroit meeting and aligned himself and his influence in support of the policies, the achievements and the traditions of the A. Ph. A., and, returning home, would labor earnestly in his field of influence to advance the true interests of pharmacy, along the broad lines laid down by

Squibb, Maisch, Procter and the many others who labored so long and earnestly to make pharmacy a true and an honored profession,—one ranking with any other in the world. It is not necessary that members should devote their valuable time to work for the Association; to sacrifice anything. It only calls for them to hold it in their heart of hearts as *the* Association of the country and the world, the one which has ever held its rudder true to the highest ideals of pharmacy; to look up to it as their *Alma Mater*,—their loving mother,—whose ever-watchful care is over and around them, ever seeking for their weal.

In this spirit the old-time men of our craft served their guild, and made it their protection against the tyranny of the over-lords and others who would oppress them. To-day the Pharmaceutical Guild of the Nation,—the American Pharmaceutical Association,—has taken the place of the guild of the old burghs, for, under modern conditions, the men of Boston know the men of San Francisco as well as the men of olden time knew their *confreres* of the next city, and this intimate connection should make for a solidarity, a harmony and a strength which should be irresistible for good if properly utilized and fostered and it is by association-work that such results may be achieved.

If every member would grapple this thought to his soul and take this interest in the Association, much good would result to American pharmacy and every one of its members would attain to a higher, better and a more profitable position in the community.



DETROIT,—THE BEAUTIFUL.

Anyone who has visited Detroit can readily answer the question—"Why is Detroit the greatest convention city in the world?" Space precludes our giving the thousand and one reasons here. Suffice it to say that Detroit fully lives up to the reputation expressed in its world-wide known slogan,

"In Detroit Life's Worth Living Every Day!"

By virtue of its location, Detroit is preëminently the Convention City of America. Situated on the high terraced bank of its beautiful river,—the noble strait which connects Lake St. Clair and Lake Erie,—its climate is ideal for mid-summer gatherings. Its many beautiful public buildings, churches and other edifices delight the artistic eye, while a lover of Nature finds keen pleasure in the enjoyment of its magnificent parks, its boulevards and suburban drives.

Detroit will be the Mecca for many conventions this coming summer. The greatest of these will be that of the American Pharmaceutical Association which will be held August 24-29. An efficient entertainment committee has arranged a splendid program for your pleasure and benefit,—they say “There never was a better one.” For this week Detroit will be the drug-center of the world where the great men of the profession will gather and confer as to the welfare of our noble craft. Your presence will add to the success of the convention, and you will have “the time of your life.”

Send your notice at once to the Local Secretary, Mr. Leonard A. Seltzer,—tell him you will be in Detroit with us, and “be a Booster”; get your fellow-pharmacists to come along, and with them get away from the daily grind and broaden your horizon. You can greatly serve your Committee on Accommodations by sending your notice to-day. And you will also be assured of better quarters and service. You are confidently expected and will be cordially welcomed by your brothers of Detroit. Omar Khayyam sings:

“When all the temple is prepared within,
Why waits the drowsy worshipper without?”

Why then wait? Say to yourself, “I’ll be in Detroit in August,” and **BE THERE.**

THE DETROIT HOTELS.

Members of the American Pharmaceutical Association, expecting to attend the Detroit meeting, beginning Monday, August 24, will be interested to know about the various hotels and their rates. May we suggest, too, that reservations be made reasonably early in order to avoid any doubt about getting satisfactory accommodations? Detroit is well filled with tourists in July and August, and it would be most unwise not to reserve your rooms and thus make sure of getting them.

The hotels are as follows:

Pontchartrain (official headquarters)—\$2 to \$2.50 for single room, \$3 to \$4 for double room; \$3, \$3.50, \$4, \$5 for single room with bath; \$5, \$6, \$8 for double room with bath.

Cadillac (one block away)—\$2 to \$5; rooms with bath 50 cents extra; \$1 less than twice the price when two occupy a room.

Griswold (two blocks away)—\$1.50, \$2, \$2.50, \$3; \$2 and upward for rooms with bath; add \$1 to the price when two occupy a room.

Ste. Claire (American plan—two blocks away)—\$2.50 to \$4.50; \$3.50, \$4 and \$4.50 with bath.

Tuller (four blocks away)—\$1.50 and upwards; add \$1.50 when two occupy a room.

Charlevoix (five blocks away)—\$1.50 and upwards; add \$1 to price when two occupy a room.

Wayne (eight blocks away)—\$2, \$2.50, \$3, \$3.50, \$4; \$3.50 and upwards for rooms with bath; \$1 additional when two occupy a room.

Plaza (five blocks away)—\$2 for single rooms; \$3 for double rooms; meals 50 cents each.

Lenox (five blocks away)—\$1 single room; \$1.50 double room; \$9 per week single room with bath; \$12 per week double room with bath.

Addison (eight blocks away)—\$2 and \$2.50 for one room; \$3 and \$3.50 for two rooms; \$4 and \$5 for three rooms.

It will be observed that the only American hotel in the list is the Ste. Claire.

EXCURSION FROM DETROIT TO PT. COCKBURN AND RETURN.

The trip from Detroit to Toronto is made in the elegantly appointed trains of the C. P. R. Leaving Fort St. Union Depot, the train soon passes upon the railway ferry, to be transferred to Windsor in Canada. From the middle of the stream, an excellent view of Detroit may be observed. Leaving Windsor, the train passes through a rich farming country to Chatham, London, Woodstock, Galt, Milton and Erindale, all prosperous manufacturing and farming communities. At Cooksville, Dixie, Summerville and Islington many Toronto people have their summer homes. At West Toronto, those tourists who do not care to visit Toronto, can make connection for Bala. Toronto is, however, most inter-



Shooting the Rapids — Muskoka Lakes.

esting, and well repays a visit to Canada's "Queen City." From Toronto to Bala are many beautiful views, among them being the Falls of the Severn and Muskoka. Leaving Bala, the tourist passes through the beautiful lakes of Muskoka, Rosseau and Joseph, which are situated some hundred and twenty miles from Toronto, and on the east of the Canadian Pacific line. Stretching fifty miles further north, is the famous Georgian Bay country. These two districts, comprising as they do rivers, lakes, islands and bays innumerable, form one of the greatest vacation lands yet discovered. This romantic network, of open lakes and intricate waterways, every year rings with the laughter of the city dweller, who finds in the clear waters and pine-clad islands of the Muskokas, in the sheltered inlets of Georgian Bay and Point Au Baril, and on the rocky shores of the French River that outdoor life which fills the lungs with purest of ozone, the body with new vigor, and the heart with new happiness.

"Own your own island," say some, and surely there is a wide choice, for there are thirty thousand islands in Georgian Bay. Those of more moderate desires



Canoe Sailing on Georgian Bay.

can, for a dollar a day, in some lake hotel or boarding house, breathe in the balsamic odors of pine and spruce, and with the daily swim, happy picnics and canoe parties, find exquisite enjoyment and regain health and joy of life.

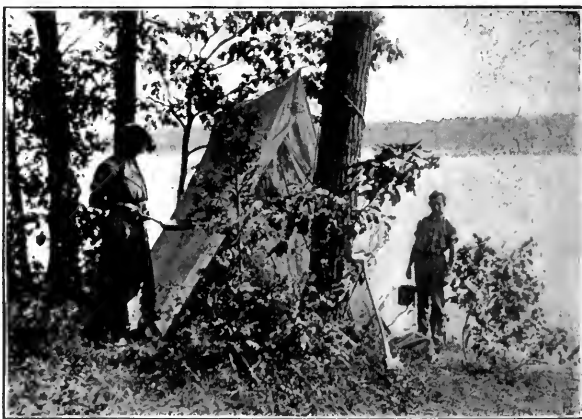
Then there are those who scorn dwellings, and prefer camp-life in the open, taking with them bacon, flour, butter, sugar, salt and tea, needing but a fish or two from the cool waters to complete all that an epicure could crave.

By Canadian Pacific train from Toronto to Bala, the gateway of the Muskoka district, is some four hours' ride through a rich agricultural section, and a good service,

combined with the fact that there are both United States and Canadian customs officers located at Bala station, makes the rail-journey unusually free from care and trouble. At Bala, transfer is made from train to steamer, and close connections insure quick arrival at any point on the lakes.

The principal lakes are three in number, Muskoka being the largest, Joseph next in size, and Lake Rosseau the smallest. They contain between four and five hundred islands, ranging from one of over 1999 acres, to those containing but a single tree or a rugged mass of rock. The majority, however, are densely crowded with pine, balsam, cedar, birch, maple, oak and other varieties of tree life.

These attractive lakes, however, do not monopolize the attention of the vacation seeker, for there are many rivers in this lovely region which offer an almost endless variety of canoe and motor-boating trips. Lake Muskoka itself is twenty-one miles long, and being joined with the other lakes by channels, a month could be easily spent in exploring their inlets, bays and rivers. Water sports are very popular in the Muskoka



Camping on Georgian Bay.



Regatta — Lake Rosseau — Muskoka Lakes.

Lakes, regattas being a weekly occurrence, and often parties located at one end of the lakes will boat to a neighboring regatta, and enjoy the sport always to be found at these gatherings. At the many hotels and boarding-houses on the lakes will be found good tennis courts, bowling greens and golf links, where these pastimes may be enjoyed.

In the Georgian Bay District, where everybody lives on islands, yachting is one of the great attractions, and canoeing is safely enjoyed among the many passages. There is splendid fishing among the islands, bass being very plentiful. Parry Sound is a favorite point, but a little further north, at Point Au Baril, will be found a vacation-land which all will depart from with regret and a longing to return.

Its natural attractions are very wonderful, in fact the hundreds of islands appear to have been designed to supply the need of salubrious resorts, where, in the summer, people might go and forget business cares and be happy in a land of



Victorious Crew in War Canoe Race — Muskoka Lakes.

enchantment. The fishing is exceptionally good, black bass, pickerel, pike and muskalonge being found in abundance. In this region and the French and Pickerel River Districts, those who prefer camping-out, to hotel life, will find splendid facilities, as there are people who make a specialty of fitting up tents



A Day's Record near Parry Sound.

and camping outfits for parties. During the open season the inducements to the hunter are very strong, as the section within an eight-mile radius of Point Au Baril is one of the richest game lands in the country.

The canoe trips are innumerable, and a party can set out and, with portages, return, without having traversed the same waters twice.

The whole country between the Muskoka Lakes and Sudbury is a natural heritage which is becoming more popular yearly, as vacationists return from a happy visit bringing with them stories of the joys to be found among its waters and its woods.

Book Reviews

BIOCHEMIC DRUG ASSAY METHODS WITH SPECIAL REFERENCE TO THE PHARMACODYNAMIC STANDARDIZATION OF DRUGS. By Paul S. Pittenger, Ph. G., Ph. C., Phar. D., Instructor of Pharmacodynamics, Departments of Pharmacy and Chemistry, Medico-Chirurgical College, Philadelphia; Member of Committee on Physiological Testing of the American Pharmaceutical Association, Member of the American Chemical Society, American Pharmaceutical Association, etc., Philadelphia; P. Blakiston's Son & Co.

This manual has been prepared for the use of students of pharmacy, pharmaceutical chemistry and medicine, and pharmacologic experts. It represents a very large amount of original work, and is especially valuable for teaching purposes. The illustrations, many of which are original, are exceptionally good.

The subject matter embraces preliminary considerations, cardiac stimulants and depressants, epinephrine and products of the suprarenal gland, ergot, pituitary extracts, cannabis indica, technique and apparatus and solutions employed.

The manual is an admirable exposition upon a branch of work that has become of the greatest importance in pharmacy—pharmacologic standardization,—and the author deserves to be congratulated upon it.

The importance of pharmacologic standardization does not need to be discussed before pharmacists, for most of them are well aware that this is the only way that reliable preparations of certain important drugs can be made. Some unthinking individuals try to minimize the importance of such procedure on the ground of anti-vivisection. Physiologic standardization is the only means of eliminating worthless preparations of a certain class from the market, and it is certain that where human lives are at stake, the sacrifice of a few animals under anesthesia cannot be condemned.

The title of the book, "Biochemic Drug Assay Methods," is open to criticism, because the book is really not a work on biochemistry, but on the pharmacologic standardization of drugs; and the definition given of pharmacology (p. 3) is open to serious criticism because it is obsolete.

The term pharmacology is derived from the two Greek words meaning "medicine" and "discourse," and as formerly used meant "the sum of knowledge regarding medicines." But times change and the meanings of words change with them. "Pharmacology, in the modern and accepted meaning, treats of the action of chemical substances on living tissue—of the changes produced in the structure, composition and function of living bodies by unorganized chemically acting substances not belonging to their natural environment. Pharmacology, therefore, goes a step further than what used to be called physiologic action, in that it aims to furnish the explanation for the changes observed." (Sollmann).

That this definition is the accepted definition of the medical profession of this country to-day is shown by the fact that the American Medical Association uses the title "Section of Pharmacology and Therapeutics" for its section devoted to the study of the action of drugs on tissues, and therapeutics.

TREATISE ON GENERAL AND INDUSTRIAL ORGANIC CHEMISTRY. By Ettore Molinari, Professor of the Luigi Bocconi Commercial University, Milan. Translated from the second Italian edition by Thomas H. Pope, University of Birmingham. Cloth, 770 + xix pages, 506 illustrations. P. Blakiston's Son & Co., Philadelphia, 1913; \$6.00 net.

This new book is a descriptive organic chemistry, written from the standpoint of the technical chemist, and combining descriptions of the organic compounds themselves with the technical applications of each group.

The author's idea is well expressed in the following quotation from the preface: "It does not suffice that the young chemist, about to begin his industrial or teaching career, should have a thorough knowledge, for instance, of the various syntheses and constitutional formulæ of the sugars. He should also be acquainted with at least the general outlines of the industrial processes and *technique* of the manufacture of sugar, beginning with the slicing of the beets and proceeding to the refining and centrifugation of sugar crystals."

The three divisions of the book are General, Derivatives of Methane, and Cyclic Compounds. Part I discusses the purification and analysis of organic compounds and the general theoretical discussions of organic chemistry.

The principal groups discussed in Part II are the hydrocarbons, alcohols, and derivatives, acids and derivatives, carbohydrates; and in Part III hydrocarbons and their immediate oxygen and nitrogen derivatives, aromatic acids, hydrogenated benzene nuclei, condensed nuclei, heterocyclic compounds, coloring agents and fabrics, proteins, glucosides, and other compounds of uncertain composition.

One thing which will detract from the value of the book to the chemist of America is the fact that methods described, costs quoted, and dimensions given are all or nearly all in terms in vogue in Europe. This is largely excusable in a translation when we think of the secrecy which surrounds so many of our present day works, particularly in this country.

Most industrial chemistries are interesting reading, and this book is no exception. Some particularly interesting descriptions are included, among which might be mentioned explosives, the fermentation industries, sugars, and fabrics. The book will find a place in many libraries and should be read with interest by both the theoretical and the practical chemists, and particularly by the young man just out of college, who is just beginning to realize the necessity for correlating his theoretical and practical training.

GEO. D. BEAL.

ANNUAL REPORTS OF THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION. Vol. VI, Jan.-Dec., 1913. Price 25 cents.

This publication should be in the hands of every pharmacist. It contains data of particular interest to them in regard to the various nostrums which have been discussed in the pages of the Journal of the A. M. A. during the past year. Familiarity with the facts therein stated should be effective evidence to convert many misled physicians from the prescribing of nostrums to the use of official preparations. As the methods of analysis used in the examination of these preparations are stated in detail, the manual is of much value to all druggists and others who are interested in the chemical examination of drugs and chemicals.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

THE EFFECT OF GEOGRAPHICAL SOURCE ON THE VOLATILE OIL OF HOPS.

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Among the many factors which tend to influence the composition of volatile oils, geographical source, with its attending conditions of climate and soil, is of noteworthy importance. It is a generally accepted fact that a close relationship exists between the growth of a plant with the formation of its constituents, and climatic factors such as, heat, light, moisture, dryness and soil conditions. With regard to volatile oils in general, a number of factors may produce variation in aroma or quality. This geographical location may influence the aromatic property of an oil as attested by Jeancard and Satie,¹ who state that the locality in which lavender, thyme, rosemary and roses are grown has considerable effect upon certain constants of the oils. According to Bonnier,² altitude, light, hygrometric conditions and temperature also affect the plant functions and thus affect its composition. Condition of the soil is also important according to Lamothe,³ who states that soil fertilized with superphosphates increases the esters of lavender oil. In experiments with peppermint Charabot and Hebert⁴ have shown that soil treated with fertilizers produce plants richer in esters and odor-bearing compounds.

Since the conditions mentioned affect the composition of a number of volatile oils, it may be easily comprehended that similar effects may be produced on hops grown in separate localities under different conditions. Furthermore, since the effects on other oils have been noted chiefly in the esters or odor-bearing constituents, it is very probable that the volatile oil of hops would suffer like changes in ester content. For the purpose of ascertaining the truth of the above assumption the following investigation was undertaken.

In order to determine whether any differences exist in the volatile oils of hops, the physical and chemical constants were carefully determined. The physical properties, specific gravity, optical rotation, refraction, and solubility in alcohol are most important in revealing differences due to variation in composition.

¹Jeancard, P., and Satie, C. *La Chimie des Parfums* en 1908. *Revue Générale de Chimie pure et appliquée* Tome 12, p. 181, 1909.

²Bonnier, G., *Recherches expérimentales sur l'adaptation des plantes au climat Alpin*. *Annales des Sciences Naturelles Botanique*. Serie 7, Tome 20, p. 217, 1894.

³Lamothe, L., *Lavender and its Oil*. *American Perfumer and Essential Oil Review*. Vol. 3, p. 128, 1908.

⁴Charabot, A., and Hebert, A. *Bulletin du Jardin Colonial*. Vol. 27, 1902, 3rd series, pp. 224-914.

Among the chemical constants the ester value is possibly of the most importance because of its close relationship to the aroma of the oil.

For the purpose of learning whether any constant differences exist in the various hops, it was planned to compare the oils distilled from hops grown in the hop-producing sections of the United States with the oil distilled from an authentic sample of imported hops, all of the samples to be from hops grown during the same season. The sections chosen in the United States were California, Oregon, Washington and New York. The imported hops were from Bohemia.

A comparison of the oils obtained from the hops during a single season would give results which would be valuable in determining differences for that particular season, but it was also important to ascertain whether the same differences occurred from year to year. Therefore the experiments were carried on for several successive seasons and the oils obtained from the hops of any one locality were compared with those from the same locality during these successive years. This procedure permitted an absolutely fair comparison by which similarities or differences in the properties of the oils could be easily followed and fluctuations readily noted.

The usual method of steam distillation was applied for the extraction of the volatile oils from the various samples of hops. The conditions of distillation were practically identical in all cases, each sample being distilled until no more oil was noticeable. The California hops were from Perkins, Cosumne, Ukiah, and Wheatland. The Oregon samples were from Independence, the Washington samples from Chehalis, and the New York samples from near Waterville. All were representative samples of commercial sulphured hops. The imported hops were from Saaz, Bohemia.

THE YIELDS OF OIL FROM VARIOUS HOPS.

The yields of oil from various hops during the four successive seasons are given in the following table:

Yields of Volatile Oil from Various Hops During the Years 1906 to 1909, Inclusive.

Source of Hops.	1906	1907	1908	1909	Average.
	Percent.	Percent.	Percent.	Percent.	Percent.
California:					
Perkins		0.2	0.38	0.43	0.336
Cosumne		0.32	0.24	0.42	0.326
Ukiah		0.23	0.53	0.28	0.346
Wheatland		0.21	0.20	0.44	0.283
Oregon	0.34	0.20	0.32	0.30	0.290
New York	0.32	0.16	0.14	0.15	0.192
Washington			0.36	0.38	0.370
Imported (Saaz).....	0.45	0.32	0.23	0.24	0.310

Considerable variation exists in the yields of oil from the different California hops, not only among the different samples of any one season, but also among the same hops during successive seasons. The average yield of oil from the California hops during the seasons recorded in the table was 0.32 percent.

The Oregon hops which were distilled during the four successive years showed an average oil content of 0.29 percent, which is a trifle less than the average California sample.

The New York hops with an average during the four years of 0.192 percent of oil were noticeably lower in oil content than any of the other hops distilled.

The Washington hops which were distilled only during two seasons appear to possess the highest percentage of oil, the average being 0.37 percent.

The imported hops distilled from the crops of 1906, 1907, 1908, and 1909, showed an average yield of 0.31 percent of oil, considerable change appearing from season to season.

This variability of the oil content may be ascribed to varying conditions of climate and soil as well as to ripeness and drying of the hops, which would affect the formation of the oil in the plant. Slight differences in yield of oil would not necessarily influence the quality since the same proportion of odoriferous constituents may still be present.

PHYSICAL PROPERTIES OF THE VARIOUS HOP OILS.

The physical properties of the oils permit a somewhat better means of comparison. The properties of color, odor and taste, which are apt to disclose only slight differences, are not discussed. The specific gravity, refractive power and solubility, each of which can be accurately measured, are of much greater importance, although even these properties are usually entirely inadequate for detecting any constant differences in the oils. In all cases the oils were too dark to permit making determination of the optical rotation which is often useful in detecting certain differences in composition. The following tabulations show the differences in the physical properties of the various hop oils distilled during the seasons 1907, 1908, and 1909:

Physical Properties of Various Hop Oils Distilled During Several Successive Seasons.

Specific Gravity at 20° C.

Source of Hops.	1907 Crop.	1908 Crop.	1909 Crop.
California:			
Perkins	0.821	0.838	0.8316
Cosumne	0.821	0.8395**	0.842
Ukiah	0.821	0.831**	0.839**
Wheatland	0.828	0.8443	0.8358
Oregon	0.8343	0.838	0.8433
New York	0.859*	0.834*	0.8747*
Washington .....	.....	0.850	0.8464
Imported (Saaz)	0.852*	0.821*	0.858*

* Specific Gravity at 24° C.

** Specific Gravity at 23° C.

Index of Refraction at 20° C.

Source of Hops.	1907 Crop.	1908 Crop.	1909 Crop.
California:			
Perkins	1.4838	1.4783	1.4716
Cosumne	1.4825	1.4724	1.4733
Ukiah	1.4890	1.4737	1.4718
Wheatland	1.4870	1.4753	1.4743
Oregon	1.4802	1.4730	1.4705
New York	1.4804	1.4756	1.4800
Washington .....	.....	1.4763	1.4734
Imported (Saaz)	1.4905	1.4852	1.4829

*Solubility.**

(Amount of Oil Dissolved in 3 Volumes of 94 percent alcohol.)

Source of Hops.	1907 Crop.	1908 Crop.	1909 Crop.
California:			
Perkins	0.55 volume oil, turbid yellowish residue.	0.7 volume oil, turbid.	0.8 volume of oil.
Cosumne	0.5 volume of oil with whitish residue.	0.85 volume of oil, brownish residue.	0.8 volume oil.
Ukiah	0.35 volume oil, slight turbidity.	0.85 volume oil, turbid.	0.95 volume oil. slightly turbid with reddish residue.
Wheatland	0.35 volume oil, yellowish residue.	0.75 volume oil, brown residue.	0.7 volume oil.
Oregon	0.65 volume oil, turbid, yellow residue.	0.9 volume oil.	1 volume oil.
New York	0.85 volume oil, brown residue.	0.85 volume oil.	0.8 volume oil, light brown residue.
Washington .....	.....	0.85 volume oil, turbid.	0.9 volume oil.
Imported (Saaz).....	0.75 volume oil, slightly turbid.	0.5 volume oil, yellowish viscous residue.	0.75 volume oil. slightly turbid. Dark brown viscous residue.

*Solubility of 1907 crop determined after two years; 1908 crop determined after one year.

The densities of the California oils bore a close relationship during individual seasons, differing somewhat from season to season. This would seem to indicate that the approximate composition during any one season was about the same in the several oils. The oils with the highest general specific gravity were those from New York hops, which averaged 0.8554 at 24° C. The Washington, imported, Oregon, and California oils followed in order. It is generally acknowledged that the specific gravity is modified by the composition of the oil but it is doubtful whether the differences noted above would cause any remarkable change in the quality of the oil. A high specific gravity would usually be accompanied by a larger percentage of high-boiling constituents and vice versa.

From the table it will be observed that the oils from imported hops possess higher refractive indices than any of the other oils. This again may be due to the presence of a somewhat higher percentage of highly refractive constituents in these oils. The refraction of the oils from the 1907 crop was higher in most cases than that of the two following years, probably because the constants of the oils from this crop were not determined until 1909, showing that a change had taken place in the oils while aging.

The solubility of hop oil is influenced considerably by the percentage of terpenes and sesqui-terpenes present, the presence of which tend to decrease the solubility in alcohol, while high content of oxygenated compounds increases it. Owing to the preponderance of the former in hop oils and the difficulty thereby encountered in obtaining comparative results, a deviation was made from the usual method for determining solubility. One volume of oil was thoroughly shaken with three volumes of 94 percent alcohol in a graduated cylinder after which the resinous insoluble matter was centrifuged. The amount of insoluble matter could then be easily read on the bottom of the cylinder and the amount of dissolved material readily calculated.

Apparently the most soluble oil among the number was the oil from Oregon

hops of the 1909 crop, one volume of this oil dissolving completely in three volumes of 94 percent alcohol, the oil from the 1908 crop being almost as soluble. The Washington and New York oils from the crops of 1908 and 1909 were slightly less soluble than the Oregon oils. The California oils of these two seasons were a trifle less soluble than those from Washington and New York hops, while the imported oils appeared to be the least soluble.

The much lower solubility of the 1907 oils was due to the fact that the determinations were not made until two years after distillation. Although the oils had been kept in well-filled bottles and well-protected from light, decomposition had ensued which resulted in the formation of less soluble constituents thus decreasing the solubility of the oils. This plainly shows the effect of age on the solubility of the oils.

From the results obtained, it would appear that the oils with the highest solubility probably contained a larger percentage of oxygenated compounds and a lower percentage of terpenic compounds than the less soluble oils.

CHEMICAL PROPERTIES OF THE VARIOUS HOP OILS.

In order to make a better comparison of the several oils with regard to their aromatic quality, determinations were made of the acid, ester and saponification numbers.

A number of factors may tend to influence the acid value. Freshly distilled oils are in most instances low in free acidity, while old oils or oils distilled from old material usually possess a larger quantity of free acids. Improper conditions of drying and storing have a tendency to cause changes to take place which result in the formation of free acids and thereby increase the acid numbers.

As previously stated, the ester values of oils are subject to marked changes due to conditions of climate, soil, etc. This value in hop oils may also be affected by conditions under which the material is dried and stored. The stage of growth and development of the plant as influenced by geographical location may also be a strong factor in modifying the ester content.

The saponification number being the sum of the acid and ester numbers should indicate much the same differences, as shown by the ester numbers. A determination of free alcohols in hop oils was not feasible because of the inability to acetylate the oil quantitatively.

The acid, ester and saponification numbers of the oils from the American and foreign hops are recorded as follows:

The Acid, Ester and Saponification Numbers of Hop Oils Distilled During Several Seasons.

Acid Numbers.

Source of Hops.	1906	1907	1908	1909	1910	Average
California:						
Perkins		0	1.5	1.1	.....	0.86
Cosumne		0	2.4	2.9	.....	1.76
Ukiah		0	1.1	1.8	.....	0.96
Wheatland		2.3	2.0	1.4	.....	1.9
Oregon	5.5	1.6	1.0	2.8	.....	2.7
New York	4.8	3.6	2.1	2.5	.....	3.25
Washington .....		.....	1.0	1.5	.....	1.25
Imported (Saaz)	1.5	1.5	1.0	3.0	3.1	2.02

Ester Numbers.

Source of Hops.	1906	1907	1908	1909	1910	Average
California:						
Perkins		42	47	47.1	.....	45.5
Cosumne		45	46	51	.....	47.3
Ukiah		40.8	44	51	.....	45.2
Wheatland		50	45.5	41	.....	45.5
Oregon	72	57	50.2	56	.....	58.8
New York	44	61	47	51.8	.....	50.9
Washington			51.8	53.8	.....	52.8
Imported (Saaz)	12.6	20	36	28.6	20.4	23.5

Saponification Numbers.

Source of Hops.	1906	1907	1908	1909	1910	Average
California:						
Perkins		42	48.5	48.2	.....	46.2
Cosumne		45	48.4	53.9	.....	49.1
Ukiah		40.8	45.1	52.8	.....	46.2
Wheatland		52.3	47.5	42.4	.....	47.4
Oregon	77.5	58.6	51.2	58.8	.....	61.5
New York	48.8	64.6	49.1	54.3	.....	54.2
Washington			52.8	55.3	.....	54.0
Imported (Saaz)	14.1	21.5	37	31.6	23.5	21.5

The oils in order of their average acidity were as follows: New York, Oregon, imported, California, and Washington. In every instance the New York oils showed comparatively high acidity. The average acidity of the New York and Oregon oils was probably somewhat high as it was considerably augmented by the high acid number of the oil from 1906 crop which was distilled from hops which were not fresh as were those from 1907, 1908, and 1909 crops. The oils with lowest acidity were from California and Washington hops, while the imported hops occupied an intermediate position.

The ester numbers revealed most striking similarities and dissimilarities, not only during one season, but for several successive seasons. It was to be expected that the oils from the hops during any one season would show differences but that these same differences should appear during three and four and even five successive seasons was most surprising.

The oils from the imported hops were conspicuous because of the fact that the data for the several seasons showed the ester content to be only about one-half as great as the ester content of the oils from the California, Oregon, Washington and New York hops. Besides the samples recorded, a cold storage sample of Saaz hops of the 1906 crop distilled one year later gave an oil with an ester number of 24. Three samples of imported hops of the 1910 crop, namely, Dauber, Auscher and Oesterreich Gewächs hops, possessed the ester numbers 15.7, 21.3, and 18, respectively. In all nine samples of imported hops from five seasons gave oils with uniformly lower ester content than American hops.

The close relationship of the ester numbers of the California oils during the seasons of 1907, 1908 and 1909, is very evident. The general average ester

number of the California oils was 45.5, as compared with 50.9 for New York, 52.8 for Washington, 58.8 for Oregon, and 23.5 for the imported.

In case of the foreign oils the ester numbers, which are a measure of the odorous constituents, would seem to point to consistently lower content of these compounds.

The saponification numbers which represent the total acids and esters in the oils presented practically the same constant differences and similarities brought out by comparison of the ester numbers.

While it is not known whether the ester numbers would continue lower indefinitely in case of the foreign oils, it may be assumed that such would be the case, since the authentic samples distilled during five seasons showed abnormally low values as compared with the American oils. In a like manner also it may be assumed that the high ester numbers of the American oils would continue indefinitely since they were quite remarkably constant during the seasons in which the experiments were carried on.

THE RELATION OF THE VOLATILE OIL TO THE SOURCE OF THE HOPS.

A comparison of the fractions resulting from the fractionation of each of the above oils both with regard to physical and chemical constants brought out the same relationships as were shown to exist in the oils themselves. It is, of course, impossible to discuss these results in detail in the short space of this paper. However, from the data presented it is clearly evident that the geographical source of hops has a pronounced effect upon the volatile oil and particularly upon the ester content. The differences noted in the oils appear to be fairly constant from season to season, not only in the physical properties but also in the more important chemical properties. Not only do hops of foreign origin produce oils noticeably dissimilar in some of their properties from the American oils, but hops grown even in separated sections of the United States yield oils with more or less constant differences from year to year. In general, it may be stated with some degree of certainty that the geographical source of hops exerts a decided influence upon the composition of the oils, especially as regards the ester content. Furthermore, it seems highly probable that the geographical source of hops may be indicated by the ester numbers of the oil distilled from the hops since the experiments have shown that the ester numbers of the oils from hops of any particular source or season are very similar.

THE PHYSIOLOGICAL ACTIVITY OF "ERGOTIN" AND POWDERED EXTRACT OF ERGOT.

CHAS. C. HASKELL, B. A., M. D.

There now seems little question as to the therapeutic value of the official fluid extract of ergot. It is sometimes desirable, however, to have solid or semi-solid ergot preparations in a more concentrated form than the crude drug, and it is also often advantageous to secure the active principles in a water-soluble form. These considerations, however, should have no weight, if it is learned that the process of manufacture of such special preparations destroys or greatly lessens the therapeutic activity originally possessed by the crude drug.

Two such "special preparations" have recently been the subject of investigation in this laboratory, and it seems of interest to report the results secured.

The first of these preparations is so-called "Ergotin." It is made by treating powdered ergot with benzin to remove the oils; air drying in order to free from benzin; and percolation with water. The percolate is reduced to a syrupy consistence at 90° to 120° C. and alcohol added. The resulting precipitate is removed by filtration and the filtrate reduced to a semi-solid extract at 90° to 120° C.

The second preparation is a powdered extract made by percolation of ground benzin-extracted ergot with 50 percent alcohol; reduction of percolate to a solid in vacuum dryer and addition of approximately an equal quantity of benzin-treated powdered ergot.

From theoretical considerations, it would seem that little, if any, ergotoxin would be contained in the "ergotin" and what activity it possesses would be due to the amines described by Barger, Dale, Kraft, and others. The powdered extract, however, consists of about one-half powdered drug and the remainder of an alcoholic extract, so one would expect all the active constituents to be present, unless the benzin or the elevated temperature exercised a deleterious influence.

Ergot still finds its chief field of usefulness as an oxytoxic; consequently, any laboratory attempt to estimate the therapeutic efficiency of the drug should be based upon a determination of its oxytoxic power. It has been shown conclusively that a measurement of the pressor-activity of ergot gives no reliable information of the value of the drug as a stimulant to uterine contractions, and it is illogical and useless to make such tests if the drug is to be used in obstetrical practice. It is not improbable, however, that blood-pressure tests upon dogs may give reliable data as to the efficacy of the drug as a circulatory stimulant for man.

The excellent work of Edmunds and Hale has demonstrated that the cock's comb test gives results closely paralleling those secured when the drug is tested upon the uterus of an experimental animal. These authors point out that the cock's comb method is simple and allows of considerable accuracy.

During the past few months, we have had occasion to examine twenty-four samples of crude ergot; four samples of ergotin; and nine samples of powdered extract of ergot. In every instance, when a large enough dose was given intramuscularly to white leghorn cocks, bluing of the comb, diarrhoea and dyspnoea

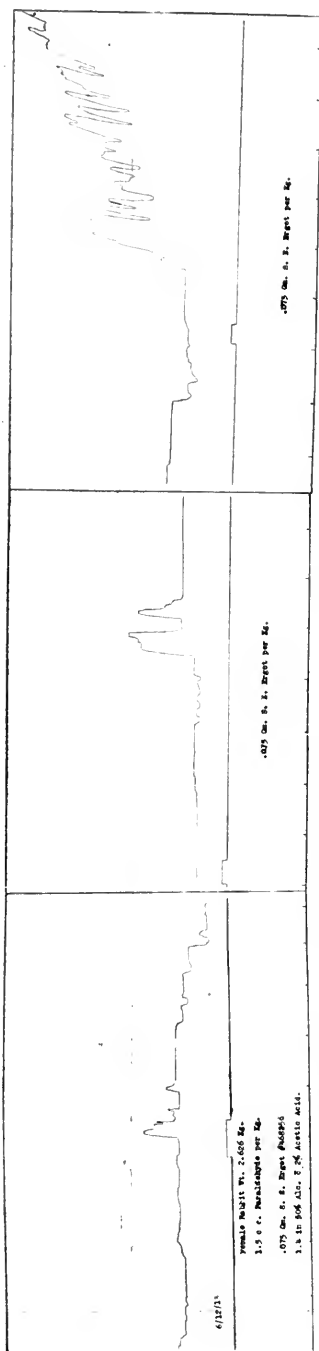


Figure I. Showing the contractions of a rabbit's uterus after the intravenous injection of Solid Extract of Ergot.

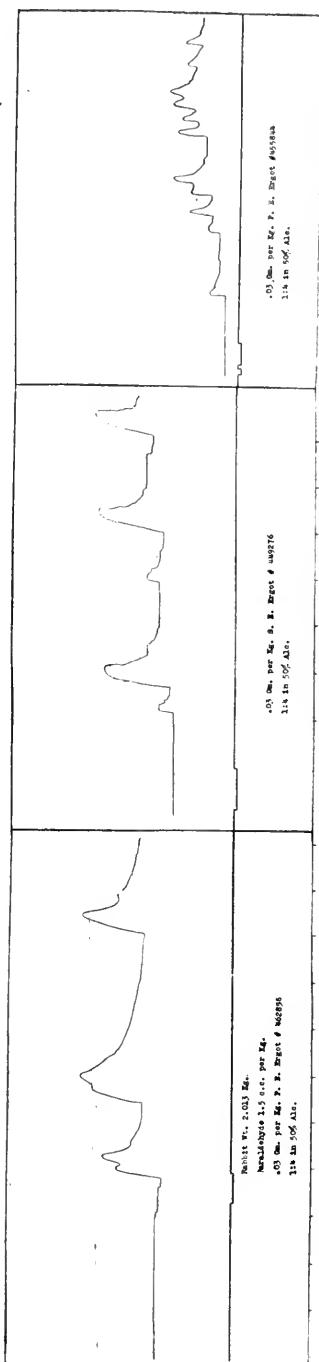


Figure II. Showing the contractions of a rabbit's uterus after the intravenous injection of Po. E. Ergot and of Sol. E. Ergot.

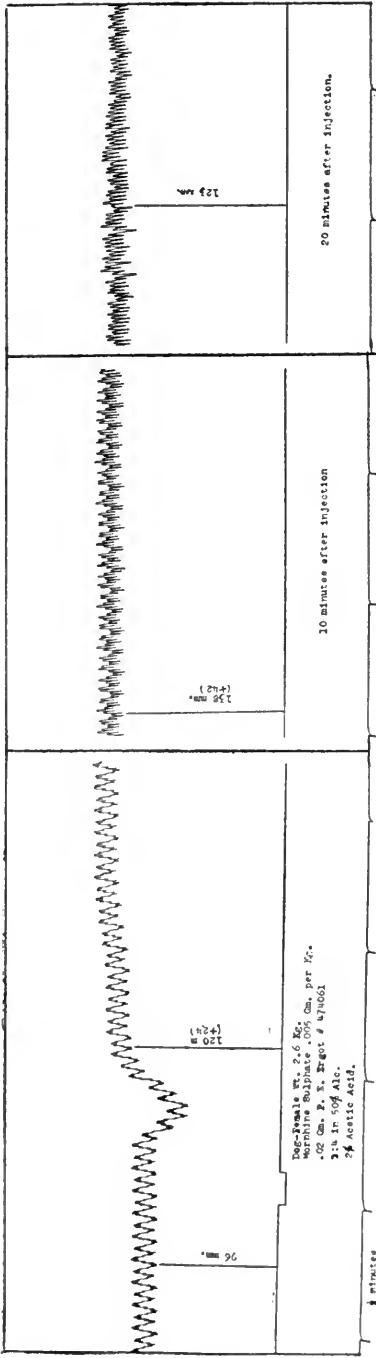


Figure III. Effect of Powdered Extract of Ergot on blood pressure of dog.

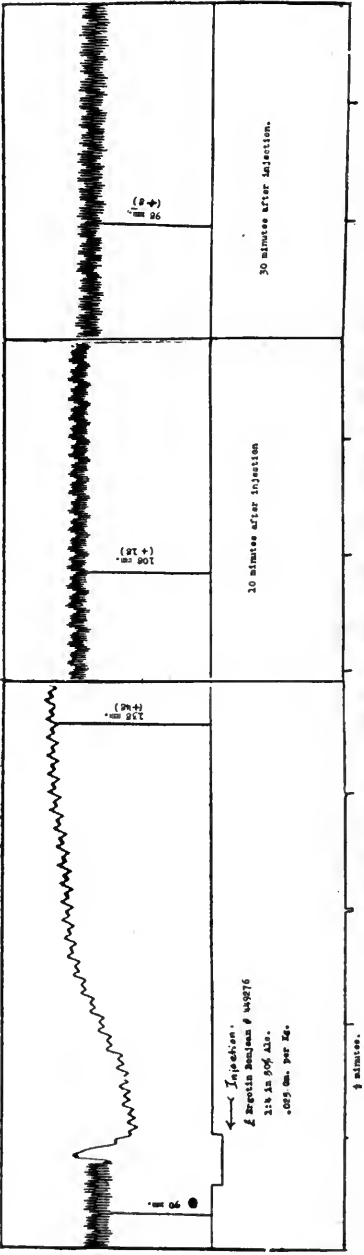
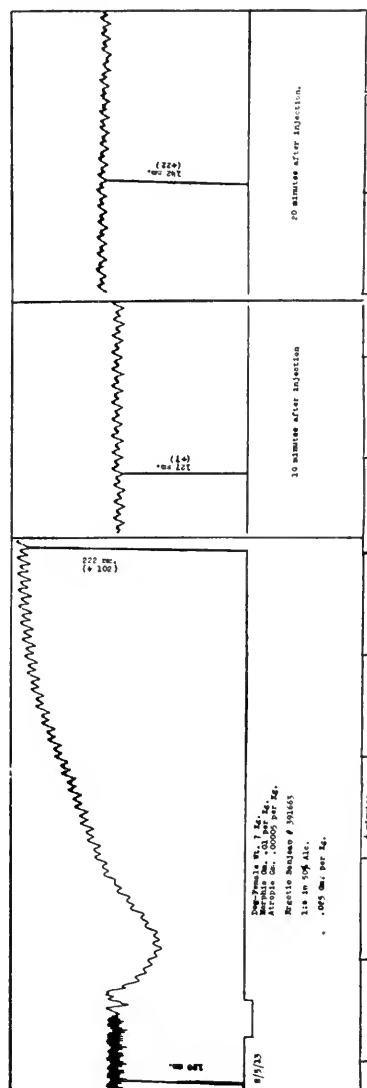
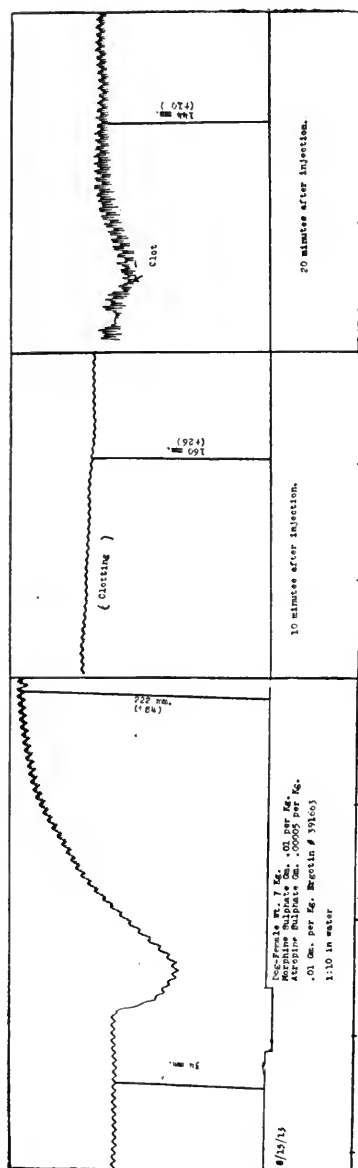


Figure IV. Effect of Ergotin, Bonjean, on blood pressure of dog.



resulted; the symptoms produced by each preparation being practically identical. It seemed desirable, however, to test some of the samples of "ergotin" and powdered extracts upon the uterus of a lower animal. Consequently, rabbits were used in the way described by Cushny, and a marked effect was produced by these preparations in every instance in which they were employed. The tracings, represented in Figures 1 and 2, illustrate the results secured.

These figures do not show the entire records, as the uterus was allowed to return to and remain in, a practically quiescent state for at least one-half hour before the drug was injected.

While feeling that blood-pressure experiments gave no positive information as to the value of the preparations as stimulants of the uterus, nevertheless a number of tests were made upon dogs, using the method of Wood and Hofer, except that 10 mgms. of morphine per kilogram were administered and the dogs also received a small dose of atropine, as suggested by Edmunds and Hale. The following tracings, Figures III and IV, show that these preparations have a marked pressor action.

From the evidence presented, it seems fair to assume that "ergotin" and powdered extract of ergot have the characteristic "ergot" action. It is of interest, however, to learn whether the full amount of drug activity is retained in these preparations.

In the manufacture of "ergotin," approximately six pounds of drug are used to finish one pound of extract. For the powdered extract eight pounds of drug usually furnishes one pound of extract. Consequently, "ergotin" should be six times as active and the powdered extract eight times as active as the crude drug.

Of the twenty-four samples of crude ergot examined by the cock's comb test, all were capable of causing bluing of the comb when given in a dose of 1 gram per kilogram. Of the nine samples of powdered extract examined, a dose of 0.25 gram per kilogram was efficient in all instances. Of the four samples of "ergotin" 0.25 gram per kilogram was efficient in two cases; while 0.3 gram was required in the other two. From this, it seems that the powdered extract is about four times as active as the crude drug; while "ergotin" is, roughly, about three and one-half times as active.

By blood-pressure experiments, however, a different relation is apparent. We have found that 0.1 cc. per kilogram is the optimum dose of fluid extract; that is, this dose usually causes the maximal rise of pressure. With "ergotin," however, the optimum dose seems 0.0125 gram per kilogram; or about one-eighth that of the fluidextract. Cronyn and Henderson have pointed out that large doses of ergot produce poor pressor response, and this is well illustrated by the following tracings, Figures V, VI and VII, where it is seen that with the same preparation of Ergotin (No. 391663) a small injection of 0.01 gm. per kilogram sustains an increased blood pressure much better than does an injection of 0.025 or of 0.05 gm. per kilogram. In fact the blood pressure twenty minutes after the injection of 0.05 gm. per kilogram is actually below its initial pressure. This may serve to explain the poor results that have been secured by others in testing the pressor action of these preparations.

In conclusion it may be said that:

1. "Ergotin" and powdered extract of ergot are capable of causing bluing of

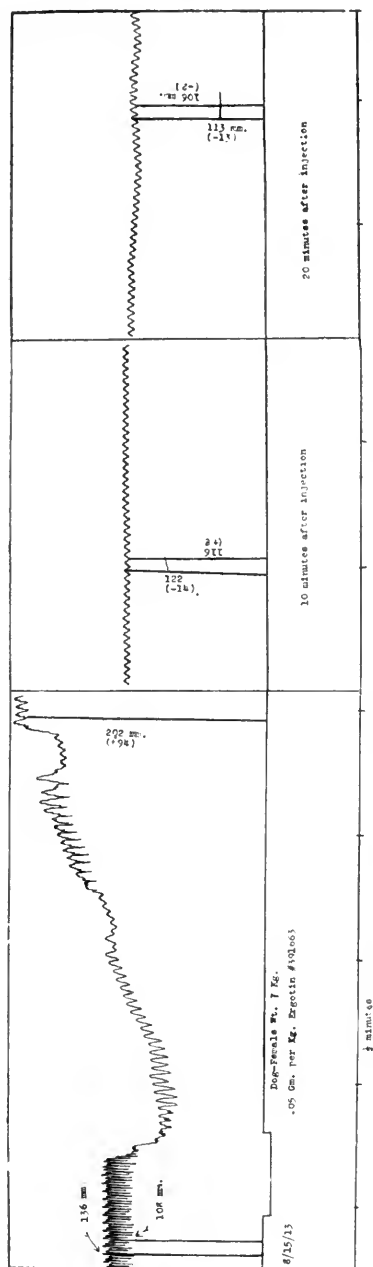


Figure VII. Effect of Ergotin, Bonjean, in large amount on blood pressure of dog.

the cock's comb; contraction of the rabbit's uterus; and rise of the dog's blood-pressure.

2. There is apparently a considerable loss in the manufacture of these preparations, of those substances influencing the uterine movements, while there is but slight loss in the pressor-activity originally possessed by the crude ergot.

DEPARTMENT OF EXPERIMENTAL MEDICINE, ELI LILLY & Co., Indianapolis.

STERILIZATION.

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A knowledge of sterilization is becoming more and more important to the pharmaceutical profession as the administration of medicines by the sub-cutaneous and intravenous routes increases in popularity.

The purpose of sterilization in pharmacy is to destroy such forms of microbic life as may exist in medicinal preparations and the various containers, etc., used in handling and dispensing them. Of the innumerable living things that may be found in crude drugs, only the microscopic forms, such as yeasts, molds and bacteria usually escape elimination in the course of manufacture. It is necessary to destroy molds and yeasts, because their growth may result in fermentation or other forms of decomposition, with deterioration, and the production of harmful by-products; but far greater in importance, are the bacteria, which have an additional property only rarely exhibited by yeasts and molds—that of multiplying in the animal body and causing disease.

These microscopic organisms are ubiquitous in nature; one can think of few places where they may not be found. Some of them will grow only upon living tissues (parasites), others will grow only upon dead matter (saprophytes). There are a few species which seem able to multiply even in distilled water, depending upon gases absorbed from the air for their nourishment. Some of the bacteria die quickly when removed from media favorable to their growth, others are so tenacious of life that they may exist for years and possibly for centuries in unfavorable surroundings.

In considering the problems of sterilization it is these latter bacteria to which we are compelled to give especial attention. When organisms of this class find themselves in a medium unsuited to their rapid growth, they go into a state that may be considered a kind of hibernation. The vital part of the bacterial cell is collected within a very resistant capsule, which, with its contents, is known as a spore. The spore state is not a means of reproduction in the sense of multiplication, it is merely a means of self-preservation. One bacillus makes one spore, and one spore makes one bacillus. Therefore, while spores are like seeds in preserving the essential vitality of the cell, they differ in that seed formation is chiefly a reproductive (multiplying) function.

Some spores are able to withstand heat to the boiling point of water for several hours, while bacteria not in the spore state are killed when heated to 60° C. for less than one hour. This difference in the degrees of heat required for killing spores and bacteria, also holds with regard to other germicidal influences. Spores are far more resistant, to phenol for instance, than are non-sporogenic bacteria. The state of the preparation to be sterilized with regard to moisture, is of great importance, since bacteria which are entirely dry may be heated to very far beyond the boiling point of water without killing them, an important point in discussing methods for sterilizing tablets and powders.

Fortunately there are few common sporogenic bacteria which cause disease if they gain entrance to the uninjured intestinal tract.

Whether a remedy is to be administered upon the unbroken skin or mucous membranes, or enterally, that is by mouth or by rectum, or parenterally, under the skin or into a vein—these differences are of fundamental importance. For local application or enteral administration, approximate sterility is usually sufficient, but for parenteral injection or for use in a surgical operation, complete asepsis is requisite. For instance, the tetanus bacillus taken by mouth, is not likely to do any harm, but injected beneath the skin, will, under favorable circumstances, cause tetanus or lock-jaw. By the term parenteral injection is meant, as I have just indicated, the internal administration of a remedy by other than the gastro-intestinal route, that is sub-cutaneously, intravenously, intra-peritoneally, intramuscularly, intraspinally, etc.

Unless remedies intended for local or enteral administration are suspected to contain disease-producing bacteria, sterilization is not generally thought of in connection with them, except in so far as it concerns their preservation. For this purpose the addition of chemical substances is simpler, and since their action is continuous they are more efficient than heat or filtration. This is well exemplified by the fact that, with few exceptions, pharmaceutical preparations, e. g., tinctures, fluid extracts, syrups, etc., contain sufficient alcohol, sugar or other preservative to prevent decomposition through bacterial growth. It is thus apparent that the chief concern we have with sterilization is the preparation of remedies intended for parenteral use.

By sterilization we mean the destruction or removal of every form of reproductive life. To accomplish this we have several methods, physical, chemical and mechanical. The physical methods are heat, electricity and light,—sunlight, ultra-violet rays, etc.

Chemical sterilization is accomplished by the use of such substances as phenol, corrosive sublimate, etc.

The mechanical methods for sterilization of greatest service are filtration, and centrifugation.

Heat. The *naked flame* may be used for sterilizing certain instruments, platinum vessels, spatulas, and small pieces of glassware. A Bunsen burner is generally used for this purpose.

Dry heat may be used for the sterilization of glass bottles, and other glass vessels of various kinds, for powders that are not injured by a high degree of heat, and, where an autoclave is not available, for the sterilization of cotton. It cannot be used for organic or volatile substances or for aqueous solutions. To prepare them for sterilization, bottles and flasks are stoppered with cotton and, as an extra precaution, they may have a piece of paper tied over their mouths before being placed in the oven. They must be perfectly dry. Other pieces of glassware may be wrapped in filter paper or in ordinary Manila paper.

The best arrangement for sterilizing by dry heat is the dry-wall sterilizer of the Lautenschlager pattern. This is a special laboratory apparatus heated by gas, with the walls so arranged that the hot air is kept in motion and approximately, the same heat is maintained in all parts of the oven. A small dry-wall sterilizer is not expensive, but, since the desired heat may be obtained in an ordinary bake-oven, it is likely that in pharmacies, where a great deal of work requiring sterilization is not done, the pharmacist will use the kitchen range, and

he may do so with perfect safety. For small pieces of glassware it is the rule to consider sterilization accomplished when the paper wrapping has started to char. A precaution that must be noted, however is, that, if the oven is extremely hot, the paper may char almost immediately, before the heat has had time to penetrate to the vessel. In using the dry-wall sterilizer, it is customary to run the heat up to 180°C ., and continue it at this point for two hours.

Steam and boiling: The method which has by far the widest field of application is sterilization by steam. There are two methods: (1) by steam under pressure in a closed chamber called an autoclave, (2) by a double walled hood, in which materials are subjected to streaming steam without pressure.

Steam has much greater penetrating power than dry air. Bacteria entirely dry are sometimes not killed even by heating them to a temperature of 150°C ., while all bacteria are destroyed in steam under pressure at 120°C . The best apparatus for sterilizing in streaming steam is the Arnold sterilizer. This consists of a pan with a thin false bottom into which water flows and comes in contact with the heat in such a thin layer that it is almost immediately converted into steam. As the steam passes up through the central opening, water trickles down through small holes at the corners of the pan. The sterilizing chamber has a double wall, which helps to conserve the heat. The inside chamber is maintained at a temperature of about 100°C . for at least twenty minutes after the materials being sterilized have reached this temperature. Such a temperature is not sufficient to kill spores and in order to destroy them the "Tyndall," or discontinuous method, must be used. That is to say, substances to be sterilized by streaming steam are heated for twenty minutes on three successive days. The idea is that all active bacteria are killed on the first day; during the period after heating, until the next day, if there is any nourishment present, the spores develop into bacteria and are killed at the second heating. Any spores that may have escaped the second heating are pretty certain to have developed by and will be killed on the third day. While this is the explanation given by some writers, others think that the spores are gradually weakened by the repeated heating, until they are finally destroyed completely on the third day. Fluids that will not stand the temperature of the autoclave, but which will stand boiling may be efficiently sterilized in the Arnold sterilizer by the discontinuous method, provided they contain sufficient nutrient material to favor the development of any possible spores, otherwise the method may fail and filtration, with or without the use of an antiseptic, must be employed. The pharmacist who does not have this special apparatus, can secure the same result if the bottles or flasks containing the fluid to be sterilized are placed in water in a covered vessel, such as a wash boiler or a covered saucepan. The vessels containing the fluid to be sterilized should be raised from the bottom of the pot by a piece of woven wire or something of the kind, and their tops should be well protected so that the cotton stoppers will not get wet.

A still simpler method is to place the fluid in an Erlenmeyer or Florentine flask, which has been sterilized by dry heat, and boil it for fifteen to twenty minutes over the naked flame on three successive days. This method is open to the objection that there is considerable evaporation and therefore it cannot be used if the original bulk of the fluid must be maintained. If there is no objection to it,

a surface coating of liquid paraffin will prevent evaporation, unless the boiling is too vigorous.

It is well known that the boiling point of mineral oils is much greater than the boiling point of water. These may be sterilized by heating them over the naked flame, to 160° C., in a suitable flask.

Steam, under pressure in a closed chamber, known as an autoclave, is the most useful means for sterilizing the ordinary culture media employed in bacteriological laboratories. This is the best method for sterilizing dressings, physiological saline solution, and other fluids not injured by the autoclave temperature. For sterilization in the autoclave, the temperature is maintained at 115° C. to 120° C. under a pressure of from ten to fifteen pounds for twenty to forty minutes.

Fluids not intended for parenteral administration, such as foods of various kinds, that may be contaminated by disease-producing bacteria, are efficiently sterilized by Pasteurization. This is accomplished by heating to a temperature of at least 60° C. maintained for one-half to one hour, the time depending upon the degree of heat used. A temperature so low as 56° C. is sufficient to kill many non-sporogenic bacteria and substances destroyed by a degree of heat greater than this, may usually be sterilized by subjecting them to this temperature, for about one-half hour, from five to seven successive days. In some laboratories the blood serum mixture used for the diagnosis of diphtheria is sterilized by this method.

Sterilization of Fluids in Sealed Capsules: It is possible for the pharmacist to dispense solutions efficiently sterilized, without the use of any apparatus other than a vessel that may be used as a water bath. The solutions that are to be dispensed, however, must be placed in glass containers hermetically sealed—the most useful form being the bottle with a long narrow neck commonly called an ampoule. These, stoppered with cotton and wrapped in paper, or placed in a metal box, are sterilized by dry heat, maintained at 180° C. for two hours. After the fluid to be dispensed is filled into them, through a narrow tube or by vacuum, the necks of the ampoules are sealed in a blow-pipe flame. They may then be sterilized at any temperature their contents will withstand. For instance if it is a question of a cocain solution, the ampoules may be heated to about 60° C. for one hour on seven successive days, at the end of which time they should be sterile—cocain hydrochlorid is said to withstand a temperature of 70° C. without decomposing. If the substance in solution will withstand 100° C., the ampoules may be boiled for one-half to one hour on three successive days. Should a higher temperature be unobjectionable, the autoclave conditions may be obtained by the use of a strong solution of calcium chlorid or other salt in the water bath or one may use a mineral oil. If liquid paraffin is used the ampoules are easily cleansed after sterilization by rinsing them in ether.

Chemical Methods: The chemical methods for sterilization include the use of the well-known germicides, such as bichloride and oxycyanide of mercury, carbolic acid, liquor cresolis comp., formaldehyde, etc. There are times when solutions of these may be used in such strength that they will efficiently sterilize the substances in question. In by far the greater majority of instances, however, they can be added only in antiseptic strength, thus being used merely as preservatives. Cresol, the substance employed at present in practically all laboratories

as a preservative for biological materia medica, is used in various strengths ranging from 0.2 of 1 percent to 0.5 of 1 per cent combined with filtration for serums. In this strength it is only antiseptic. It does not become germicidal until we reach the minimum concentration in water of 2 percent, and even then considerable time must be allowed for its action upon spores. The sterilization of glass vessels, by allowing a strong disinfectant to remain in them cannot be recommended. Tiny scratches and fractures may still be large enough to protect bacteria, since capillary attraction might prevent the solution from coming in contact with them.

There are many well-known substances which are practically without germicidal value but which are efficient as antiseptics. These include boric and salicylic acids, camphor, thymol, etc. Glycerin in high concentration is quite efficient. Sugar is an efficient preservative and is widely used as such, especially in preserved foods.

Filtration: Properly used, and with an appreciation of its limitations, filtration is a method for sterilizing which may be of great value to the pharmacist, for the reason that by this means solutions may be freed from bacteria without the slightest change in their chemical composition. Filtration, of course, cannot be used for thick or syrupy liquids, nor can it be used for suspensions or emulsions of any kind. Many ingenious arrangements have been devised for the filtration of solutions required to be sterile. Some of these combine, in the apparatus, both filtering and filling devices.

Contamination After Sterilization: After a piece of apparatus or a preparation has been efficiently sterilized, proper precaution must be taken to prevent subsequent contamination. There are bacteria not only on *every object* with which it may come in contact, but also in the air. Consequently, if it be left uncovered, except under special conditions, contamination is almost certain to result. When fluids are transferred from one bottle or flask to another, the exposed part of the lip over which the fluid will run, must first be sterilized in the Bunsen flame. Such operations must be done only in specially constructed and protected rooms or under sterile or dust-proof hoods or other covers.

When a sterile fluid has been obtained in bulk, transferring it into smaller containers is one of the interesting problems confronting those responsible for the preparation of antitoxins and vaccines. Such operations must be carried on in specially prepared rooms or under dust-proof hoods. An ingenious and convenient substitute is the oven, as suggested by Professor Cook, or one may use a box lined with blotting paper saturated with a disinfectant solution. If one is expert, the transference may be made by pouring or by means of a sterile bulb pipette. These procedures are suitable for small quantities but for large amounts it is customary to use a graduated burette or a special contrivance, of which there are many on the market. In my experience a properly arranged burette is the most satisfactory filling apparatus for general purposes. In one of the larger manufacturing biological laboratories the filling of serums and vaccines is done in special rooms which are furnished with washed and filtered air. The rooms are disinfected with formaldehyde at least once a week and the operatives wear sterilized gowns and caps.

Tests for Sterility: In spite of the most approved *technique* and the most efficient apparatus, it may never be taken for granted that a fluid has been freed from living bacteria and has remained sterile throughout the process without proper bacteriologic controls. These controls must be such that they will meet every peculiar condition likely to influence the growth of bacteria in the solution. We read frequently of persons who make control cultures by placing a drop of the fluid upon nutrient agar—a solid culture medium. Sometimes fluids tested in this way, contain sufficient antiseptic to prevent the growth of bacteria which are present. This method is therefore faulty. Control tests must be made in a fluid medium, and the bulk of fluid must be sufficient to dilute the antiseptic contained in the substance under examination to such an extent that it can have no possible antiseptic power.

The contaminating bacterium may be an aerobe (i. e., one that requires oxygen for its growth) or it may be an anaerobe (one that requires the absence of oxygen). The control culture must afford conditions for the growth of bacteria of both kinds or two sets of controls must be made. Fortunately the latter is not necessary because the common fermentation tube affords conditions suitable for the growth of both varieties. The necessary condition is that the *bouillon* must have been freshly sterilized in order to drive off suspended or dissolved oxygen since this would prevent the growth of anerobic bacteria. After shaking the bottle containing the substance to be tested, to be sure that any contained bacteria are distributed throughout, a small quantity of the fluid is withdrawn with a sterile pipette and transferred to the freshly sterilized fermentation tube. Bacteria present may be slow growers and their presence may not be recognized even after twenty-four hours incubation. The reading should not, therefore, be taken earlier than forty-eight hours after the control culture has been made. Bacterial growth of any kind should be sufficient to cause the material to be withheld.

If the substance under examination is one that may possibly be contaminated by the tetanus bacillus, that is to say, if it is a nutrient fluid or a biological product that has been developed upon nutrient media, or if it is the serum of an animal which might have had tetanus toxin in its blood at the time of bleeding or if in any other way toxic or harmful substances might have gained entrance to it, a cultural test is not sufficient. A quantity, at least relatively equal to the maximum dose that may be used for the patient, should be injected into an animal and the effects of the injection on the animal observed for a sufficient length of time to detect the results of a possible harmful contamination.

Those who have had much experience in the preparation of substances intended for subcutaneous administration, are familiar with the many sources of danger and know of so many instances of serious errors that they are inclined to make too many controls rather than too few. In the larger biological laboratories it is customary to have each product tested in bulk, by two bacteriologists working independently. Products that have passed this test are filled into proper receptacles by means of a carefully sterilized burette or other filling device. Cultural tests are made of the filling device before any filling is done, and a number of filled containers selected at random are examined bacteriologically to be certain the filling has been done properly. In addition to this the special rooms above mentioned are set aside for the filling, and these are given unusual care.

It is evident that if remedies intended for parenteral administration are to be dispensed only after passing through the rigorous tests mentioned above, they must be prepared by persons who have had training in bacteriological *technique*. A realization of this fact is leading the colleges of pharmacy to give their students advanced training in special bacteriological *technique*. To be useful such courses should be thorough. It is apparent that here a little knowledge might be a dangerous thing indeed. Certain criticisms of the tests suggested for the preparation of remedies for parenteral administration will undoubtedly be made. Some persons will say, many others will think, that we have been getting along all these years with much simpler methods—why not continue? The reason we may not continue with them is that these simpler methods are the cause of serious and even fatal infections. We learn of some of them, there are probably ten times as many that we never hear about. The demand for sterile solutions for hypodermic and intravenous injection is destined to increase, these solutions must be sterile and their sterility must, before use, be demonstrated by adequate tests.

THE MULFORD BIOLOGICAL LABORATORIES, Glenolden, Pa.

DISCUSSION.

M. I. Wilbert, of Washington, D. C., said that, from a pharmaceutical point of view, he believed Dr. Hitchens had demonstrated clearly and fully that the only safe and reliable method of sterilization was the very simple one outlined in the German Pharmacopoeia: "Sterilization should be done in accordance with established bacteriological *technique*." That was the only safe method of sterilization. It was absolutely unsafe to follow any published prescription or formula. Discontinued sterilization was often spoken of as being absolutely safe, but it was not. In connection with solutions that were themselves antiseptic, like physiological salt solution, if the substance were contaminated by spore-bearing organisms, it could be sterilized half a dozen times, and still be extremely dangerous. Discontinued sterilization depended largely on the development of spores into viable organisms, recognizing that spores themselves are not affected at the ordinary temperatures used. Therefore, ordinary sterilization, unless at very high temperature, would have no effect. Sterilization at high temperatures was not without possible dangers. Repeated work on distilled water had shown that this form of water afforded favorable conditions for the growth of micro-organisms; and under certain conditions, as had been shown recently, distilled water might contain, after three or four days, a tremendous number of organisms. The use of such a contaminated water is objectionable from every point of view, even if properly sterilized it would involve risks from generated poisons or the killed organisms themselves.

In connection with the possibilities of the sterilization of local anesthetics, a considerable amount of work had been done in Germany; but the field was so large that there was no end to the possibilities in that direction. Cocaine solutions, that Dr. Hitchens had said could be sterilized at 70 degrees, could also be heated to a considerably higher temperature for a very short time. So that with recently distilled water, and satisfactory conditions so far as containers were concerned, solution of cocaine could be heated to even 100 degrees for a few minutes. Such a solution would be reasonably safe; not absolutely safe, but reasonably so. He said Dr. Hitchens had covered so much ground that it was hard to grasp it all at once, but he hoped the members would fully appreciate his first statement, which was that sterilization should only be successfully done with adequate control, and in strict accordance with bacteriological *technique*.

Chairman Havenhill commented that this certainly was a live subject, or soon would be, with pharmacists. He said he understood the next Pharmacopoeia would contain a chapter on sterilization.

E. Fullerton Cook, of Philadelphia, said that one point Dr. Hitchens brought out was worthy of still further emphasis, viz.: that suggestion which made it possible for the phar-

macist to prepare sterile solutions in ampoules with the use of simple apparatus only. He suggests that suitable solutions in non-soluble glass ampoules, may be sterilized after the ampoules are sealed, by placing them in oil or saturated salt solution, and heating for fifteen minutes at a temperature of 115°C . This operation requires only the use of a covered vessel and a thermometer, while the results obtained would approximate those secured through the use of an expensive autoclave; that is, the temperature would be the same as that of the autoclave and the pressure, consequently, inside of each ampoule would be equivalent to the pressure in the autoclave under those conditions.

Such a process is not applicable to all substances, since the temperature required is prohibitive at times, and yet this plan is so simple and where it can be applied so easily and promises such satisfactory results, that it should not be passed over without the emphasis here given.

F. W. Nitardy, of Denver, said his practice was to use steam at 30 pounds pressure in the process of sterilization, keeping it at that point for fifteen minutes. He considered this sufficient sterilization.

Doctor Hitchens, responding to the last speaker, said he thought there was no doubt about the efficiency of this method, provided precautions were taken to have the steam completely replace the air in the chamber. And yet, without control, it would fail. In the ten years he had been doing this work, he had failed many times; but the failure was because somebody had not taken the precaution to remove the air, with the result that the sterilization would not be complete, unless the temperature was raised very high. As he had tried to bring out, and as Mr. Wilbert had kindly emphasized, sterilization must always be controlled by proper cultures. Such cultures are usually made in fermentation-tubes, containing freshly sterilized 2 percent dextrose *bouillon*. With all the precautions ordinarily taken, failure sometimes occurred.

Otto Raubenheimer, of Brooklyn, said he desired to emphasize one point—a thing that should be well known to pharmacists at this time; that distilled water was not necessarily sterile water. Some gentlemen seemed to be of the opinion that sterilization can be attained very easily. But Dr. Hitchens and Mr. Wilbert had properly emphasized the necessity of bacteriological control. He related his observance of a city milk-inspector taking samples of milk for analysis from several milk-wagons, and of the indifference to the exposure of these samples to contamination by bacteria. By the methods pursued by this inspector it must follow that the milk would show excess of bacteria, and he presumed that the milkmen from whom the samples were taken would be disciplined. This incident, he said, would show how carelessly such work is done,—work that should be done with great care and precaution; and all work of sterilization should be guarded with the utmost precaution.

METAL COLLOIDS—THEIR INCREASING IMPORTANCE AS REMEDIAL AGENTS.

CHAS. E. VANDERKLEED AND FRITZ HEIDELBERG.

Perhaps no field of chemical and physical research so well shows how rapidly progress is being made, as a glance at some recent developments in the study of colloids, and particularly at the changes that are being made in our conception of colloids. Just as we no longer believe that atoms are actually indivisible—though for all or nearly all of the purposes of the art of chemistry we may still so consider them; just as we no longer are convinced of the absolute indestructibility of matter—though for all practical purposes in chemistry and mechanics we may so calculate; so do we no longer adhere to Graham's original classification of matter into crystalloids and colloids. We may no longer look upon colloids as a distinct class of substances, separate and apart from other classes

of substances, any more than we can consider gases or liquids or solids as distinct subdivisions of matter. Just as many substances may appear in solid, liquid or gaseous form, so may almost, if not indeed all substances, whether or not they possess the power to crystallize, appear under certain conditions as colloids. In the words of Wolfgang Ostwald in his "Grundriss der Kolloidchemie,"—"Unter geeigneten Bedingungen grundsätzlich alle Stoffe in kolloiden Zustand erscheinen können." (Under certain conditions, fundamentally all substances may appear in colloidal form.) Colloidal chemistry may not therefore be defined as the study of colloidal substances, but rather as the study of the colloidal condition of matter.

The authors of this paper will not presume to enter into a discussion or even a review of the recent theoretical developments of colloidal chemistry and physics. Suffice it to say that to the physicist and student of theoretical chemistry, the subject is of utmost importance and interest. Like radio-activity, the study of the colloidal form of matter may prove to be one of the means of bridging over the gap between matter and energy, while biologic and physiologic chemists may ultimately find in the study of colloids the chemical and physical solution of life itself. Many volumes of researches, discourses, and text-books on the subject have appeared, notable among which may be mentioned, Ostwald's "Grundriss der Kolloidchemie"; "Die Kolloide in Biologie und Medizin," by Bechhold; "Kolloidchemie des Lebens," by Liesegang; and a very interesting little book in English entitled, "An Introduction to the Physics and Chemistry of Colloids," by Hatschek. A monthly journal, the "Zeitschrift für Chemie und Industrie der Kolloide," now in its twelfth volume, has recently been supplemented by an "Ergänzung" called "Kolloidchemische Beihefte,"—all devoted to the development of the theory and practical application of colloids. Ostwald expresses the opinion that such problems as the relationship between color, constitution, molecular form, solvents, etc., may ultimately be solved by the study of colloidal forms of matter.

Neither shall we re-state the well-known, and for practical purposes valuable, classifications of colloids by Graham (1861-1864) into "sols" and "gels"—hydrosols, organosols, and hydrogels,—reversible and irreversible, etc. For the purpose of this paper it is sufficient that we picture the colloidal form merely as a state of exceedingly fine subdivision,—so fine indeed that the individual particles closely approach in size, the minuteness of molecules themselves. Colloidal solutions become then merely a fine suspension of one material in another,—and theoretically we should be able to produce any known substance in the form of a colloidal solution. Such so-called solutions differ, however, from true solutions in that the latter are, so far as physical means permit us to determine, absolutely homogeneous, whereas colloidal solutions are, ultimately, only suspensions, even though the highest power of the microscope may not enable us to see the individual particles. In other words, in the case of a true solution we are dealing with a single phase system as we say in physical chemistry, whereas in the case of a colloidal solution, we are dealing with a two-phase system. If the colloidal particles are solids, they are called "suspensoids"; if liquids, they are termed "emulsoids," owing to their occupying intermediate places, respectively between suspensions of solids and emulsions of liquids,—and true solutions.

Permit us to emphasize the fact, however, that there is no chemical difference between matter in or out of the colloidal form. There is no chemical difference between ordinary mercury and colloidal mercury, any more than there is any chemical difference between ice, water, and steam. Each is in a physically different form, yet all three are water from a chemical point of view. Even the distinction that may be drawn between colloidal and non-colloidal forms of matter by the process of dialysis, does not betoken any chemical difference. Sodium chloride in solution dialyzes because there are no particles present larger than the pores of the parchment, but a solution of glue will not dialyze because the particles of glue in pseudo-solution are too large to pass through. If, however, a dialyzer with larger pores be used,—such for example as a thin collodion bag,—or if a colloid with more finely divided particles than those in the glue be used, this colloid will pass through the dialyzer, though not so rapidly as the crystalloid.

We will understand clearly the nature of a colloidal solution if we consider the changes which occur in an ordinary suspension. If we put sand in water, the sand will settle very quickly to the bottom of the container; if we grind the particles of sand finer, they will still settle completely after being suspended for some time in the water; the finer we grind the sand, the longer it will take for the particles to settle. This is due to the fact that the force of gravity which acts on the particles of sand is counteracted in part by several factors like friction in the liquid, molecular attraction, etc.

Let us imagine now that we are able to grind the particles so fine that this counteraction,—viscosity of the water, molecular attraction, the motion akin to the Brownian movement of very small suspended particles, and the electrical charges with which small particles become endowed,—is equal to the force of gravity tending to bring each particle of sand to the bottom of the container. What is the result? The particles no longer, or at least no longer quickly, fall to the bottom, but remain in suspension in the liquid,—and we thus obtain a colloidal solution,—colloidal sand dissolved in water. In the same way, we can imagine the production of a suspension of sand in oil, where by grinding the sand particles finer and finer, we could finally obtain a colloidal solution of sand in oil. A colloid therefore may be not only water-soluble; it may be oil-soluble, or soluble in any other solvent; and it will depend only on how we choose the medium in which we produce the fine particles, whether the finished product will be water-, alcohol-, or oil-soluble, etc.

Actually, we are not able, by mechanical means, to grind the particles of a substance to such a degree of fineness that we can obtain a colloidal solution, and we therefore have to make use of chemical or of physical (as distinguished from merely mechanical) reactions to get these particles fine enough, although should we have a grinder at our disposal to enable us to grind them sufficiently fine, the resulting colloid would probably be just as good as one obtained by chemical means.¹ Thus, while we are not able to grind sand to a state of colloidal fineness by mechanical means, we can readily prepare a colloidal solution of silicic acid

¹ Colloidal filaments of tantalum, tungsten, etc., are made by grinding the metals to an impalpable powder, mechanically, and then treating them alternately with acid and alkali, when they finally assume colloidal form. But the mechanical grinding alone just falls short of producing the desired result.

by chemical and physical means. It is only necessary to decompose a water-solution of sodium silicate with a slight excess of hydrochloric acid and dialyze the mixture until free from excess of acid and sodium chloride, when there will remain in the dialyzer a perfectly clear, colorless solution of silicic acid.

Such a colloidal solution, in common with other inorganic colloids, is very readily thrown out of the solution or "sol" form, however, on addition of electrolytes, the theory being that these serve to disperse the electric charge with which the colloidal particles are endowed, and which, by its power to enable them to repel each other, helps to maintain the "sol" form. When this charge is dispersed, the particles, no longer antagonistic to each other, aggregate, and soon the whole mass of colloid particles either settles out, or as in case of silicic acid, solidifies to a "gel," enclosing by adsorption the water in which it was suspended.

Colloidal solution of ferric hydroxide, or dialyzed iron, is made by a process analogous to that described for silicic acid,—while colloidal solutions of the metals, such as gold, silver, platinum, copper, and lead, are usually prepared by an electrolytic disintegration method first described by Bredig in 1898. This method consists in passing an electric current, in the form of an arc, between poles of the metal which is desired in colloidal solution, the poles being suspended in the desired liquid, usually water. Under this treatment, particles of the electrodes are broken off in such a fine state of subdivision that they remain suspended in the liquid in colloidal form. Here too, however, the addition of electrolytes soon causes the colloidal metal solutions to precipitate as "gels" which cannot be reconverted into solution-form.

A third method of obtaining inorganic colloids is by reduction. If, for example, we take a solution of a metallic salt like gold chloride, and add a diluted solution of formaldehyde, or any other suitable reducing agent, the gold will be reduced and suspended in colloidal solution if the solution be sufficiently diluted. Again, certain colloids may be prepared by oxidation. If we oxidize hydrogen sulphide gas to sulphur by means of sulphurous acid, the sulphur will assume the colloidal form and remain suspended in colloidal solution.

Just a word as to the probable size of these colloidal particles. First of all, they are so small that they cannot be seen in the ordinary microscope, and as Abbe has shown that the lower limit of visibility is from 800 to 400 millionths of a millimeter, while the wave lengths of light lie between 450 and 760 millionths of a millimeter, it follows that these colloidal particles must be much smaller than these wave lengths themselves. Hence they would forever have remained invisible to the naked eye, had not Zsigmondy and Siedentopf invented the ultra-microscope, which by means of the so-called dark-field illumination, only light reflected or dispersed by the particles, and no direct rays from the source of illumination, enter the microscope. In this way particles calculated to be as small as five millionths of a millimeter can be seen. By a study of so-called "ultra-filtration" methods, Bechhold has passed colloidal particles in solution through filters calculated to have pores not greater than 21 millionths of a millimeter, in diameter, whence it follows that the particles must have been smaller than these pores and hence have at least approached in smallness the limits which have been assigned from other investigations for the diameter of molecules.

According to Dr. Conrad Amberger,¹ the effect of gravity on colloidal particles in suspension is neutralized by the action of the electrical charges when the particles are not greater than 60 millionths of a millimeter in diameter. Since, however, the addition of an electrolyte serves to disperse this electric charge, no inorganic colloid solution would appear to be sufficiently stable for use, for example, in medicine. Fortunately, however, it was long since discovered that by adding a portion of an organic colloid to an inorganic colloidal solution, preferably prior to the formation of the latter, the inorganic colloid is rendered quite immune to the precipitating action of electrolytes. This is probably best explained by Bechhold's theory that the organic colloid, such as glue, gelatin, casein, albumin, etc., forms a layer around the inorganic colloid particle, and as the organic colloids are but little affected by the addition of electrolytes, precipitation is thus prevented. For this reason organic colloids used in connection with inorganic colloidal solutions to prevent precipitation have received the name "protective colloids."

Thus, there is rendered available for use as therapeutic agents, in relatively stable colloidal solution form, many substances otherwise insoluble. If, however, the colloidal state does not necessarily imply a change in chemical composition, of what possible interest can colloids be in medicine? A consideration of this question brings to light first of all the fact that oftentimes very slight changes in a substance may be the means of materially changing its physiologic effect. Substances of like chemical composition, but differing slightly in the atomic arrangement of their molecules, may differ materially in toxicity and in the effects which they produce. Who shall say therefore that a metal for example, or a metallic oxide or hydroxide or salt in colloidal form, may not differ materially in its potency or in its effect from that of its ordinary form? The question of absorbability, the rapidity with which it may be assimilated, plays an enormous part in treatment with medicinal substances. It is not only conceivable, but highly probable, that this rate of assimilation will be entirely different for mercury, for example, in ordinary globular form, though very finely subdivided mechanically, and mercury many thousands of times more finely subdivided in colloidal form. Hatschek in the closing chapter of his little book says, "The study of colloids shows us that the mere subdivision of matter, or, in other words, *the production of large surfaces*, brings into play energies, the effects of which may be of the most varied character, and of the most profound importance."

Moreover, the growth of the art of putting into colloidal form and hence making possible the administration of certain substances in solution or liquid form which otherwise could only be administered if at all in solid form,—and then not hypodermically or intravenously but only by mouth or by external application,—shows at once that there is really a promising field for investigation by the therapist of a new line of materia medica products made possible by new discoveries in the production of colloidal solutions.

Another evidence of the possible therapeutic activity of colloid metals, is their possession of the power of catalytic action so resembling in many ways the action of enzymes that Bredig has called them "inorganic ferments." Exceedingly

¹ Pharmazeutische Zeitung, 58, 1913, p. 188.

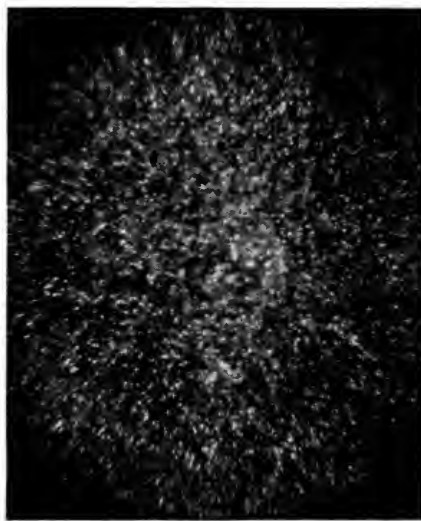
dilute solutions of colloidal platinum and osmium will instantaneously decompose very large quantities of hydrogen peroxide into oxygen and water,—while other colloid metals have been used to polymerize fatty oils into hard masses,—powers not possessed by these metals even when subdivided to the highest possible degree by mechanical means.

Nor have physicians been slow to take up this line of investigation. We refer of course to a study of the therapeutic effects of colloidal solutions of metals, oxides, hydroxides, and salts, which in ordinary form are insoluble in water or in other suitable vehicles for their administration. It is hardly to be conceived that any advantage would ensue from the administration in colloidal form of a substance naturally soluble in a suitable solvent. But there remains a large number of substances, of which the metals and some of the non-metallic elements are



A

Ultra-micro-photograph (x1000) of Blue Ointment U. S. P. dil. to 10%.



B

Ultra-micro-photograph (x1000) of Colloidal Mercury Ointment, 10%.

examples, which, unless made “soluble” by rendering them colloidal, must remain unsuitable for use in the materia medica.

Perhaps the first of metal colloids to be introduced into medicine, colloidal ferric hydroxide, or dialyzed iron, is now acknowledged to be a therapeutic failure,—or at least to possess no advantages that are not to be gained from the administration of iron in other forms. This, however, need not deter us from investigating other colloids, for it must be remembered that dialyzed iron was only administered by mouth, and it is probable that slighter differences will be noted between colloidal and non-colloidal forms when thus administered, than when used hypodermically, intramuscularly, or intravenously.

Among the earliest of the metallic colloids to be employed in medicine was silver,—in the form of pseudo-salts with protein and other organic acids,—colloidal in nature, though tried out and used before many of the investigations of colloids had disclosed their real nature. Of undoubted value in the treatment

of certain bacterial diseases from the clinicians' point of view, these colloidal silver preparations possessed little or no direct bactericidal power,—particularly in comparison with solutions of crystalline silver salts. True, they possessed the advantage, much appreciated by the patients, of being non-irritating,—but of what use is a negative advantage unless accompanied by decided positive advantages? Satisfactory, or at least helpful results, however, were consistently claimed by, not a few, but by very many able practitioners. Some explanation other than the possession of antiseptic power must therefore be sought.

Recent investigations of certain French authors (Pastia,¹ Bossani and Marcelet²) have shown that colloid metals influence the opsonic strength of a serum against various bacteria. Bossani and Marcelet think that this influence is not due merely to the colloid nature of the substances, in which case one colloidal metal might act as well as another, but varies with the kind of colloid used.

The experiments of these authors along this line were carried on with the purpose of determining how the action of the leucocytes upon streptococci is influenced by colloidal silver. Experiments were made with animals, men and *in vitro*. The serum used in all the experiments was taken directly before the injection of colloidal silver, one hour after the injection, and 24 hours after the injection.

In the work with rabbits, mixtures were made of serum, a 1:3 suspension of a 24-hour *bouillon* culture of streptococcus, washed white corpuscles, and physiological salt solution. These were incubated for 15 minutes at 30°, slides were made, and from the cocci contained in 100 polymorphonuclear leucocytes mixed with serum there was subtracted the number contained in the leucocytes of the control tubes, namely those in salt solution only.

The results showed that in every case the injection of colloidal silver, while causing no increase after one hour, caused a decided increase of phagocytosis after 24 hours.

Experiments upon people were carried out in the same way and showed practically the same results.

To determine whether the colloidal silver influenced the phagocytic power of the leucocytes directly, or increased the opsonic strength of the serum, a number of experiments were made *in vitro*. Increasing dilutions of colloidal silver were mixed with serum in one series, with physiological salt solution in another, and white blood corpuscles were added to both. Slides made from each series were examined.

The results showed that colloidal silver does influence the leucocytes directly, but the colloid can increase the opsonic strength of the leucocytes only in the presence of serum.

Colloidal mercury and colloidal mercurous chloride have also been introduced into medicine, but have not apparently been used very extensively, the former possibly because of the unstable character of the marketed product. Dimond in

¹ Pastia: La presse medicale 1910.

² Bossani and Marcelet: Gazette des Hopitalz 1908.

a recent article¹ speaks of highly satisfactory results from the injection of colloidal mercury and silver solutions in various infectious diseases, particularly in connection with specific vaccine and serum treatments, and attributes the favorable results to increased phagocytosis. Dimond has used metal colloid solutions both "protected" and "unprotected" by the presence of "Schultz-kolloid," and declares that the use of the latter has not been followed in his experience by any loss of therapeutic activity.

Recently renewed interest in colloidal medication has been aroused, first in France by the use of a form of colloidal copper for the treatment of cancer and tumors, and later by Dr. Leo Loeb in St. Louis, who has reported² on the experimental use both of colloidal copper solutions prepared electrolytically and used intravenously, and of colloidal copper protected with protein substances. His results have been partially successful, and he closes his article in the May, 1913, number of the *Interstate Medical Journal* with these words, "It seems to us necessary, in the interest of science and of practical medicine, to follow to the utmost these lines of investigation."

Following the preparation some time ago of a colloidal silver oxide, our research laboratory has been engaged in a study of the production of other colloids. Renewed interest in the use of mercury by intramuscular injection, usually in the form of "Grey Oil" of the British Pharmaceutical Codex, a mechanically subdivided suspension of mercury in liquid petrolatum and lanoline, suggested to us the advisability of preparing a colloidal mercury soluble in oil, thereby possessing the advantage of stability, if not indeed possessing greater therapeutic activity because of the many thousands of times more highly subdivided nature of the mercury particles.

Such a colloidal solution, containing five percent of colloidal mercury, is here shown, together with a specimen of the ordinary "Grey Oil" diluted also to a five percent strength for the purpose of comparison.

An interesting fact was brought out in our experimental work in preparing these colloids, namely, that the solubility of the resulting product, if protected by a so-called "Schutz-kolloid," depends upon the nature of the "Schutz-kolloid" or protective colloid employed. If, for example, metal colloid be protected by means of a caseinate which is water-soluble, the product will dissolve to a clear solution in water, which may be shaken with petroleum or with chloroform without the latter taking up anything from the water solution. On the other hand, if an oil or chloroform-soluble protective colloid, such for example as lanoline, has been used, the product will dissolve to a clear solution in chloroform, which in turn may be shaken with water without loss of any material to the water layer.

This is here shown by two samples of colloidal selenium, one protected by a water-soluble colloid,—the other by an oil-soluble colloid. Selenium has been used in the form of a selenium-eosin compound by Wassermann in the experimental treatment of cancer,—and this metal has ardent advocates who claim therapeutic virtues for it in many forms. These colloidal forms are now being

¹ *The Practitioner* XCL July, 1913, p. 132.

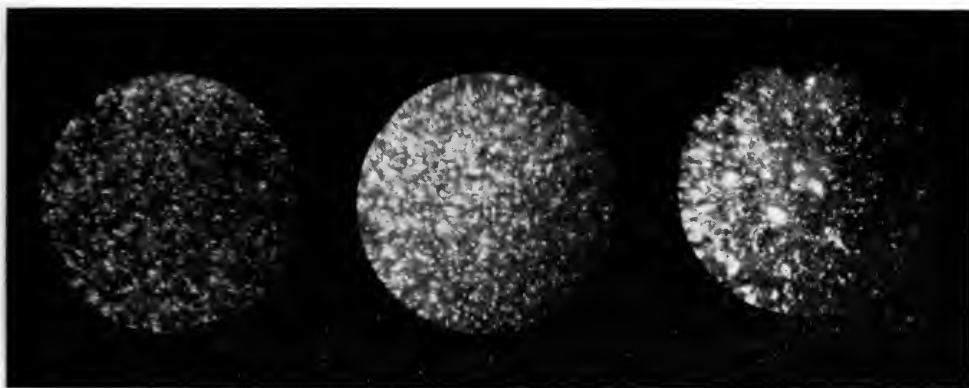
² *Interstate Medical Journal*, 1913.

³ *Journal of the American Medical Association* LX, June 14, 1913, p. 1857.

tested experimentally and clinically for their possible value in the treatment of malignant growths.

The production of an oil-soluble colloidal mercury also suggested to us the possible advantage of mercurial ointment in colloidal form. Here is shown such a 10 percent ointment, the vehicle consisting of lanoline and petrolatum, and the whole ointment, mercury and all, being soluble in chloroform, unlike ordinary Blue or Mercurial ointment which, when treated with chloroform, separates into a solution of the vehicle and metallic mercury which settles to the bottom of the tube.

We also show herewith ultra-micro-photographs of ordinary mercurial ointment in comparison with 10 percent colloidal mercurial ointment. These photographs, taken with an enlargement of approximately 1000 diameters by means of a dark-field illuminating apparatus, seem to bear out a calculation, based upon a measurement of the particles in the ordinary ointment and the theoretical size of the colloidal particles, that in amounts of the two ointments containing equal weights of mercury, there is approximately 60,000 times as much mercurial sur-



C
Ultra-micro-photograph
(x1000) of Colloidal Mercury
Ointment with lowest possible
illumination.

D
Same as C, but with increased
illumination.

E
Same as C and D, but with
more intense illumination.

face exposed in the colloidal ointment as in the ordinary form. In this connection it is of interest to point out, however, that the individual particles in the colloidal ointment, though theoretically magnified only about 1000 diameters in the photograph, are actually many times smaller than this, due to the fact that to the observer, the particles themselves are luminous and sources of light. Consequently, the brighter the illumination (a high power arc is required), the larger the particles will appear. This is well shown in photographs C, D and E, which represent the same colloidal ointment with gradually increasing intensity of illumination. The particles appear to coalesce into luminous nebulae with increase in luminosity, while if the latter be decreased, the individual character of the particles again becomes discernible. Moreover, no adequate conception of the actual size of the particles can be had, because they are in indescribably rapid motion similar in appearance to the so-called Brownian movement of floating dust particles. Thus each bright spot, as shown particularly well in photograph B, represents not the size of one colloidal particle magnified 1000 times, but rather

the entire circumference of the glow of a particle rapidly vibrating throughout a space very many times its own actual dimensions.

These ointments are also undergoing clinical tests and investigations. It may be of interest, however, to report that the toxicity of colloidal oil-soluble mercury, as determined upon guinea pigs, compared with ordinary metallic mercury appears to be about four times as great. The bactericidal power of water-soluble colloidal mercury has also been determined and appears to be equivalent to a phenol-coefficient of about 27.7.

Here also are samples of water-soluble colloidal copper, protected with casein, and ampoules of the aqueous solution ready for hypodermic or intravenous injection. Each ampoule contains 10 milligrams of substance corresponding to 2 milligrams of metallic copper, this quantity being the minimum lethal dose for 250 gm. guinea pigs. All these metallic colloids have been produced by the reduction method, starting with soluble salts.

Without doubt many things remain to be learned by the employment of these products in medicine, and the earnest co-operation of careful laboratory and clinical investigators along these lines may lead to discoveries of untold importance in the treatment of disease.

RESEARCH LABORATORY OF H. K. MULFORD COMPANY, July 28, 1913.

A PHARMACODYNAMIC STUDY OF THE PITUITARY GLAND WITH TESTS OF A NEW PRODUCT.

FRITZ HEIDELBERG, PAUL S. PITTENGER AND CHARLES E. VANDERKLEED.

The role which the pituitary body or hypophysis plays in life has until recently been a mystery. It was at first thought that its function was to lubricate the nasal cavities. This belief, however, was soon discarded and replaced by the supposition that the gland was, like the appendix, of no use at all. Later, however, it was proven by Vassale and Sacchi,¹ Caselli², and others that the gland plays a very important role and is absolutely necessary to life. It has also been found that acromegaly and other diseases are due to functional disturbances produced by an over or an under secretion of this gland, and that its removal causes death. According to Sajous³ the anterior lobe may prove to be the center of the adrenal system.

The pituitary body varies in size according to the age and species of the animal. The gland most commonly used in therapeutics is that obtained from the ox, and is about $\frac{3}{4}$ inch in diameter.

The gland is composed of two parts or lobes,—the anterior and the posterior or infundibular. The smaller or posterior lobe, which forms only about ten to fifteen percent of the total gland, is the more important therapeutically. This

¹ Vassale and Sacchi: *Rivista Sperimentale de Freniatria* p. 83, 1894.

² Caselli: *Studii anatomici e sperimentali sulla Fisiopatologia della Glandola pituitaria*, 1900.

³ Sajous: *Internal Secretions and the Principles of Medicine*. Vol. 1, p. 216.

lobe contains practically all of the active principles while the anterior lobe is the one which is so necessary to life.

The total pituitary body contains about 80 percent of water, or in other words 100 parts of the fresh gland give about 20 parts of dry substance, containing 2 to 3 parts of the posterior lobe.

Knowledge concerning the chemical composition of the pituitary gland has only recently gained proportions sufficient to warrant the hope that science will ultimately be as successful in isolating and synthesizing its active principle or principles as it has been with the suprarenal gland. Owing to the similarity existing between the physiologic actions of the pituitary and those of the suprarenal gland the theory has been advanced that the active principles of the former will be very similar to epinephrine. In fact it has been shown that the activity of the gland can be concentrated into a basic fraction forming salts with acids. It was possible, however, to split this basic fraction into several fractions of different chemical properties (Fuhner)⁴, which would tend to prove that the action of the pituitary body is due to not one but to the combined actions of

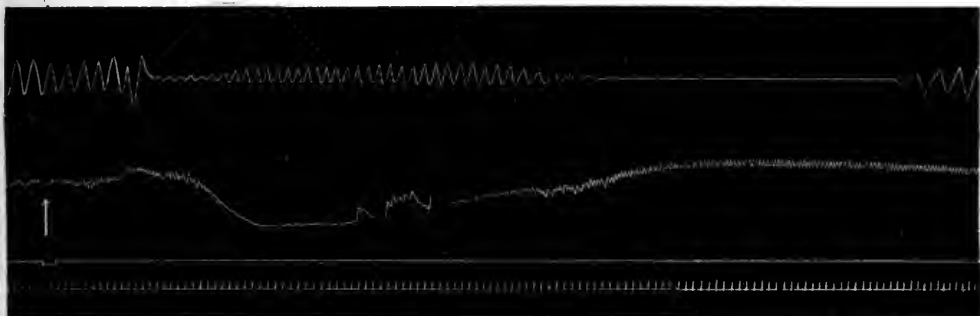


FIGURE 1.—Cut of Prof. Fühner's tracing showing the action of the basic fractions, tested by him, on blood pressure (negative).

several active principles. Schäfer and Vincent⁵ had also shown sometime before that the blood-pressure-raising principle could be divided into two fractions by their different solubilities in alcohol, one containing a pressor and the other a depressor action.

Practically all of the commercial preparations of pituitary on the market are claimed to be extracts of only the posterior lobe. Since the process of separating the posterior from the anterior lobe is both very tedious and expensive, the object of our endeavors has been to isolate from an extract of the whole gland, either a highly active fraction or the active principles themselves. We have also been concerned in endeavoring to differentiate between extracts or solutions claimed to be prepared from certain portions of the gland, and those from the gland as a whole, as we doubt very much whether, in all cases, preparations said to be made from the posterior portion are really not prepared from the gland as a whole.

Physiologic experiments have demonstrated that extracts of this gland are

⁴Fuhner: *Hypophyse deutschen medizinische Wochenschrift*, March, 1913, p. 491.

⁵Schäfer and Vincent: *Journal of Physiology*, May 11, 1899.

valuable therapeutic agents. Thus Magnus and Schäfer⁶ and Schäfer and Herring⁷ have shown that it accelerates diuresis; Oliver and Schäfer⁸ that it is valuable for raising the blood pressure by arterial constriction; Dale⁹, Bell and Hicks¹⁰, and v. Fränkl Hochwart and Fröhlich¹¹ that it excited marked uterine contractions, Ott and Scott¹² that it possesses a rather marked galactagogue action.

The scant knowledge of the chemical composition of the gland and extracts of the same, renders it impossible to ascertain by chemical means the comparative value of two or more extracts or fractions. We are therefore compelled to resort to physiologic assay methods. Of the various physiologic actions of the gland above mentioned there are three which present themselves as possible means of

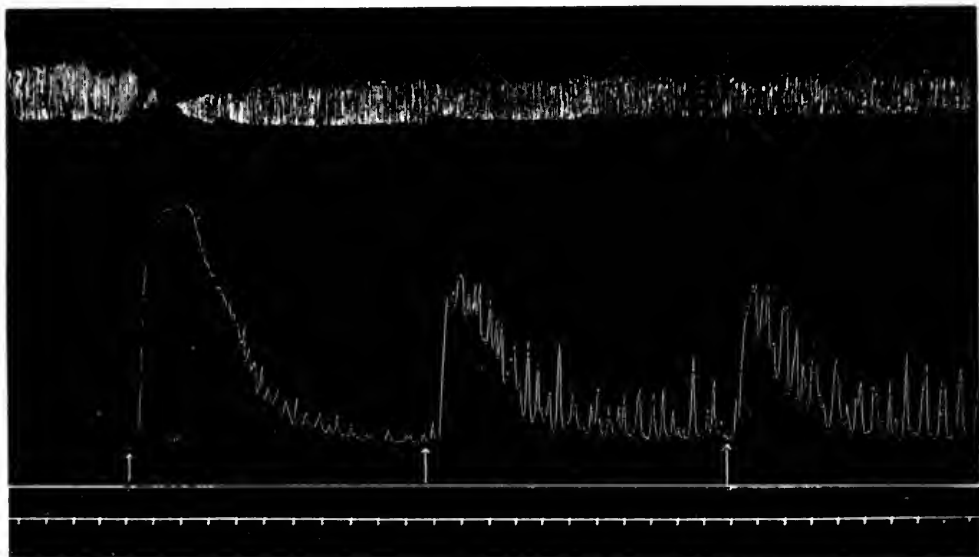


FIGURE 2.—Cut of Prof. Fühner's tracing showing marked uterine contractions produced by the same preparation which gave negative results by the blood pressure method (See Figure 1).

physiologic standardization, i. e., the action of the blood pressure, the uterus, and the kidneys.

The fact that the blood-pressure method involves the simplest *technique* together with its satisfactory and almost universal use as a means of standardizing epinephrine and suprarenal extracts would at first lead one to believe that this method would also be the most satisfactory one for standardizing pituitary extracts. It has, however, serious disadvantages in case of the latter. As before stated, the blood-pressure-raising principle can be divided into two parts, one

⁶ Magnus and Schäfer: Proc. Phys. Soc., p. IX, 1901.

⁷ Schäfer and Herring: Phil. Trans., 1906 B.

⁸ Oliver and Schäfer: Journ., of Phys., XVIII, p. 277, 1895.

⁹ Dale: Biochem. Journ., IV, p. 427, 1909.

¹⁰ Bell and Hick: Brit. Med. Journ., i. p. 777, 1909.

¹¹ v. Fränkl Hochwart and Fröhlich: Arch. f. exp. Pathol., u. Therapie, LVII, p. 347, 1910.

¹² Ott and Scott: Proc. Soc. exp. Biol., New York, 1910.

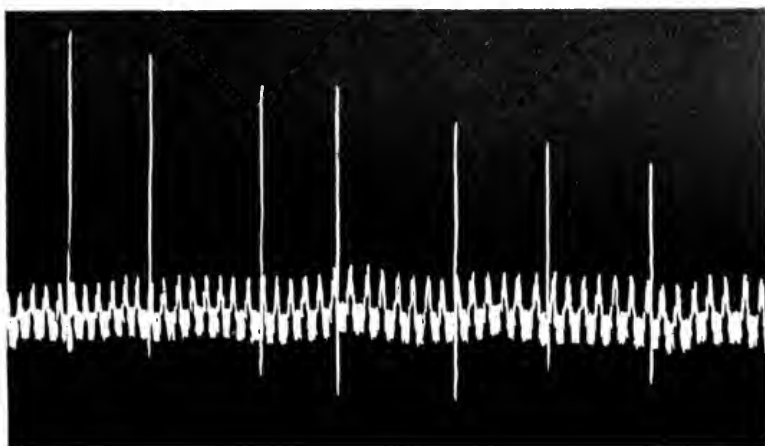


FIGURE 3.—Shows the gradual decrease in the rises in blood pressure produced by repeated injections of equal sizes.

possessing a pressor and the other a depressor action. Prof. Fühner of Frie-burg¹³ has also shown that the sum of the basic principles tested by him caused marked uterine contractions and only a slight pressor action, which was almost completely masked by a marked preliminary depressor action.

Furthermore, extracts which had been deprived of their depressor action by fractionation with alcohol, showed marked pressor effects, while on the other hand they were sometimes almost entirely free from action upon the uterus.

Another serious drawback to the blood-pressure-raising method, is the fact that the active principles of pituitary extract are not nearly as rapidly oxidized as those of the suprarenal gland and therefore repeated injections of equal sizes produce unequal rises,—the subsequent ones generally showing a waning of the pressor action and an increasing prominence of the preliminary depressions.

Still another objection to the blood pressure method is its comparatively low

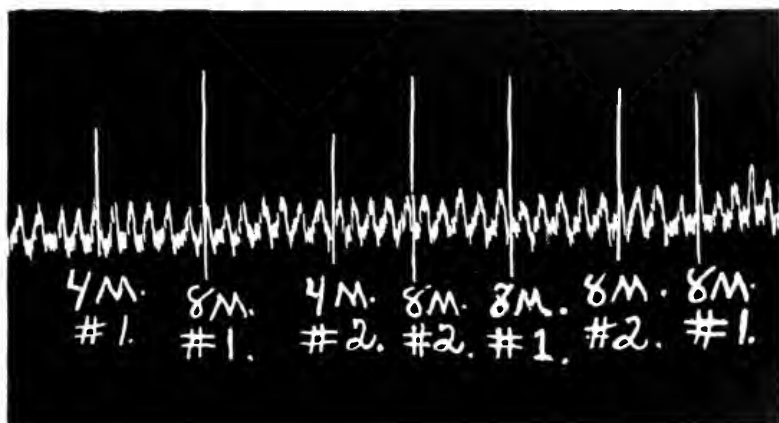


FIGURE 4.—Tracing showing equal rises in blood pressure from equal amounts of the two extracts mentioned above.

¹³ Hypophyse deutschen medizinische Wochenschrift 1913, No. 11, p. 491.

sensitiveness; in other words, it requires, in most cases, a rather large variation in the size of the injection to produce a variation in the resultant rise. This latter objection is especially serious when comparing two or more samples for research purposes, in which case a mistake of 20 to 30 percent in interpreting the results of an assay may cause a considerable loss of time. For example, we had occasion during our experiments to compare two extracts made by different processes, in order to determine which was the better of the two. According to the blood-pressure method both extracts showed the same activity, while when

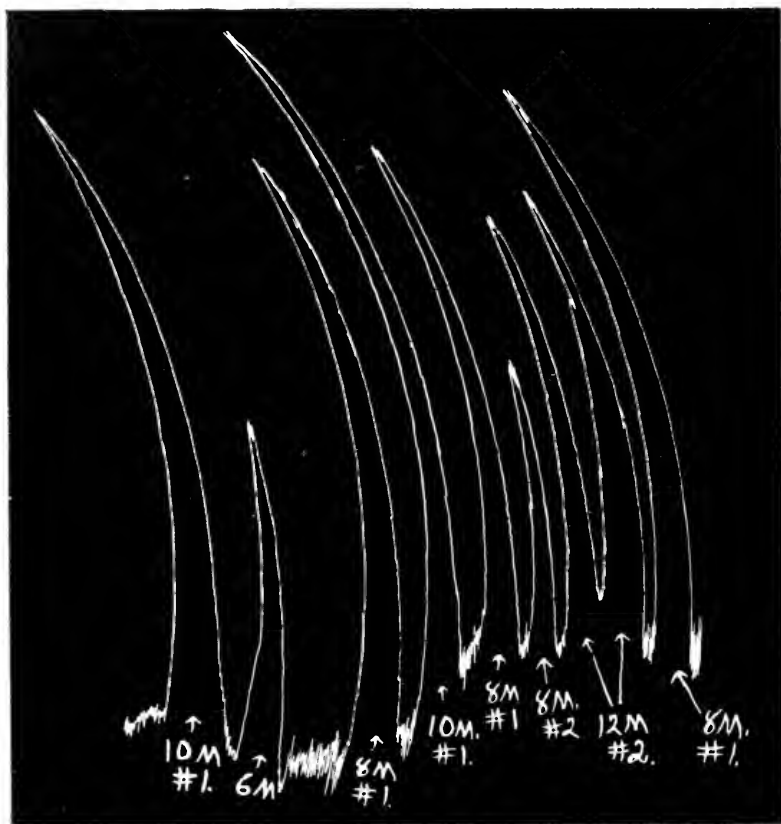


FIGURE 5.—Tracing proving the sensitiveness of the uterine method. Chart shows 8 minims of extract No. 1 to be stronger than 12 minims of extract No. 2. By the blood pressure method (owing to its lower sensitiveness) both preparations showed the same activity (See Figure 4).

tested by the uterine method, which is far more sensitive, 8 minims of one extract prove to be more active than 12 minims of the other. (See Figures 4 and 5).

We have had no experience with methods of standardization based upon the diuretic action, but it has been shown by Dale and Laidlaw¹ that this method is also unsatisfactory, due to the tolerance produced by the first injection. They

¹"A Method of Standardizing Pituitary (infundibular) Extracts," by Dale and Laidlaw. *Journ. Pharm. and Exp. Ther.*, Sept., 1912, p. 75.

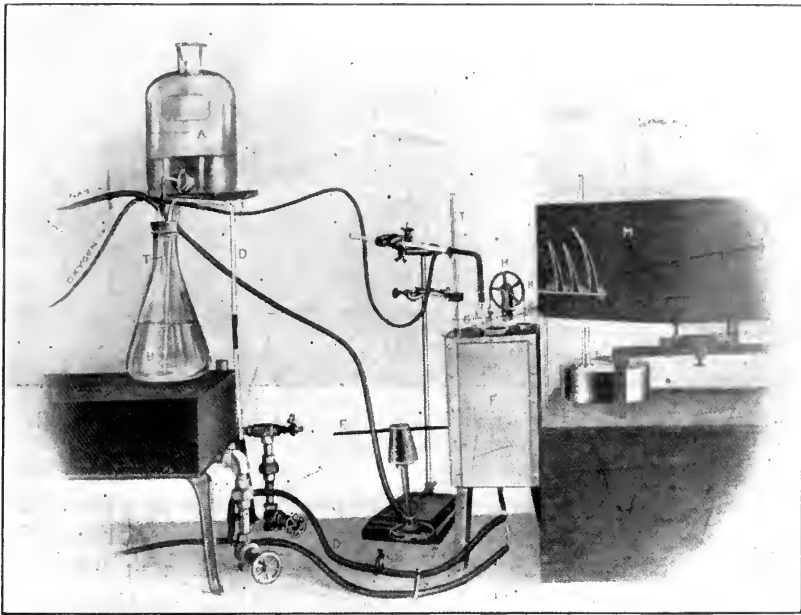


FIGURE 6.—Apparatus employed for testing ergot and pituitary extracts upon the isolated uterus of virgin guinea pigs.

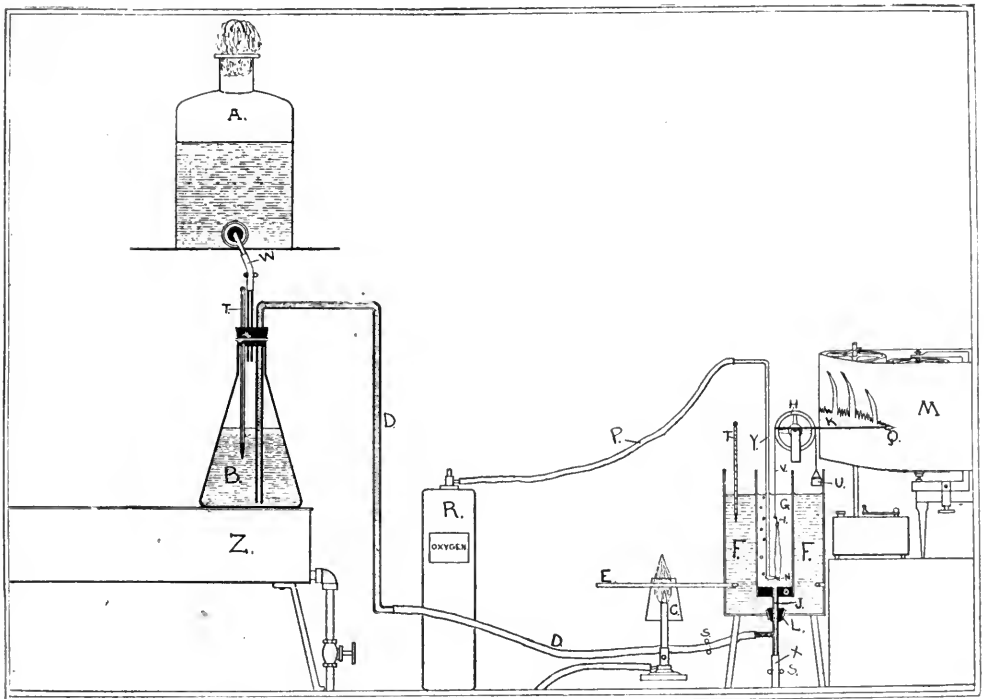


FIGURE 7.—A graphic illustration of the above apparatus.

A—Aspirator bottle containing Ringer's solution; B—Ringer's solution; Z—Steam bath; D—Syphon tube carrying Ringer's solution to cylindrical vessel; F—Constant temperature bath; E—Brass rod; C—Bunsen burner; G & N—Hooks suspending uterus; O—Rubber stopper; X—Tube leading to waste pipe; U—Counter balancing bucket; H—Escapement wheel; K—Writing lever; Q—Writing point; M—Kymograph; T—Thermometers.

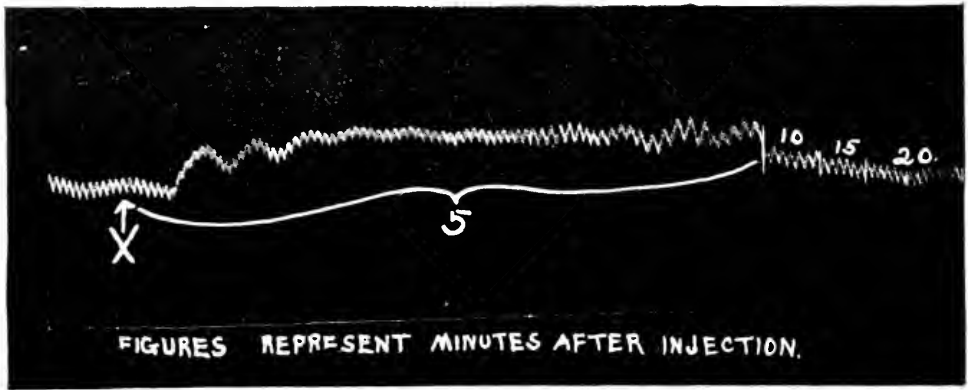


FIGURE 8.—Tracing showing the effect upon blood pressure of intravenous injections of our metallic derivative of the active principles of the whole gland.

state that if small doses are used in order to overcome this tolerance "it may be difficult to distinguish genuine effects from the spontaneous variations of urinary flow which occur in almost any experiment, however constant the controllable conditions."

In our experiments upon the isolated uterus we carried out essentially the method of Dale and Laidlaw with a few modifications of the apparatus employed. We used the same apparatus that we employed in our researches upon ergot, as set forth in another paper².

We have used both the uterine and the blood pressure method, during the

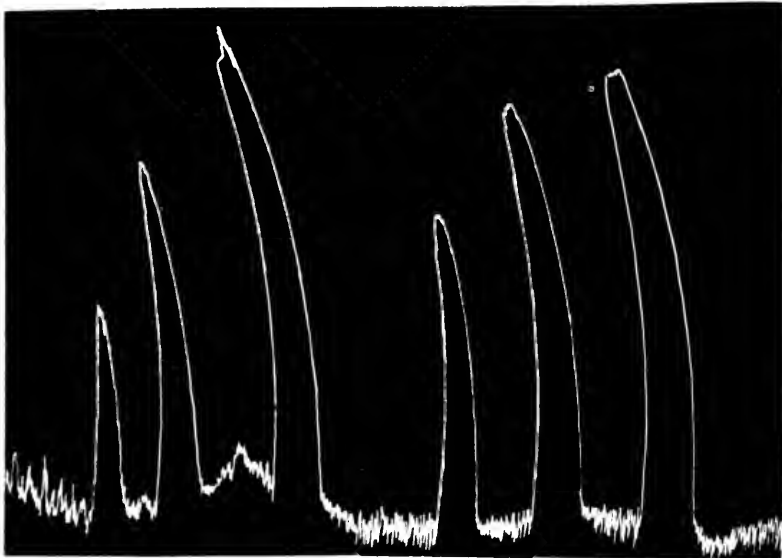


FIGURE 9.—Tracing showing the effect of our metallic derivative of the active principles of the whole gland upon the isolated uterus of the virgin guinea pig.

²"A New Uterus Contraction Method of Testing Ergot,—with comparison with the blood pressure method," by Pittenger and Vanderkleed.

past year, throughout all our researches on pituitary substances, and are thoroughly convinced that the uterine method is by far the better of the two. We will not go into a detailed description of the advantages of the uterine method, as our results agree in every instance with the claims made for it by Dale and Laidlaw.

In our experimental work on pituitary extract, we have succeeded in preparing colorless extracts of the *whole gland*, possessing all of the characteristic physiologic properties of the posterior lobe. Such a solution, in sterile ampul form, is here shown, together with tracings, showing the characteristic blood-pressure-raising power, and also the uterus-contracting power, peculiar to the posterior lobe, to a marked degree.

This solution has been prepared as follows: First a watery extract is made of the whole gland. This is then purified by a series of precipitations which deprive the extract of practically all inert proteid substances. This purified extract is then treated with metallic salts of aluminum (or other suitable metals), after which it is neutralized, thus precipitating the metallic derivative. This precipitate is then filtered off, washed, and dried. An aqueous solution of this dried material forms the solution exhibited in the ampoules. The product, therefore, is in reality a solution of a metallic derivative or derivatives of the active principles, in the purification of which, the presence of the relatively inert anterior lobe seems not to interfere, thus permitting of a great saving in the labor and resultant expense of separating the lobes.

We have not yet been able to determine exactly the nature of these metallic derivatives, but are continuing our researches and will give more detailed accounts of further experiments in subsequent papers.

RESEARCH LABORATORY OF H. K. MULFORD COMPANY, August 13, 1913.

VARIATION IN SUSCEPTIBILITY OF THE GUINEA PIG.

(Continuation of a previously reported study.)*

CHAS. E. VANDERKLEED, PHAR. D., AND PAUL S. PITTINGER, PHAR. D.

In a paper read at the 1912 meeting of the American Pharmaceutical Association in Denver, the results of a series of experiments covering one year were given, in which it was shown that the average minimum lethal dose of crystallized strophanthin, Thoms, (ouabain) for 250 gm. guinea pigs, varied during the course of the year from 0.0000511 gm. in September, 1911, to 0.0000844 gm. in May, 1912, the average for the year being 0.0000661, and the extreme variation ranging from 22.7 percent below to 27.7 percent above this average. These experiments having conclusively shown that sex and weight may be dismissed as unimportant, this conclusion having been fully concurred in by other investi-

* Variation in the Susceptibility of the Guinea Pig to the Heart Tonic Group, (Second Paper), by Chas. E. Vanderkleed, Phar. D., and Paul S. Pittenger, Phar. D., Journal of the American Pharmaceutical Association, II, May, 1913, p. 558.

gators,** these factors were eliminated in extending our observations over a number of months during the past year, the results of which are given in the following tables. The doses are in all cases those given per 250 gm. weight.

AUGUST, 1912.

Temperature of Laboratory, 29 to 30° C. Aver., 29.5° C.
Temperature of Guinea Pig Quarters, 28 to 29° C. Aver., 28.5° C.
Pigs varied in weight from 220 to 430 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000045.....	— Recovered	0.000060.....	+ Died
0.000050.....	— Recovered	0.000065.....	+ Died
0.000055.....	— Recovered	0.0000675.....	+ Died
0.000055.....	— Recovered	0.000070.....	+ Died
x0.000060.....	+ Died		

M. L. D. = 0.000060

OCTOBER, 1912.

Temperature of Laboratory, 21 to 27° C. Aver., 24° C.
Temperature of Guinea Pig Quarters, 10 to 16° C. Aver., 13° C.
Pigs varied in weight from 240 to 655 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000050.....	— Recovered	0.0000575.....	— Recovered
0.000050.....	+ Died*	0.0000575.....	— Recovered
0.0000525.....	+ Died*	x0.000060.....	+ Died
0.0000525.....	— Recovered	0.000060.....	+ Died
0.000055.....	— Recovered	0.000060.....	+ Died
0.000055.....	— Recovered	0.0000625.....	+ Died
0.000055.....	+ Died*		

M. L. D. = 0.000060

* Died "out of order."

NOVEMBER, 1912.

Temperature of Laboratory, 16 to 22° C. Aver., 19° C.
Temperature of Guinea Pig Quarters, 12 to 18° C. Aver., 15° C.
Pigs Varied in weight from 250 to 505 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000050.....	— Recovered	0.0000725.....	— Recovered
0.000060.....	— Recovered	x0.0000725.....	+ Died
0.000065.....	— Recovered	0.0000725.....	+ Died
0.000065.....	— Recovered	0.000075.....	+ Died
0.000070.....	+ Died*	0.000075.....	— Recovered*
0.000070.....	— Recovered	0.000080.....	+ Died
0.000070.....	— Recovered	0.0000825.....	+ Died

M. L. D. = 0.0000725

* Died or recovered "out of order."

DECEMBER, 1912.

Temperature of Laboratory, 18 to 20° C. Aver., 19° C.
Temperature of Guinea Pig Quarters, 12 to 17° C. Aver., 14.5° C.
Pigs varied in weight from 230 to 410 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000050.....	— Recovered	0.0000725.....	— Recovered
0.000060.....	— Recovered	x0.0000725.....	+ Died
0.000065.....	— Recovered	0.0000725.....	+ Died
0.000065.....	— Recovered	0.000075.....	+ Died
0.000070.....	— Recovered	0.000075.....	+ Died
0.000070.....	— Recovered	0.000075.....	+ Died

M. L. D. = 0.0000725

** Seasonal Variations in the Resistance of Guinea Pigs to Poisoning, by C. C. Haskell, A. B., M. D., American Journal of Pharmacy, June, 1912, p. 241-246.

JANUARY, 1913.

Temperature of Laboratory, 19 to 21° C. Aver., 20° C.

Temperature of Guinea Pig Quarters, 17 to 19° C. Aver., 18° C.

Pigs varied in weight from 375 to 575 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000060.....	— Recovered	x0.000065.....	+ Died
0.000060.....	— Recovered	0.000065.....	+ Died
0.0000625.....	— Recovered	0.000070.....	+ Died
0.0000625.....	— Recovered	0.000075.....	+ Died
0.0000625.....	+ Died		

M. L. D. = 0.000065

FEBRUARY, 1913.

Temperature of Laboratory, 18 to 21° C. Aver., 19.5° C.

Temperature of Guinea Pig Quarters, 9 to 18° C. Aver., 13.5° C.

Pigs varied in weight from 200 to 290 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000030.....	— Recovered	0.000060.....	+ Died*
0.000040.....	— Recovered	0.000065.....	— Recovered
0.000040.....	— Recovered	0.000065.....	— Recovered
0.000045.....	— Recovered	0.000065.....	— Recovered
0.000050.....	— Recovered	0.0000675.....	— Recovered
0.000050.....	— Recovered	x0.000070.....	+ Died
0.000050.....	— Recovered	0.000070.....	+ Died
0.000050.....	+ Died*	0.000070.....	+ Died
0.000060.....	— Recovered	0.000080.....	+ Died
0.000060.....	— Recovered	0.000085.....	+ Died
0.000060.....	— Recovered		

M. L. D. = 0.000070

* Died "out of order."

MAY, 1913.

Temperature of Laboratory, 22 to 30° C. Aver., 26° C.

Temperature of Guinea Pig Quarters, 22 to 28° C. Aver., 25° C.

Pigs varied in weight from 305 to 520 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000050.....	— Recovered	0.000065.....	— Recovered
0.000055.....	— Recovered	0.000070.....	— Recovered
0.000055.....	— Recovered	0.000070.....	— Recovered
0.000060.....	— Recovered	0.000070.....	— Recovered
0.000060.....	— Recovered	x0.0000725.....	+ Died
0.000060.....	+ Died*	0.0000725.....	+ Died
0.000065.....	— Recovered	0.000075.....	+ Died
0.000065.....	+ Died*		

M. L. D. = 0.0000725

* Died "out of order."

JULY, 1913.

Temperature of Laboratory, 28 to 31° C. Aver., 29.5° C.

Temperature of Guinea Pig Quarters, 29 to 32° C. Aver., 30.5° C.

Pigs varied in weight from 275 to 520 gms.

<i>Dose.</i>	<i>Results.</i>	<i>Dose.</i>	<i>Results.</i>
0.000050.....	— Recovered	0.000065.....	+ Died
0.000055.....	— Recovered	0.000070.....	+ Died
0.000060.....	— Recovered	0.0000725.....	+ Died
0.000060.....	— Recovered	0.000075.....	+ Died
0.000060.....	+ Died	0.000080.....	+ Died
x0.000065.....	+ Died		

M. L. D. = 0.000065

In order that these results may be considered in conjunction with those obtained during the previous year, the following tabulated summary includes the results reported in the previous paper:

MINIMUM LETHAL DOSE BY MONTHS.

<i>Date.</i>	<i>Lab.</i>	<i>Pens.</i>	<i>M. L. D.</i>	
July, 1911.....	27°C.	.....	0.0000519	
August, 1911.....	27°C.	.....	0.0000519	
September, 1911.....	23.5°C.	.....	0.0000511	
October, 1911.....	21.2°C.	.....	0.0000544	
November, 1911.....	22°C.	.....	0.0000577	
December, 1911.....	18.5°C.	.....	0.0000700	
January, 1912.....	20°C.	12°C.	0.0000658	
February, 1912.....	18.5°C.	12°C.	0.0000737	
March, 1912.....	20°C.	12.5°C.	0.0000825	
April, 1912.....	24°C.	17°C.	0.0000800	Old
May-June, 1912.....	25.7°C.	25.5°C.	0.0000844	series
July, 1912.....	28°C.	25.5°C.	0.0000700	Aver. 0.0000661
August, 1912.....	29.5°C.	28.5°C.	0.0000600	
October, 1912.....	24°C.	13°C.	0.0000600	
November, 1912.....	19°C.	15°C.	0.0000725	
December, 1912.....	19°C.	14.5°C.	0.0000725	
January, 1913.....	20°C.	18°C.	0.0000650	New
February, 1913.....	19.5°C.	13.5°C.	0.0000700	series
May, 1913.....	26°C.	25°C.	0.0000725	Aver.
July, 1913.....	29.5°C.	30.5°C.	0.0000650	0.0000672
Average for two years.....			0.0000665	

A study of this table shows that it is not necessary for us to make any changes in our conclusions of last year's paper. The average M. L. D. for 1911-1912 was 0.0000661 gm.; that for the new series of 1912-1913 was 0.0000672 gm.; while the average for the whole two years was 0.0000665 gm. On the other hand the extreme variations during the new series have been much smaller than those observed during the first twelve months, varying from only 9.8 percent below to 9 percent above, instead of from 22.7 percent below to 27.7 percent above. With less than a 10 percent variation in susceptibility above or below the average, with less than 10 percent of pigs dying or recovering "out of order," we contend that for all practical purposes, the guinea-pig method affords the simplest and most satisfactory means of standardizing the heart tonic group of drugs, at a very reasonably economical cost, without the necessity for standardizing the test animals, and without need for considering seasonal variations. As for the opinion which has been occasionally advanced, that experiments on ouabain really prove nothing as to the possible variation in susceptibility to digitalis or other members of the heart tonic group, we can only say that it would be very difficult to carry out a series of experiments such as we have done, with digitalis, strophanthus or any other drug as a whole. Any variation that might be noted would always cause the question to arise as to possible change in the test material. We can say, however, that in our long experience with this method as a routine one for testing all of the heart tonic drugs, we have found no evidence of any appreciable variation. Moreover, as the physiologic action

of the various heart tonic drugs is very much the same, it is not likely that much variation in susceptibility will be noted. As our opportunities to observe possible variations in the case of vacuum-preserved preparations of digitalis and strophanthus accumulate, we should be able within a year or two more to throw some direct light on this question.

PHYSIOLOGIC LABORATORY OF H. K. MULFORD COMPANY, July 27, 1913.

THE YEAR BOOK OF THE ASSOCIATION.*

Fresh from the hands of the printers comes the first year book of the Association, and, with all modesty, it must be said that it reflects the greatest credit upon the Association and upon all of those by whose painstaking efforts the publication makes such a creditable showing; particularly upon its Editor-in-Chief, our esteemed fellow-member, C. Lewis Diehl, Ph. M. and the General Secretary, Dr. James H. Beal, under whose capable direction the publication has been compiled and printed.

The volume is a distinct addition to pharmaceutical literature, not alone of this country, but of the entire world. Nowhere else can be found so completely and so well, within the limits of a single volume, such an infinite amount of valuable material to the profession, as is comprised in this volume of 621 pages. No pharmacist, who has the true interest of his guild at heart, and who desires to keep "in touch" as to its scientific and its practical progress, can fail to find in this "Year Book," matter not only of the greatest interest, but also much valuable information of distinct and immediate profit. Its value to every pharmacist cannot be stated, except in the most general way;—that there is no druggist but will find in its pages something that he can coin into profit, which will many, many times far exceed the trifling cost of the publication to him, personally. It stands as a conspicuous instance of one of the great advantages of the co-operative work which the American Pharmaceutical Association has done and is still doing for every member of the profession. It is a complete and a perfect answer to the criticism, often expressed by the uninformed, that the A. Ph. A. is ultra-scientific, not practical, etc. In the hands of every pharmacist who reads it and who takes advantage of the information packed into its pages, it will be a most useful,—a most valuable,—aid to him in the conduct of his daily affairs, and studied diligently it will make of him a wiser, better and a higher-class pharmacist and man.

In its typography and general make-up it shows the admirable workmanship, care and capacity of the Stoneman Press of Columbus, with which the readers of the JOURNAL are already so familiar.

E. C. M.

*THE YEAR BOOK OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1912, containing the Fifty-fifth Annual Report on the Progress of Pharmacy, and the Constitution, By-Laws and Roll of Members; corresponding to Volume 60 of the former Proceedings of the American Pharmaceutical Association. Published by the American Pharmaceutical Association, 1914, Scio, Ohio.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

THE TABLET INDUSTRY—ITS EVOLUTION AND PRESENT STATUS—THE COMPOSITION OF TABLETS AND METHODS OF ANALYSIS.¹

L. F. KEBLER, PH. C., M. D.²

INTRODUCTION.

It is commonly estimated that from one-fourth to one-third of all the medications in the United States are administered in the form of tablets. Considering the comparatively recent origin of the medicinal tablet, there must be unusual reasons for such a phenomenal growth of the industry. Some of the chief merits claimed for this form of medication, are accuracy, elegance, economy, stability, portability, concentration, rapid solubility, absence of alcohol, comparative safety to the consumer, and convenience for the dispensing physician. If it be correct that machinery, appliances, and manual skill have reached a stage of development whereby it is possible to produce tablets having even a part of such a host of virtues, it would seem reasonable to expect that a very large portion of those found upon the market, should possess the composition claimed for them. It was, therefore, but natural that they should be carefully investigated by the Drug Division. A large number of assorted uncoated tablets, purchased directly and indirectly from manufacturers, were examined. The result did not thoroughly corroborate the general view as to uniformity of composition. Various manufacturers were invited to explain the shortcomings. In some instances they were traced to carelessness on the part of the tablet-machine operator, and in others to ignorance of fundamental conditions, loose methods, uncontrolled conditions, chemical, mechanical, and others, which may all be summed up as a failure to realize the necessity of carefully controlling all steps from the selection of the initial ingredients used in the manufacture of the tablet, to the final chemical examination of the finished product. All these, however, did not yet seem to explain the conditions found in some goods known to be prepared under careful control.

In order to obtain first-hand and full information of the industry, the literature on the subject was fully reviewed, laboratory methods, mechanical, supervisory, and analytical, and other elements were carefully studied throughout the United States. Numerous samples were collected and analyzed. This paper, which embodies the results of this work, covers uncoated tablets only.

¹ The historical portion was read before the Historical Section, and the remainder before the Scientific Section of the American Pharmaceutical Association meeting, held at Nashville in 1913.

² Chief, Drug Division, Bureau of Chemistry, U. S. Department of Agriculture.

HISTORICAL REVIEW OF THE INDUSTRY.

A review of the history of tablet making shows that the two general methods of manufacture, compression and molding, have had somewhat different lines of evolution. In the first method the powdered medicament was given form and compactness by subjecting it to compression in a suitable hand or power press without the addition of any foreign substance to give adhesiveness or bulk, and only substances adapted for compression in this way were employed. Gradually, however, as tablets grew in favor as a mode of administering medicines, it became desirable to compress other drugs, and it was then found necessary to add excipients, to give the ingredients sufficient bulk or adhesiveness, so that at present, while some compressed tablets contain medicaments only, most of those upon the market contain both medicaments and excipients.

In preparing molded tablets, the active drug is usually first mixed with sugar of milk, the mixture made into a suitable mass with liquid, and the paste pressed into molds from which it is subsequently ejected in the form of tablets. Tablets made in this way are usually designated as tablet triturates, but the distinction between them and the compressed tablets, in so far as it depends upon the method of manufacture, has been gradually disappearing, and the tendency is still in that direction.

From this it will readily be seen that there is at present but little real difference between the two processes so far as the essential details are concerned. Some form of adhesive, excipient or lubricant, and some degree of pressure must be used in both cases. These two processes, as well as the resulting products, such as compressed tablets, molded tablets, tablet triturates, hypodermic tablets, dispensary tablets, dosimetric tablets, veterinary tablets, ophthalmic tablets, tablet saturates, etc., will be considered in detail in the following pages.

COMPRESSED TABLETS.

Joseph R. Wood, in his book on tablet manufacture,³ gives the following footnote:

"Stamps have been found in England which have been shown to have been used by the Romans to stamp remedies for producing clearness of vision, or for doing away with dimness of sight. The object aimed at by the medicament was specified in the stamp. It is noteworthy that the stamps so far discovered were designed for remedies for ocular diseases. The preparations were hardened with gum or some viscid substance and were thus ready to be liquefied at any time. Thus our supposedly very modern device of triturates or compressed tablets is only a revival of an ancient Roman custom."—(*American Medicine*.)

Careful search on the part of the author and of the publisher of "American Medicine" failed to locate this statement. Its authenticity could not, therefore, be verified. Lozenges, troches, and pastilles, however, are referred to by a number of early writers.⁴

³ Tablet Manufacture, Its History, Pharmacy and Practice, 1906, p. 9.

⁴ Hippocrates (460-375 B. C.), *Liber prior de morbis mulierum*, Mauricio Cordaco, Rhemo, interprete et explicatore, Karisii, 1585, pp. 198, 286.

Celsus, A. Cornelius (lived first century, A. D.), *De Medicina*, Alex. Lee's translation of Targa's edition, 1831, Lib. v, Cap. xvii, p. 14; Cap. xx, p. 35.

Cordi, Valerii, *Dispensatorium, sive Pharmacorum, Conficiendorum Ratio*. Lugduni Patavorum, ex-officina, Joannis Maire, 1651, pp. 253-279, 515.

Dispensary of the Royal College of Physicians, London, 3rd ed., 1751, H. Pemberton, M. D., pp. 318-322.

Dispensatorium Pharmaceuticum Universale, etc., Daniele Wilhelmo Trillero, 1764, pp. 791-803.

There is no question that the molding of medicaments was in vogue many years before William Brockedon was granted English Patent No. 9977, December 8, 1843, under the title of "Shaping Pills, Lozenges and Black Lead by Pressure in Dies," and it is equally certain that this invention was the beginning of a great industry. On account of its historical value those portions of the patent and its accompanying illustrations dealing with medicated compressions are here given:

"To all to whom these presents shall come, I, William Brockedon, of Devonshire Street, Queen Square, in the County of Middlesex, Gentleman, send greeting.

"Whereas, Her present most Excellent Majesty Queen Victoria, by Her Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the eighth day of December, in the seventh year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Brockedon, Her special license, full power, sole privilege and authority, that I, the said William Brockedon, my exors, admors, and assigns, or such others as I, the said William Brockedon, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all time during the term of years therein expressed, should and lawfully might make, use, exercise and vend, within England, Wales, and the town of Berwick-upon-Tweed, and in the Islands of Jersey, Guernsey, Alderney, Sark and Man, and in all Her said Majesty's Colonies and Plantations abroad, my invention of "Improvements in the Manufacture of Pills and Medicated Lozenges, and in Preparing or Treating Black Lead"; in which said Letters Patent is contained a proviso, that I, the said William Brockedon, shall cause a particular description of the nature of my said invention, and in what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear."

* * * * *

"It is well known that in making pills, and also medicated lozenges, as heretofore practised, the proper materials are mixed with a suitable liquid into a state of stiff paste, which is divided and shaped and allowed to dry, and it is well known that in some cases the gum and other materials, used as adhesive matter for keeping pills and lozenges in form, when the same are mixed by means of fluids, interfere with and prejudice the desired action of the matters employed in making up or preparing pills and lozenges, and these gums and adhesive matters are rendered necessary by the use of fluids for getting the matters into a condition to be shaped. * * * * *

DESCRIPTION.

"Figure 1 shows the section of suitable dies for making pills, and similar dies will be used when making medicated lozenges, but the same would be formed into suitable figures to produce lozenges of the shapes and sizes desired. *a* is the punch of the dies, the lower end being concave; this punch is to be worked by means of a fly press, or by other convenient means. *b* and *c* form the two parts of the lower die. The parts *a*, *b* and *c*, are of steel; and it will be seen that the part *c'* of the lower part *c* of the lower die rises into the part *b* of the lower die, and the part *c'* is sunk to correspond with the punch *a*. It is important that in using the matters in a state of powder or dust, that the successive quantities put into the dies should be (as nearly as may be) of the same weight, and, in order to save the trouble of weighing, I have devised a measuring instrument, which being forced into the prepared powder or dust will take up at each time a regulated measure thereof, and then deposit the same into the lower die. Figures 2 and 3 show two sections of this instrument; in one case the instrument is shown as having just been filled, and in the other figure the instrument is shown as having been emptied. *d* is the handle, which is fixed into the tube *e* by means

of a set screw d' , or by other convenient means, and according as the handle d is less or more into the tube e , so will the quantity measured by the instrument be more or less. f is another tube, which is closed at its lower end; this tube slides freely within the tube e and g is another tube which slides over the outer surface of the tube e ; and the tubes f and g are fixed together by the screw h , which passes through a slot formed in the tube e , which slot allows the tube f, g to slide up and down, the end of the handle d determining the extent of such sliding. When the tube e projects beyond the tubes f and g , as is shown in Figure 2, it is pressed into the powder or dust, by which the end becomes full, taking care that in repeatedly filling the same the dust or powder from which the successive quantities are taken is not beaten down or compressed so as to cause the measure to make a materially greater quantity at one time than another. The measure of powder or dust being thus taken up, is to be deposited into the lower die, b, c , by moving the handle upwards whilst holding the outer tube, g , the pill is then to be finished by causing the punch or upper die d to descend into the die, and thus, by one or more blows, to consolidate the powder or dust. The upper die a , and also the part b of the lower die, is then to be raised up, when the pill may be removed. I have not thought it necessary to show dies for making different shaped medicated lozenges, as a workman acquainted with the making of similar dies for other purposes will readily make the proper punch and lower die to produce the proper size and shape of lozenges desired. It will be proper here to remark that this invention, when making pills, is particularly applicable when using matters readily soluble in the stomach, such as deliquescent salts used medicinally, the carbonates, tartrates and nitrates of soda and potash, and other matters, according to the judgment of the medical man, and the invention is also applicable when less soluble matters are used combined with others readily soluble in the stomach.

"* * * * And I have found that the powder or dust of black lead may be rendered solid with more certainty by means of pressure in dies by withdrawing the air from the dies, and from the powder or dust of black lead therein, before operating by pressure, and such is the case in respect to making pills and medicated lozenges, but owing to the small quantities of matter operated on when making pills and lozenges, I have not in practice found it necessary to exhaust the air in these latter cases. * * * *"

"And I would state that I am aware that clay or brick earth has been formed into bricks, tiles, and other articles, by pressure in dies when in a state of dust or powder, and then burned in kilns, and patents have been granted for such means of making bricks, tiles, and other articles from brick earth or clay and burning; and I mention these manufactures in order to state that I do not claim the rendering powder generally into solid forms by pressure, and then subjecting the same to burning. But I do strictly confine my invention to the following improvements:

"First, I claim the mode of manufacturing pills and medicated lozenges by

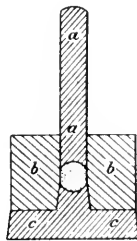


FIG. 1



FIG. 2



FIG. 3

causing the materials, when in a state of granulation, dust or powder, to be made into form and solidified by pressure in dies.

"Secondly, I claim the mode of preparing or treating black lead when in a state of powder, granulation, or dust, by pressure in dies, so as to solidify the same.

"In witness whereof, I, the said William Brockedon, have hereunto set my hand and seal, this eighth day of June, in the year of our Lord one thousand eight hundred and forty-four.

"WILLIAM (I. S.) BROCKEDON."

At an early date it was observed that pills made with adhesive material often interfered with and prejudiced the desired action. The underlying object of this invention was to compress medicinal agents in a state of granulation, dust, or powder without the use of gummy matter or other adhesive agents commonly employed in the manufacture of pills and lozenges. The goods made by this process were known for many years as "compressed pills." The patent was put into operation and the pills brought early to the attention of the pharmaceutical profession through the press, as is shown by the following extract⁵:

"We have received a specimen of bi-carbonate of potash compressed into the form of a pill by a process invented by Mr. Brockedon, and for which he has taken out a patent. We understand the process is applicable to the compression of a variety of other substances into a solid mass, without the intervention of gum or other adhesive material. Mr. Brockedon has promised to favour us with a detailed account of this process for publication in an early number."

This note shows that Brockedon put his invention into practical use, and subsequent data corroborate the fact that his goods were continuously on the market, both in England and America, for many years.

Mr. Charles Killgore, one of the pioneers in the manufacture of tablets in the United States, relates⁶ the following incident showing the early importation of "compressed pills" into the United States:

"'Compressed tablets' were commercially imported in 1854 by E. Milhau, a druggist of New York City, at the request of Commodore M. C. Perry, who first procured them in London. The commodore was very anxious to take some of these medicines with him on his trip to Japan. Mr. Milhau did not have this form of medicament in stock and was compelled to place the order abroad, which resulted in considerable delay. The day Commodore Perry received orders to report at Hampton Roads for his final instructions he called on Mr. Milhau and requested that he forward the compressed pills to him if they arrived in time to reach him before sailing. The goods were received in sufficient time to comply with his request."

One of the earliest American druggists to keep Brockedon's goods was Frederick Brown, as shown by the following letters to the writer:

"Philadelphia, Pa., January 8, 1913.

"L. F. Kebler, Chief Drug Division, U. S. Dept. of Agriculture, Washington, D. C.:

"Dear Sir—We were duly in receipt of your favor of December 27, 1912, and have endeavored to find out something definite as to the sale of compressed Potassium Bicarbonate and Sodium Bicarbonate Tablets.

"We regret that we are unable to give you definite information on the subject, as the retail branch of this business was sold in 1888, and we no longer have any

⁵ Pharm. J., 1844, 3; 554. A careful search of the files of the Pharmaceutical Journal failed to reveal a description of the promised process, and it seems likely that Mr. Brockedon never carried out his intention.

⁶ Private communication to the writer.

of the old records. Our treasurer, however, Mr. H. S. Robertson, began the drug business in 1860 with Frederick Brown, Sr., and he well remembers that Brockedon's Compressed Tablets were regularly in stock at that time, being quite actively in demand.

"Regretting that we are unable to give you any further information on the subject, we remain,

"Yours very truly,
(Sgd) "F. ZERBAN BROWN, President."

F. Newberry & Sons, in a letter to the "Chemist and Druggist," given in full further on, state that Brockedon's business was purchased by them in 1871, and they continued to sell his "compressed potass. and soda." Burroughs, Wellcome & Co., in a letter to the "Chemist and Druggist"⁷ write as follows:

"We notice the correspondence (24/27 A. C. S.) with regard to the use of the words 'Tabloids' and 'Tablets' as applied to compressed drugs. The word 'Tablets' was first applied by us to this class of drugs at the commencement of our business in 1878. This form of medication had hitherto been known in this country as 'compressed pills.'"

The following correspondence dealing with historical matters also throws light on the compressed drug industry in England about 1881⁸:

"To the Editor of 'The Chemist and Druggist':

"Sir—Have we in Great Britain any drug manufacturers with sufficient ingenuity to make little pellets or discs of such simple and useful substances as chlorate of potash, carbonate of soda, etc.? If there be such, how is it that a Yankee maker of these articles is permitted quietly, but none the less surely, to establish a monopoly of the 'compressed medicines,' as they are termed in this country?

"'Have you any of these American solid cakes of chlorate of potash?' is already becoming a stereotyped query from our customers. 'My doctor recommends them as so much superior to the lozenges.'

"We are not sure whether the articles in question are strictly a specialty of the wholesale druggist, or the lozenge-maker; but whichever it may be, it is clear that patriotic and selfish motives should combine to determine him to elbow out the intruder. * * * * *

"Bradford, November 5.

"M. ROGERSON & SON."

"To the Editor of 'The Chemist and Druggist':

"Sir—We have observed the letter of your correspondents, Messrs. M. Rogerson & Son, in your last issue, and would point out that the idea of compressing pills or tablets, by whichever name they may be called, was originated by the late Professor Brockedon, the manufacturer of compressed Cumberland leads for lead pencils. He introduced, about twenty or more years since, Brockedon's compressed potass. and soda, which have ever since been on sale both in this country and America. In 1871 we purchased Professor Brockedon's interest in these preparations, and they are still well known at home and abroad. As to 'elbowing out the intruder' it may interest your correspondents to know that we have, since the introduction of the American compressed goods, remarked with satisfaction a steady increase in the demand for the Brockedon's already referred to, and the increase applies as well to foreign as to the home markets. The monopoly must, therefore, exist more in imagination than in reality. * * * * *

"London, November 29."

"F. NEWBERRY & SON.

⁷ Chem. & Drug., 1892, 40: 785.

⁸ Chem. & Drug., 1881, 23: 510.

⁹ Chem. & Drug., 1881, 23: 555

This correspondence shows that Yankee ingenuity and perseverance were making themselves felt in the tablet industry at that early date. The "American solid cakes of chlorate of potash" referred to in the first letter quoted were probably compressed tablets of chlorate of potash and borax, free from any excipient, which were marketed in the United States by John Wyeth & Brother, Philadelphia.¹⁰

The manufacture of "compressed pills" (tablets) in the United States was apparently begun by Jacob Dunton, a wholesale druggist in Philadelphia. He

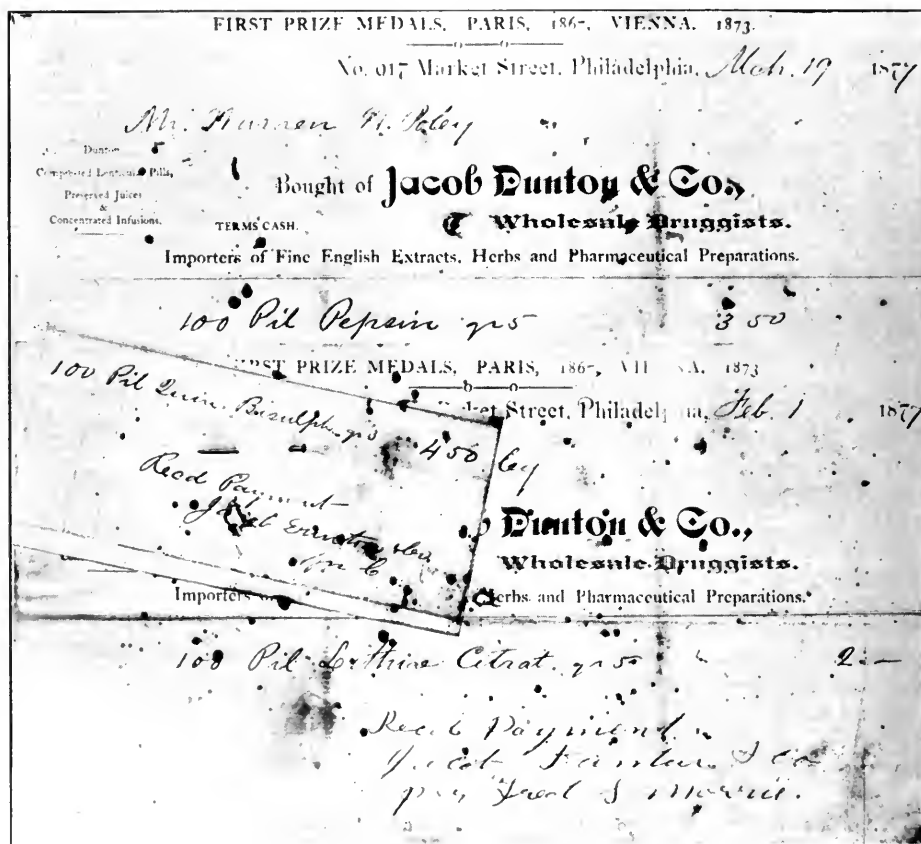


FIG. 4—Dunton's bills. (Furnished by M. Campbell, Philadelphia.)

was graduated from the Philadelphia College of Pharmacy in 1855. A letter from Dr. L. A. Edwards begins thus, "Washington, D. C., August 13th, 1862. My dear Pill-driver et Phot." It would seem that Dunton made "compressed pills" at this early date when they were actually compressed by driving. It is reported that Dunton supplied the United States Government "compressed pills" during the early sixties, but the records are inconclusive. A bill against the United States dated October 3, 1861, includes pills, but the kind of pills is left open. According to the copy of another bill, "compressed lenticular pills" formed a part of Dunton's business as early as 1867, when he was awarded a

¹⁰ New Remedies, April, 1879, p. 2, cover, vol. 8.

Paris prize, but it could not be determined whether the pills were included or not. It is interesting to note from this bill that \$3.50 was charged for 100 pepsin tablets in 1877. There appears to be nothing in Dunton's private effects to throw any light on the time of his beginning pill compression. There is available, however, the complainant's record¹¹ of a litigation, which contains valuable data. On page 8 appears the following:

"Q. Give the date of your (Dunton's) first experiment in this matter, and your employing Mr. Murset.

"A. Some time in the winter of 1863 and 1864; by winter I mean the fall months and the early spring, say March; that was during my stay in the city; I was out of town most of the time from May until November."

On page 5:

"Q. Were you (Murset, a mathematical instrument maker) ever employed by Mr. Jacob Dunton to make a machine similar to that drawing, and if yea, state at what time.

"A. Yes, sir; it was in March, 1864; the beginning of March."

On page 10:

"Q. When did you (Dunton) first put upon the market these compressed pills?

"A. In the fall of 1869."

On page 20:

"Q. I understand from your deposition that you did not put any pills on the market between 1864 and 1869; now I wish to know how many pills you made in that period, and what use you put them to.

"A. Several thousand. I made them up for stock to sell from.

"Q. Do you mean that you made them to put upon the market, but that you did not put them on the market?

"A. I do. The greater portion of these thousand were made in 1869; the latter part of 1869.

"Q. And with what machine were they made?

"A. The second and third spoken of; the second and third machines modified after the machine of 1864."

On page 19:

"Q. Then I understand you (Dunton) now that the lever and the screw and the eccentric were in 1869 adopted and applied by you for compressing the pill or powder?

"A. They were; not on the same machine, however; on different machines.

* * * * *

"Q. I wish to know how soon after 1864 you (Dunton) in any respect modified the machine represented in this Rough Sketch No. 2, and I wish to know at the same time of what the modifications consisted.

"A. I modified the machine described in Rough Sketch No. 2, within two or three years after 1864. The modification in this first machine, modified after the machine of 1864, was by the application of a screw to give power, and the addition of an eccentric to eject the lower plunger or lower die, to eject the pill."

On page 22:

"Q. How many varieties of compressed pills did you (Dunton) make in 1869?

"A. Over three hundred."

On page 21:

"Q. I understand you (Dunton) that you have stated that down to 1876 you had made between two million and three million pills; what machine were they made with?

¹¹ Jacob Dunton vs. Bennett L. Smedley, U. S. Cir. Ct., Eastern Dist. of Penn., in Equity, No. 38, April Session, 1879.

"A. Two and three machines, numbers 2 and 3 spoken of above, and similar machines."

"Q. And none of them were made on the machine patented to you in your patent No. 17490, as I understand you?"

"A. No pills were made for sale on machine patented No. 174790."

This testimony clearly shows that Dunton as early as 1864 had a machine constructed for compressing tablets. It also shows that the machine was modified from time to time and that a patent for one of the machines was applied for and granted March 14, 1876.¹² The apparatus is shown in Figure 5.

The following description of the machine is quoted from the patent:

"This invention relates to an improved machine for making pills by compression; and it consists in a movable or detachable compression-chamber or powder-receptacle, in combination with two movable dies having concaved ends, the upper one of which forms the plunger, and the lower one of which is made short, and is adapted to be driven through a hole in a base piece together with the pill.

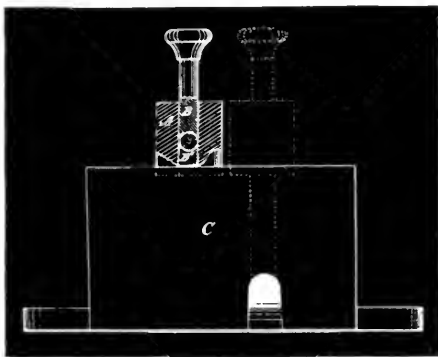


FIG. 5—Dunton's pill machine.
Patented March 14, 1876. (Patent
No. 174,790).

"The invention also consists in the construction of the base-piece, which is provided with a hole terminating in a laterally-discharging curved chute, by which the pill and lower die are driven out of the chamber into a convenient position; and it also further consists in the combination, with the powder-receptacle, of the base-piece, provided with guides, which permit the powder-receptacle to be shifted from its position for compressing to its position above the hole for dis-

charging the pill without displacement, and without the delicate adjustment which would be otherwise required.

"In the drawing, A represents the powder-receptacle, which constitutes also the compression-chamber. This receptacle is perforated vertically and longitudinally with a hole, in which are accurately fitted the dies, B B', of which B constitutes the plunger, through which the application of power is made to effect the compression. Both these dies are movable and entirely detachable, and have their adjacent ends concaved, so as to give sphericity to the pills compressed between them. The lower die, B', is made short, and is designed to be driven out with the pill through a hole, in the base piece, C."

It will be observed that this apparatus is very similar to that of Brockedon's compressor. It will be noted furthermore that nothing appears in this patent which would indicate the use of either a lever, screw, eccentric motion or foot-power, instead of hand-power, attachment to lever.

Dunton was apparently the first to secure a process¹³ patent for the preparation of materials to be used in the manufacture of tablets. This patent embodies some of the fundamental principles governing at present. He had noticed that in compressing materials containing the natural moisture of the air the cohesion of the particles was frequently insufficient to produce stability of form. He also observed that the adhesion between the material and the dies and punches was often greater than the cohesion of the particles. The invention con-

¹² U. S. Patent No. 174,790, dated March 14, 1876.

¹³ U. S. Patent No. 168,240, dated Sept. 28, 1875.

sists, first, in drying the material to be compressed in order to expel the natural moisture, thus increasing the cohesion, and, second, in lubricating the die or mold. On account of its historical importance and in order that certain features may be more readily available, portions of the patent are copied herewith:

* * * * *

"In carrying out my invention the powdered materials are first dried, preferably at a temperature of 90° Fahrenheit, so as to deprive them of the natural moisture absorbed from the air, which would have a tendency to decompose them or interfere with the compressibility or stability of compression.

"The materials are now in proper condition for compression and the cohesion of particles. In order to compress, however, such substances as sulphate of quinia, and other substances which leave a portion of themselves adhering to the mold after compression, which adherence prevents the formation and withdrawal of a successive pill of the same material in a perfect or merchantable condition, it becomes necessary to get rid of the adherence, and also to prepare the mold before another pill can be made. The ways which may be adopted are, first, after the pill is made, open the mold and brush out with a stiff brush as much as possible of the adhering particles, and then apply to the surface of the mold a thin film of oil, which takes or soaks up any portion of the particles which is left after brushing, and to get rid of the oil a pill of starch or other equivalent material is made, which absorbs the oil, and leaves the mold in a condition to make another pill of the original material; second, instead of lubricating the mold directly, a small portion of a liquid may be added to the powder (one percent being in some cases sufficient), which under pressure will ooze out at the surface of the pill, and act as a lubricant, so as to allow the pill to be removed from the mold without leaving any particles adhering to the mold, and leaving the latter in fit condition for the next pill."

* * * * *

"In lubricating the mold a portion of paraffin, oil or cacao, butter of cocoa, or other equivalent material may also be used, either alone or in solution in alcohol, benzine, or other volatile liquids, the object being to apply the least quantity that will produce the desired effect, and I may also use an oily or unctuous substance combined with an absorbent material or a material which is of itself both unctuous and absorbent, for cleaning and lubricating the molds."

* * * * *

"In manufacturing pills by compression, the herein-described method of drying the powders, before compression, at a temperature of about 90° Fahrenheit, with 24° absolute dryness (Mason's hygrometer) to prevent reaction upon the mold, and insure stability of cohesion, and lubricating the mold to prevent adhesion, and insure the removal of the pill integrally and perfect."

"Jacob Dunton.

Witnesses: "Lorenzo Westcott,
"Caspar S. Carmell."

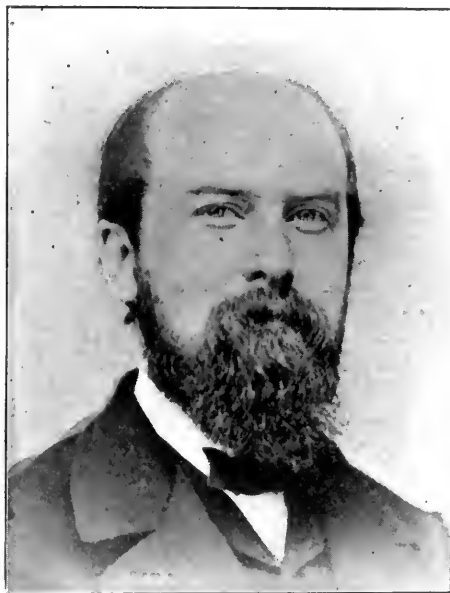


FIG. 6—Jacob Dunton.

The samples shown in Figure 7 were obtained from Professor Joseph P. Remington and Henry Blair, of Philadelphia. It will be observed that the name "compressed pills" was applied at that time, but the shape of the medication was that of the tablet as known at present. The exact date when these samples were put on the market could not be established, but the indications are that they are similar to, if not identical with, the tablets put on the market by Dunton in the seventies.

J. R. Wood¹⁴ states that John Wyeth and Brother, in conjunction with Henry Bower, succeeded in producing a "hand press" in 1872, which materially reduced



FIG. 7—Labels and bottles used by Dunton.

the cost of manufacturing tablets. This is corroborated by the following letter, except that the machine does not appear to have been a "hand press":

"Philadelphia, January 14, 1913.

"Mr. L. F. Kebler, Chief, Div. of Drugs,

"U. S. Department of Agriculture, Bureau of Chemistry,

"Washington, D. C.

"Dear Sir: Your letter of the 27th ultimo was duly received and answer was delayed on account of absence of one of our principals and beg to herewith make reply and advise that the articles you have noted published under tablet manufacture and in the Medical Record are correct.

"We have no prepared data or printed matter on hand of tablet compressing machines; from our books we glean that in about 1872 we constructed the first rotary tablet machine in our own shop by our chief mechanic; this machine was what is styled a disc machine with several dies, and improvements were constantly added and machine perfected until we had some machines that had as many as 13 dies in rotating disc and some of these machines are still in use at the present time in our laboratory.

¹⁴ Tablet Manufacture....1906, p. 11.

"We are also the originators of the compressed hypodermic tablets and compressed tablet triturates, also compressed medicinal lozenges; these three variations were introduced by us during a period of 1877 to 1880 and other combinations of compressed tablets followed quickly according to demands made upon us by the physicians and trade. Prior to 1877 the formulæ that were sold in tablet form were very few. They consisted of simple chemicals principally, such as potassium chlorate, ammonium chloride, etc., and after 1877 combinations followed. Physicians saw the convenience of this form of medication and at various times submitted different compound formulæ which were made into either tablets or compressed lozenges. After 1880, tablets having become quite popular, others entered into the manufacture of them, and various machines were invented and improved and are known as single and multiple die machines with shoe feeding devices; also different styles of rotary machines have been made since then.

"We trust this information will be helpful and regret we have no prepared data in detail that we can supply.

"Yours very truly,
(Sgd) "JOHN WYETH & BROTHER,
Incorporated. H."

The following extract from a letter written by Jacob Dunton shows that the manufacture of tablets in the United States was assuming a real trade interest:

"Philadelphia, Jany. 18th, 1876.

"I wish you would lend me a few of 'Wyeth's Compressed Quinine Pills.' I want to examine them. Some I purchased of them contained Cinchonine & I want to examine the lot they sent you.

* * * * *

(Sgd) "JACOB DUNTON."

In conjunction with this correspondence and the great improvements in mechanical apparatus used for compressing tablets, it is interesting to record the fact that there is still in use one of the old power tablet compressing machines made about thirty-five years ago. The exact age of the machine could not be determined, but Mr. Herman Wiph of John Wyeth & Brother, in whose establishment this machine is found, writes, April 29, 1913:

"Please find enclosed one front and one side view of the oldest power tablet compressing machine in existence, as far as I know; and still in use. I have personally been using it for the past 32 years, and it was in existence several years previous to my time. It is therefore about 35 years old, and may be even 40 years old. This machine is used on any size tablet from 1/16 inch to 3/4 inch in diameter, and the pressure can be regulated from the slightest to the most powerful. The material to be compressed is fed into the die, by hand, with German silver ladels or dippers of various sizes, according to the weight of the tablet. The tablet after being compressed is raised above the die level by one of the levers on the right side and is pushed off by the operator with the dipper. The other lever is used to throw the clutch for compressing, the machine making only one revolution, and is then stopped automatically by a brake, until the clutch lever is again thrown in. Only one tablet is compressed at a stroke."

This machine is similar to, if not identical with, the apparatus covered by United States patent, granted to Thomas J. Young in 1874.

Tablet making in Germany seems to have had its beginning in 1872, when Professor Rosenthal, of Erlangen, described his tablet compressor at a session

of the Physicalisch-Medicinische Societät.¹⁵ A translation of a part of the proceedings of the session is as follows:

"Prof. Rosenthal then exhibited an apparatus for the compression of medicinal substances in volume. This machine was originally intended for the administration of Koussou, but may be used for other medicaments also. It converts powdered drugs into small solid tablets, which may be easily swallowed. Ill-tasting

drugs, in volume, or such as must possess exact dosage (*Dosierung*) are by this method made easy to take. The effectiveness of the medicament is in no way injured, as it disintegrates quickly in the stomach and reverts to its original state. This form of dosing has been tested with excellent results in various cases."

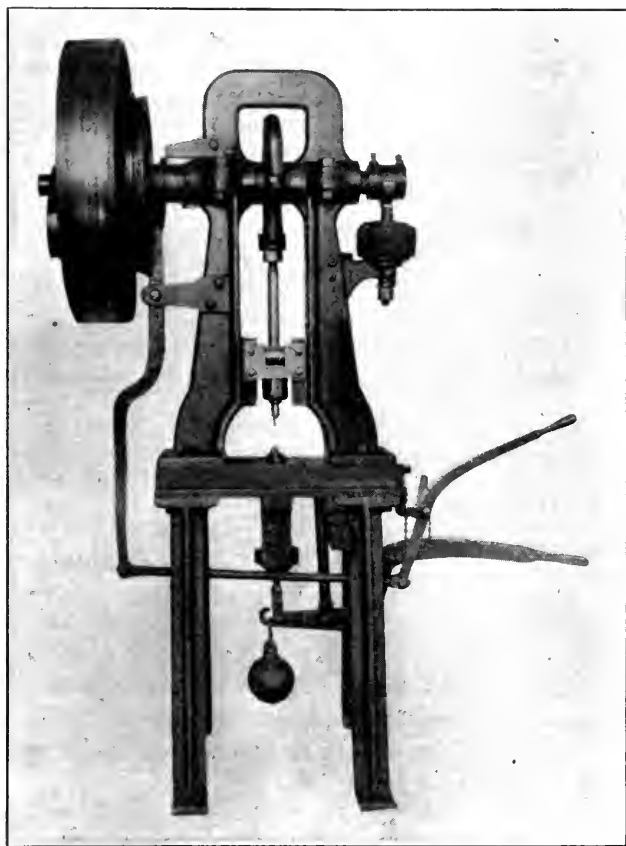


FIG. 8—Oldest known tablet machine still in operation. (Wyeth.)

A fuller description of the invention was published in 1874.¹⁶ From this it appears that Rosenthal had no knowledge of Brockedon's invention, but believed his to be the first machine ever devised for the compression of drugs into tablet form. He says:

"Pills, powders and electuaries are still prepared and prescribed in essentially the same way as they were one hundred years ago. * * *

Up to the present time

all previous methods have been insufficient to solve the problem of administering large doses of medicaments offensive to taste and smell, or both."

His method consisted in compressing drugs into tablet form without the addition of foreign matter, so that they might easily be swallowed without offense to taste or smell.

The machine consists of a screw press upon a rectangular stand which may be fastened securely to a work-table or counter with clamps or screws. The iron bed-plate supporting the press has a hole drilled through its center. A slide pierced to admit a ring for a handle can be used to close or open the hole in the bed-plate, by pulling it aside. Upon the bed-plate rests the hollow cylinder *d*,

¹⁵ Sitzungsberichte d. Phys.-Med. Soc. zu Erlangen, 1872, Heft 4 (Stzg vom 3 Juni), p. 70.

¹⁶ Berl. Klin. Wochenschr., 1874, 11: 417.

and in this the powder is placed in the molds, *a*, *b* and *c* (Fig. 9.) When downward pressure is exerted by means of the screw, *e*, the loose powder is compressed into a tablet which, when removed from the cylinder, is ready for immediate use, or may be afterwards coated with gelatine. After the introduction of Rosenthal's machine, which was among the most advanced recorded at the time, the tablet became a recognized form of medication in Germany, but the home industry did not seem to keep pace with that of other countries, as is shown by the fact that English goods made such an impression upon the German public that manufacturers in Germany resorted to the scheme of using English labels to promote the sale of their goods.¹⁷

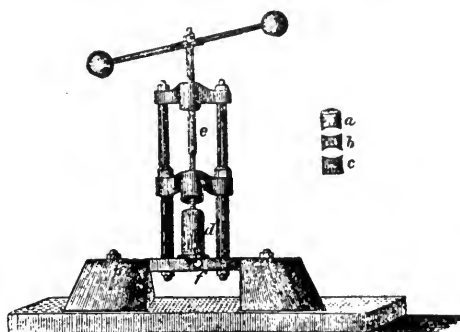


FIG. 9—Rosenthal press.

The tablet industry, like the coal-tar industry, had its origin in England. Germany, having absorbed the greater part of the coal-tar industry, was reaching out for the tablet business, but not with very satisfactory results. Conditions in Germany were apparently not propitious for the best expansion of the industry, but at any rate, the center of activity was transferred to the United States, which country has held the supremacy for the last quarter of a century.

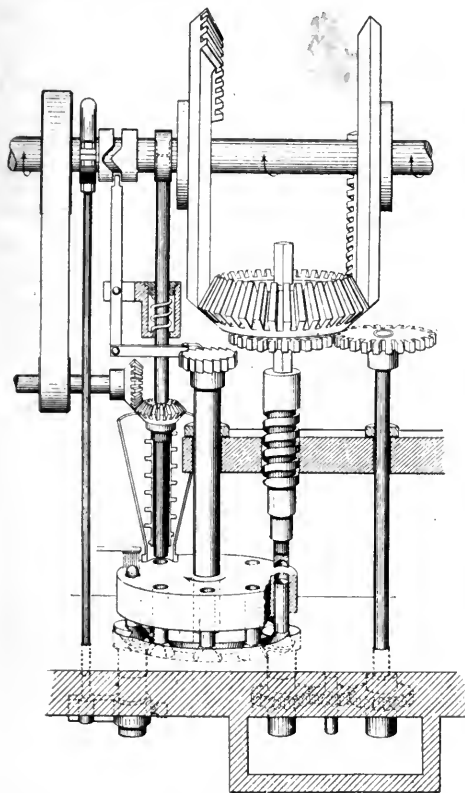


FIG. 10—J. A. McFerran's rotary machine, U. S. Pat. 152,666, 1874.

The first patent for an automatic "compressed pill" machine was issued to Dr. Joseph A. McFerran, of Philadelphia, in 1874.¹⁸ This was what is known as the intermittent rotating machine, and the idea was probably taken from the cartridge-filling machines which had been in use for a number of years. For some reason the invention did not find proper recognition and the inventor did not receive any material profits. The same year a patent was granted to Thomas J. Young, of Philadelphia,¹⁹ and assigned to Henry Bower, of the same place.

This represents the earliest semi-automatic upright or vertical punch machine. In order to get the details of the

¹⁷ Chem. & Drug., 1888, 32: 712.

¹⁸ U. S. Pat. No. 152666, dated Jun. 30, 1874, appln. filed Jun. 18, 1874.

¹⁹ U. S. Pat. No. 156398, dated Oct. 27, 1874, appln. filed Oct. 8, 1874.

machines it is best to consult the patents themselves. The illustrations and brief descriptions are intended to give only a general idea.

Briefly, McFerran's patent consists of an intermittent rotary disc, with eight dies, an automatic feed, an upper and lower punch and a brush for removing the pills. The upper punch is raised and lowered by means of two beveled cog-wheels with a part of the teeth cut away and a spiral on the punch. The upper and lower punches are reciprocatingly rotated in order to overcome sticking.

Young's machine consists of two punches and a die. The upper punch is raised and lowered by means of an eccentric wheel, and the lower punch is raised

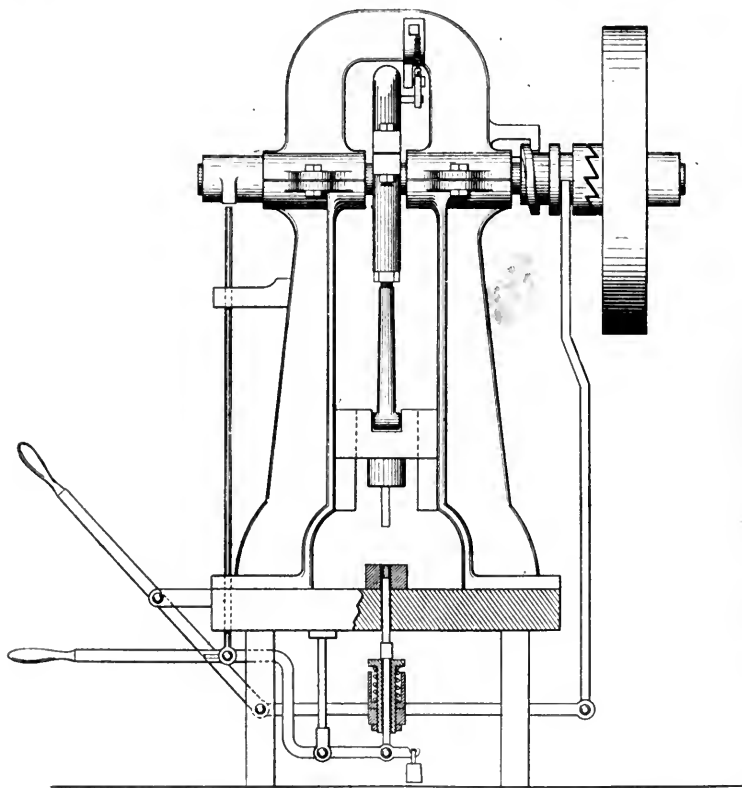


FIG. 11—I. J. Young's vertical machine. U. S. Pat. 156,398, 1874.

by a *cam* on a shaft, transmitting power through a rod and lever, and is lowered by a weight. The press is set in motion by a lever and is automatically stopped at the completion of one revolution. Feeding must be done by hand.

Joseph P. Remington, of Philadelphia, in 1875, described a simple piece of apparatus of the Brockedon type whereby the retail druggist could manufacture his own compressed medicines called for on prescription.²⁰ The method of operation can be readily learned by referring to the original communication.

This apparatus was improved by the inventor in 1876.²¹ The vertical machine alluded to was improved in 1877 by Thomas J. Young²² and this improve-

²⁰ Proc. Am. Pharm. Assoc., 1875, 23: 620.

²¹ Am. J. Pharm., 1876, 48: 97.

²² U. S. Pat. No. 189005, dated Mar. 27, 1877, appln. filed Mar. 9, 1877.

ment was assigned to Henry Bower. In 1879 Jabez H. Gill, of Philadelphia, was granted a patent²³ for an improved "compressed pill" machine, which he assigned to Henry Bower. Two years later the same inventor was granted another patent²⁴ which was assigned to John Wyeth & Brother.

It should be noted that there appears to have been some affiliation between Mr. Bower and John Wyeth & Brother. In fact, the latter at some time acquired the entire tablet interests of Mr. Bower. Patents were also issued to Charles Killgore in 1882 and 1883,²⁵ and to J. T. and C. T. Jones in 1882.²⁶ From this time forward inventions in tablet machinery were numerous. The most familiar names in the industry are C. L. Jensen, F. S. Hereth, C. A. Tatum, E. C. Clark, Arthur Colton, E. V. Pechin, E. L. Richards, E. D. Dühring, J. F. Buckley, and A. M. Hance. A list of the patents for tablet machines consulted is given in the bibliography at the end of this paper.

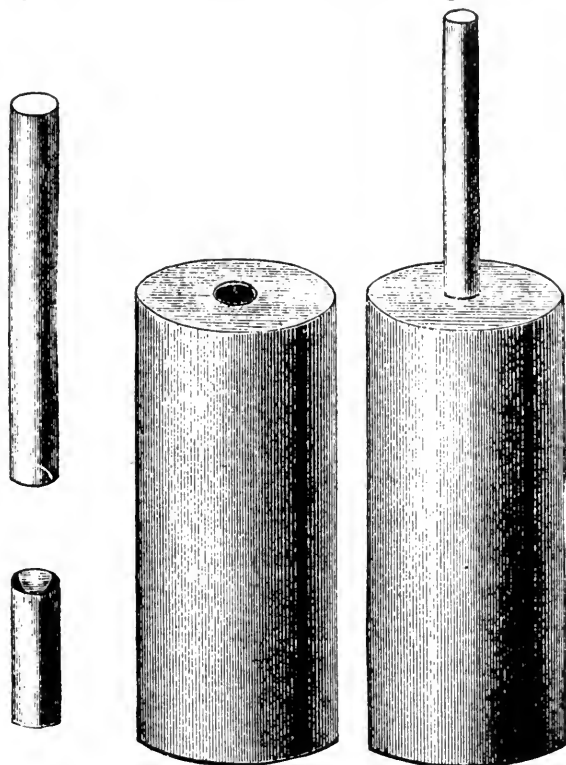


FIG. 12—Remington pill press.

TABLET TRITURATES (MOLDED TABLETS), SOLUBLE TABLETS, AND TABLET SATURATES.

The homeopathic profession²⁷ had for years been using triturations and medications in the form of pellets, saturated with suitable medicinal agents. Efforts had been made from time to time to bring the several professions of medicine closer together on the subject of medication. In 1877 Dr. H. G. Piffard read a paper²⁸ before the New York Academy of Medicine on "The Use of Certain Triturations," in which he called attention to some of the advantages of triturations. He gave the homeopathic profession credit for their development, but did not think any one should enjoy a monopoly of their use. Some of the triturations mentioned he had "compressed into convenient doses." This article appears to represent Piffard's contribution on the subject of tablet triturations, but it clearly shows that he was the first to have recorded the fact that he had

²³ U. S. Pat. 215452, dated May 20, 1879, appln. filed Mar. 28, 1879.

²⁴ U. S. Pat. 251678, dated Dec. 27, 1881, appln. filed Dec. 7, 1881.

²⁵ U. S. Pat. No. 260578, dated Jul. 4, 1882, appln. filed Nov. 16, 1881; U. S. Pat. No. 276328, dated May 1, 1883, appln. filed Aug. 22, 1882.

²⁶ U. S. Pat. 256573, dated Apl. 18, 1882, appln. filed Dec. 9, 1881.

²⁷ Hahnemann, *Organon*, 4th ed., 1829, p. 298 (foot-note to paragraph 283). *Id.* 1st Am. ed. from the 4th German ed., 1836, pp. 144 and 207. U. S. Homeopathic Pharmacopœia, 1st ed., 1878.

²⁸ Med. Rec., 1877, 12: 756.

"compressed into convenient doses" triturations, and had brought them to the attention of the medical profession.

Dr. R. M. Fuller,²⁹ in speaking of Dr. Piffard's work, says:

"Dr. Piffard has found that a plate three millimetres in thickness, containing holes six millimetres in diameter, will produce tablets of about one decigramme in weight, while a plate four millimetres in thickness, with holes eight millimetres in diameter will produce tablets of about two decigrammes in weight."

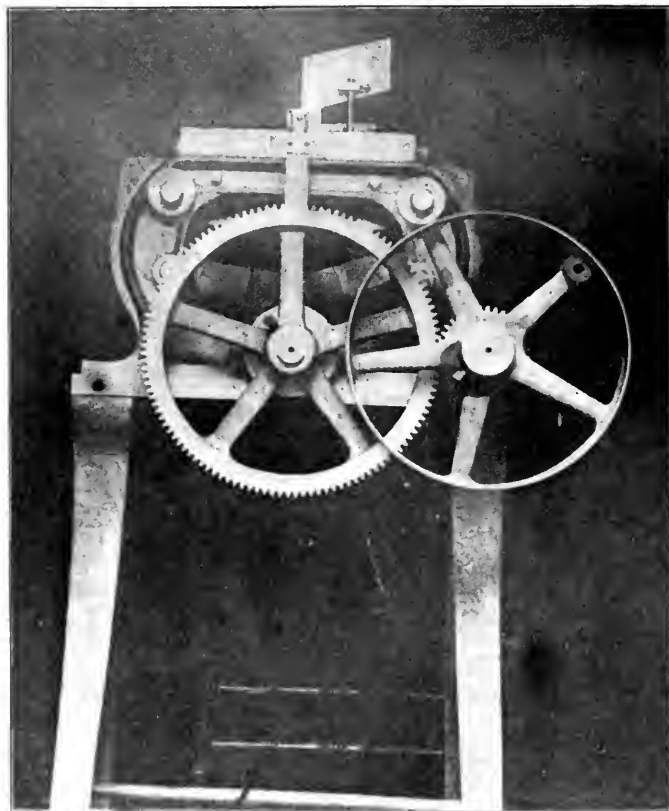


FIG. 13—Killgore machine. Patented in 1883.

Dr. Robert M. Fuller is, however, undoubtedly the originator of tablet triturates and the moving spirit in placing the industry on a substantial basis.

In 1878 his first contribution, entitled "Dose Dispensing Simplified, an Easy, Economical, and Accurate Method of Dispensing Medicines in a Compact and Palatable Form," appeared.³⁰ In this paper he described "soluble tablets," "tablet triturates," and "tablet saturates." "Soluble tablets," as made by him, consisted simply of certain medicines made into a soluble paste with the aid of sugar of milk and alcohol or water, and molded into form. In some instances, however, he found it necessary to employ a more effective excipient than sugar of milk. His purpose was to prepare a tablet readily soluble or disintegrable

²⁹ Med. Rec., 1878, 13: 185.

³⁰ Med. Rec., N. Y., 1878, 13: 184.



FIG. 14—Robert M. Fuller.

"A Convenient Method of Dosage and Administration. The Process of making Tablets of Simple and Compound Powders, including Triturations, Hypodermics, etc."³¹ This contribution is an amplification of the work described four

in the mouth or in a spoonful of water. His "tablet triturates" consisted of triturations of metallic, mineral and vegetable matter, such as were discussed by Dr. Piffard in the paper referred to. These preparations were mixed into paste with alcohol or water, according to the adhesiveness required, and the paste molded into any size desired.

Tablet saturates are made by first molding sugar of milk into convenient form and saturating the blanks by immersing in the liquid to be used for medication, or dropping it upon them by means of a pipette. The term "tablet saturates" is now seldom used in practice. Dr. Fuller in the same article describes somewhat in detail the apparatus he used for the manufacture of soluble tablets, tablets triturates, and tablets saturates.

In 1882 the same investigator presented another paper before the New York Materia Medica Society, entitled

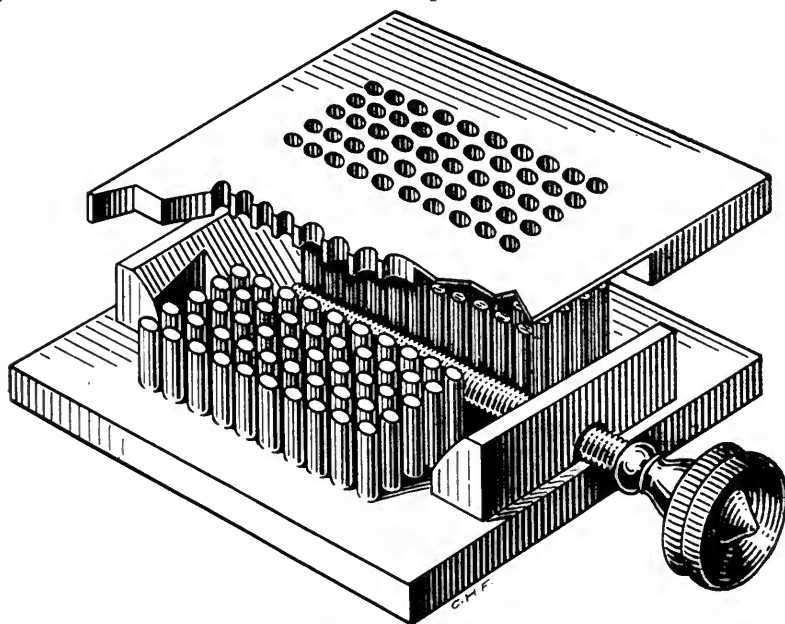


FIG. 15—Fuller's early mold.

³¹ Med. Rec., N. Y., 1882, 21: 311.

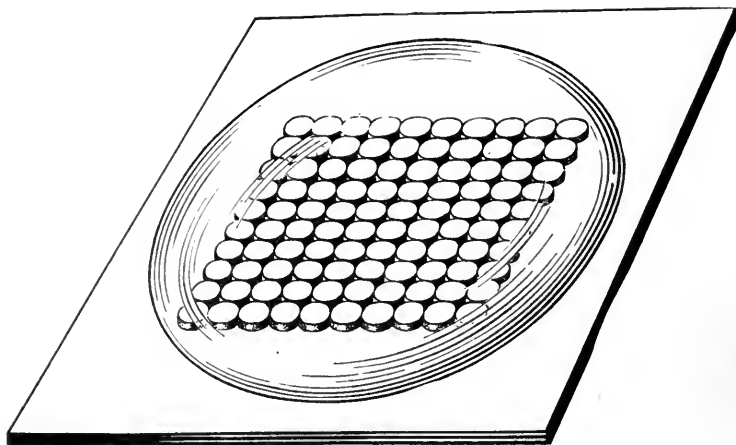


FIG. 16—Fuller's tablet saturate device.

years earlier. In it he gives another form of tablet mold, an illustration of which is given in Figure 17.

Dr. Fuller says in this article: "The idea of their adaptability for this purpose was the outgrowth of general laboratory practice in pharmacy and chemistry during 1861 to 1864. * * * * * The triturations were prepared in the manner elaborately and interestingly described in a text-book, used in connection with my earliest experiments, and entitled Mohr & Redwood's 'Practical Pharmacy,' and published in London in 1849. * * * * *" The method in question which assures the same accurate results as obtained by the process of compression, was the outcome of a long series of experiments made in this line

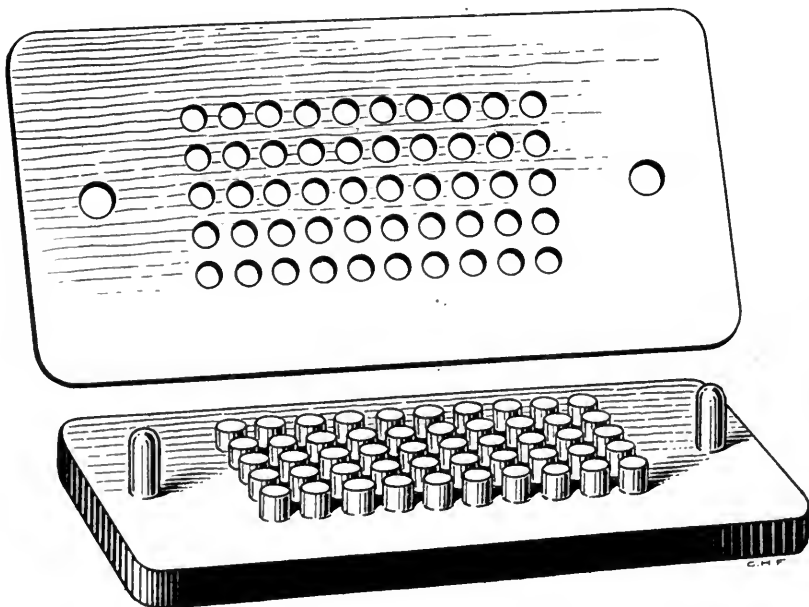


FIG. 17—Fuller's improved mold.

as early as 1861, before the system of compression was generally known or adopted in this country.

Dr. Fuller is fortunately still living and contributes the following letter, detailing briefly his early connection with the evolution of tablet triturates:

"Schenectady, N. Y., August 15, 1913.

"Dr. L. F. Kebler, Chief of Drug Division, Bureau of Chemistry,
Washington, D. C.:

"Dear Sir—Agreeable to your request of January 10th ult., and also further correspondence from Dr. Fraser and yourself, I am writing you a brief statement of my claim as the originator of the making of tablets in this country.

"Having received considerable printed matter from me and being familiar with the two papers prepared and read by me, the one under date of February 21, 1878, before the New York Academy of Medicine, and the other under date of February 23, 1882, before the Materia Medica Society, and also having at your command many articles and editorials with reference to my work along the line of the tablet industry, I feel sure that no detailed statement is necessary at this time.

"In the spring of 1861 I was employed in a drug store where I first began the practical work of making pills, subsequently called tablets. I subsequently took a full course in chemistry in the laboratory of Union College from 1861 to 1863.

"During all this time and for many years, I was greatly interested in the industry of making apparatus with which to find a convenient method of making compressed tablets and Tablet Triturates. At first, in 1861, the process for making porous pills was very simple and finally resulted in producing the 'Tablet Triturates' as now used as well as the compressed tablets.

"My work has been continued from that time—1861—with more or less interest, and while I am not inclined to be presumptuous, I might say that I was known as the 'Father of Tablet Triturates.'

"I was well acquainted with Dr. Piffard, but never knew that he made a claim as the discoverer of any tablet process. I well know that I first brought attention of the medical profession to the 'Tablet Triturates.' Dr. Piffard and I worked together long after I had invented the process. I have abundant proof among my private papers of the above facts but too much space would be required to go farther into details at present.

"Yours truly,

(Sgd) "ROBT. M. FULLER, M. D."

Numerous editorials and trade references are available to show Dr. Fuller's connection with the early evolution of this industry. The following editorial appears in "New Remedies"³²:

"Dr. Fuller's method of subdividing remedies (see page 69) so as to enable them to be administered in an agreeable form, and in uniform and adjustable strength, with the least expenditure of labor, appears to be a step in advance of previously-known pharmaceutical methods, and, like some other inventions of practical utility, surprises us by its simplicity, and makes us wonder why it was not suggested long ago. * * * *

"So far as we are able to judge from examination of Dr. Fuller's specimens, and from seeing his processes of manipulation, there is now little reason why they may not prove to be among the most successful of the methods yet proposed for the accurate subdivision of doses.

"Certain it is that Dr. Fuller is entitled to great credit for the persistency with which he has worked out the problem, and overcome its difficulties."

³² New Remedies, Vol. VII, 65, March, 1878.

In a circular published by Boericke & Tafel, April, 1878, appears the following:

"New Pharmaceutical Preparations, in Separate Doses, in a compact and palatable form. Soluble Tablets, Tablet Triturates, Pill and Tablet Saturates, made according to Dr. Robert M. Fuller's method as published in the Medical Record of March 9, 1878."

In a circular to the trade issued April 8, 1878, by Caswell, Hazard & Co., appears the following:

"Soluble Tablets, Tablet Triturates, Pill and Tablet Saturates, made according to Dr. Robert M. Fuller's method."

Fraser & Company, in a leaflet issued December 10, 1881, speak of "Tablet Triturates made according to method proposed by Dr. Robert M. Fuller."

The cut shown in Figure 18 was circularized to the trade in 1886.

A letter from Messrs. Boericke & Tafel, of Philadelphia, shows that the form of medication advocated by Dr. Fuller was put on the market soon after his contribution appeared in print. The letter is as follows:

"Philadelphia, January 7, 1913.

"Mr. L. F. Kebler, United States Dept. of Agriculture, Washington, D. C.:

"Dear Sir—We have endeavored to find some data in reference to the early history of the manufacture of tablets and find that we can give you very little information. We published from 1871 to 1885 a quarterly bulletin announcing anything new of interest to physicians in our school. In the May, 1878, issue we find an article on the use of certain triturations by Dr. Piffard taken from the December number of the Medical Record, which is no doubt the article you refer to. We find no mention made of the announcement of the manufacture of tablets until the August, 1879, number in which there is a statement made that we can now furnish tablet triturates giving prices, etc. The following statement was taken from the May, 1884, number:

"We have been subjected to some criticism for pushing these goods, and will take this opportunity to briefly state our position in the matter:

"In the December 1, 1877, number of the Medical Record, there appeared an article that had been read before the New York Academy of Medicine by Dr. Piffard, calling attention to the homeopathic triturations, and recommending the use of our first and second decimal triturations of a number of the active drugs, it being as-

serted that they were found to be more prompt and reliable than these same drugs when exhibited in the ordinary mode and form.

"In February, 1878, Dr. Robert M. Fuller read a paper before the same body, in which he referred to Dr. Piffard's address, and proposed as a convenient mode of dispensing these triturations, an invention of his, which he styled "Tablet Triturates," which consisted in forming of these triturations suitably sized tablets, each of which constituted a dose."

"The idea found much favor, and to supply the demand, we prepared a list



FIG. 18—Package of tablet triturates.

of our regulation triturations, of which any given trituration is made into tablets containing the usual dose of two grains.

"Later on,³³ tablets containing larger proportions of crude drugs were ordered by old-school physicians, and the trade assumed such proportions that we prepared the list, again published in this number, styling them 'Dosimetric Tablet Triturates,' in contradistinction to those of the regular homeopathic triturations.

"They are prepared according to Dr. Fuller's method with one difference, i. e., substituting glass plates for those of hard rubber, an obvious advantage, the increased cost of which has so far prevented others from following suit.

"Trusting that the above will help you in your investigations, we remain,

"Yours truly,

(Sgd) "BOERICKE & TAFEL."

Dr. Fuller is said to have laid the details of his investigation before Horatio N. Fraser, who at the time was in charge of the prescription department of a large New York pharmacy. It is also stated in literature that after a vain attempt to induce his employers to take up the industry, Fraser started the manufacture of molded tablets in a modest way in 1881. The records show that Caswell, Hazard & Co. were prepared to supply physicians with soluble tablets and tablet triturations, made according to the method of Dr. Fuller, as early as April 8, 1878. In a circular issued April 1, 1878, by Boericke and Tafel appears the following statement:

"Acting on Dr. Robert M. Fuller's valuable and eminently practical suggestions as set forth in his article above mentioned, we are engaged in getting ready a line of goods in conformity therewith * * *."

Dr. Fraser³⁴ in discussing these matters, says:

"I am glad you wrote me the letter about the circulars which seem contradictory, because it gives me a chance to say some things which I would not have bothered you with before, but which seem necessary under the circumstances.

* * * * *

"My fire, some years ago, destroyed all my papers and I had no copy of the circular, photograph of which you sent me, but I saw it in Dr. Fuller's office when I was in Schenectady and both recognize and remember it.

"While there I also saw a list of Wyeth & Bro. dated 1877, in which no mention was made of the word tablet that I could find. I also saw a Wyeth list which I think was dated 1883, and which spoke of tablets. This was the first Wyeth list I remember of seeing which did mention tablets.

"I notice that I mentioned Wyeth's *New Hypodermic* tablets in my circular of 1881—I suppose from this that they had put a hypodermic tablet on the market about that time but whether they called it 'Tablet' or not I do not know, but would infer as much from the language of my circular, though I may have had the word in my mind when writing the circular, and gave it the term, myself.

"I came to Caswell, Hazard & Co.'s store under the Fifth Avenue Hotel in 1876, from being a classmate of one of the Hazards in college. I worked there until just before the first of May, 1881, and during most of this period had charge of their prescription department, consequently was there during the time when tablets were introduced to the profession. I rented my first store May 1, 1881, and opened it about the last of July in the same year.

"I also recognize Caswell, Hazard & Co.'s circular. While I had been there continuously from 1876, I do not remember the date, but know it was about that time when they first made tablets. I cannot remember making any of them at

³³ Boericke & Tafel's Bulletin of Homeopathic News, May, 1884.

³⁴ Private letter to writer.

Caswell, Hazard & Co.'s store until just after Doctor Fuller's first paper was read, but W. F. Ford, who was head of the surgical instrument department of C. H. & Co., and another specialty manufacturer in the same factory building, must have been experimenting and working with the molds long before that, because they had them in shape to make fair tablets at the time the paper was published.

"W. F. Ford has been dead some years, but I have just had a conversation with Clarence Ford, his son, who worked in the C. H. & Co. surgical instrument department from 1875 to 1880. He says that, as well as he can remember, his father commenced to experiment with molds either in 1876 or 1877.

"Another indication that the date on the Caswell, Hazard circular is at least about right, is that Mr. Caswell of that firm had gone out of the concern a few months after I came with them. He started the firm of Caswell & Massey and was at that time in a dispute whether Caswell, Hazard & Co. had any right to that name, for the reason that he did not sell out his interest but took a *pro rata* amount of the stock and fixtures for his share.

"Caswell, Hazard & Co. lost the suit and changed their name to Hazard, Hazard & Co. after the decision of the court. I do not remember whether they were allowed to use the trade mark with the oldest name of the firm on (Hazard & Caswell) or not.

"My personal connection with tablets commenced, as I say in my letter of October 6, when I was a clerk in Caswell, Hazard & Co.'s (or Hazard, Hazard & Co.'s, as it was after the decision of the court), consequently my name should not figure in their history until I went into business with Mr. Fairchild in 1881.

"But having been most of the time from 1876 to 1881 at the head of Hazard, Hazard & Co.'s prescription department, I personally had something to do with their manufacture, because they made them in a very small way, as shown in your photograph of their circular dated 1878, the last paragraph of which says 'and will make special rates when 100 or upwards are ordered.'

"As well as I can recollect, it was just after Dr. Fuller read his paper on tablets that either Mr. Hazard or Dr. Fuller asked me to go up to the doctor's office on a special errand. While there he showed me what he had done and the details of the process that I might start making them at once for Caswell & Hazard Co.'s business. In the course of our conversation he said that he wished to have nothing to do with the trade end of the matter, and that he wanted to give the result of his work to the profession for their benefit without any returns or profit to him; and had made Mr. Hazard promise to have no secret about any of the formulas and to patent no part of the idea or processes. He also made me promise the same thing, and I, at least, have kept both the letter and spirit of that promise.

"At that time either he told me, or Mr. R. N. Hazard told me, that the doctor had talked to other firms about his idea but that none of them could see anything in the doctor's ideas, especially as they were complicated with his ethical restrictions.

"The Hazards made the tablets in a small way for some time and I could never induce them to go into their manufacture in what I thought was a business way.

"One of my principal reasons for leaving the Hazard employ was the idea that there was a future ahead for tablets, and my business was based on their manufacture and the idea that a druggist's success depended on what he did for and suggested to physicians.

* * * * *

"To sum up: I have no doubt but that Dr. Fuller should have the credit for precedence in the history of tablets; that either Caswell, Hazard & Co. or Boericke & Tafel made the first of them for the market, and all I had to do was the work of perfecting their manufacture, as was incumbent on me as the head of the prescription department of Caswell, Hazard & Co. at the time they

were introduced, and the faith I had in what they would do for the physician in the mechanical branch of medicine.

"I have done the best I know how to help you get at the history of Tablet Triturates."

As will readily be seen from the foregoing historical data, compressed tablets and tablet triturates, from which all other varieties originated, have had different lines of evolution. In point of time, however, the improvements proceeded almost simultaneously. Tablet triturates are either compressed³⁵ or molded. Their upper and lower surfaces are flat. In the case of compressed tablets the upper and lower surfaces may be either convex or flat. The three workers who stand out in the early history of the industry are Brockedon, Dunton and Fuller.

DEFINITIONS.

The term "tablet" has been applied to solid medicines of certain forms for several centuries. Samuel Johnson³⁶ gave the following definition for the term "tablet" and an illustration of its use:

"A medicine in a square form.

"It hath been anciently in use to wear tablets of arsenick, or preservatives, against the plague; as they draw the venom to them from the spirits.—Bacon."

The same definition will be found in the edition of 1819 and in the reprint of 1827.

M. Baumé³⁷ as early as 1762 devoted several pages (526-541) to the subject of "tablettes." He also gave a number of formulæ for preparing "tablettes," of which the following is representative:

Des tablettes altérantes, qui se font à la cuite du sucre.
Tablettes béchiques.

Sucre		lbj
Racines de Guimauve	} aa.....	3 iij
Réglisse		
Iris de Florence.....		3 j
Gomme adragant		3 ij
Opium préparé par digestion.....		gr. vj

The same author in the second edition of his book on "pharmacie" gave the following formula³⁸:

Tablettes antimoniales de Kunckel (lived 1630-1702).		
Amandes douces pelées.....		3 j
Cannelle		3 iij
Petit Cardamome		3 ss
Antimoine crud préparé.....		3 ss
Sucre		3 vij

Kunckel died in 1702 which clearly shows that tablets as then known were made previous to that time. The term "tablet" was applied to a mixture of melted camphor and white wax in 1847.³⁹ Chlorate of potash tablets were re-

³⁵ So far as records show, Dr. Piffard was the first to have recorded the manufacture of compressed tablet triturates.

³⁶ A Dictionary of the English Language, 1st ed., 1755.

³⁷ Elemens de Pharmacie, 1762, 1st ed.

³⁸ Elemens de Pharmacie, 1769, 2d ed., p. 707.

³⁹ Pharm. J., 1847, 7: 47.

ferred to in the same journal as early as 1862.⁴⁰ Burroughs, Wellcome & Co. wrote as follows⁴¹:

"We registered the word "Tablets" in this connection as a trade-mark, and therefore regard it as our rightful property, also because we introduced the word here, and because it is in our opinion non-descriptive, and therefore eligible for use as a trade-mark. We still employ it on some of our goods. A 'Tablet' has never been described or considered as a substance having a round or oval surface, but rather as having a flat or squared surface. In the compressed form of medication the surface is rounded or curved. Some firms have, we presume, inadvertently used the word 'Tablets' in connection with compressed drugs."

According to the "British Trade Marks Journal" of February 28, 1883, page 115, a trade-mark, No. 31,235, was issued to this firm, but apparently not solely on the word "tablets." The trade mark is in the form of a rectangular figure with the word "tablets" impressed upon it. This is quite a different matter from claiming the exclusive right to the use of the word "tablets." Additional information upon this subject will be found in the "Chemist and Druggist."⁴²

The name "tablets" is sometimes restricted to tablet triturates,⁴³ but trade practice does not warrant such limitation. At present the designation "tablets" is a general term and cannot be said to mean any special kind of tablet.

Every indication tends to show that the term "compressed tablets" had its origin in the United States and that John Wyeth and Brother were the originators of the name.⁴⁴ Registered trade-marks No. 1001 and 1002 were issued to that firm on March 13, 1877, covering the term. The copy of a label found in the U. S. patent office records of one of the above numbered marks follows:

"Compressed Tablets of Chlorate of Potash for Hoarseness, Bronchial Irritations, Sore Throat, Ulcerations, Mercurial Salivation, Diphtheria, Croup, etc., etc.

"FOR SORE THROAT, HOARSENESS.

"Directions:—Adults should take one every hour or two until relieved, allowing it to dissolve slowly in the mouth. Children half of one as often.

"For offensive breath, no remedy will give more certain relief. Use one, two or three times a day.

"For diphtheria, croup and the more serious ailments, the physician should direct.

"JOHN WYETH AND BROTHER, PHILADELPHIA."

Dispensary tablets. A soluble form of medication of accurate composition, for the use of the pharmacist in preparing certain solutions, thus dispensing with the necessity of weighing.

Dosimetric tablets. A form of tablet triturates prepared to give accurate dosage used as early as 1884.

Hypodermic tablets. These are soluble tablets for hypodermic use for both human and veterinary purposes.

Molded tablets. This term covers any form of medication prepared in molds of the kind first brought forward by Dr. Fuller. The two sides are usually flat.

⁴⁰ Pharm. J., 1862, 22: 40.

⁴¹ Chem. and Drug., 1892, 40: 785.

⁴² Chem. and Drug., 1890, 37: 531, 563, 603, 665, 695; 1892; 40: 785, 817, 849, 881.

⁴³ Remington, Practice of Pharmacy, 1907, 1199.

⁴⁴ Chem. and Drug., 1883, 25: 567.

It should be stated, however, that not all tablets with two flat surfaces, "block tablets," are molded.

Ophthalmic tablets are tablets containing medicinal agents for the use of oculists, and the filling of their prescriptions by druggists.

Proprietary tablets. This term is applied to proprietaries in tablet form.

Soluble tablets. A general designation applied to all forms of tablets soluble in water.

Tablet saturates. A form of medication introduced by Dr. Fuller but at present little used, as is shown by the following letter:

"Philadelphia, February 13, 1913.

"Mr. L. F. Kebler, United States Dept. of Agriculture, Washington, D. C.:

"Dear Sir—In reference to the use of tablet saturates would state that these are not much used by doctors. Our dilution and tincture tablets, of course, are practically tablet saturates only that the tincture and dilution are mixed in proper proportion with sugar of milk and then molded into tablets, whereas the tablet saturates are made by taking the blank sugar of milk tablets and merely saturating them with the tincture or dilution. The former, you will see, is a much more accurate preparation, as the exact amount of liquid can be added to the sugar of milk so that each tablet will contain a specified amount.

"Very truly yours,

(Sgd) "BOERICKE & TAFEL."

Tablet triturates. A term originally applied by Dr. Fuller to molded tablets. At present, however, it is indiscriminately applied to all tablets, soluble or insoluble, having two flat surfaces. They may be made by either molding or compression.

Veterinary tablets. This is a term applied to tablets used in veterinary practice.

MANUFACTURE.

INGREDIENTS.

Experience had shown in the time of Brockedon that pills as then made with adhesives often operated to the detriment of the patient. They became hard and indisintegrable for practical purposes. Brockedon conceived the idea of compressing drugs without the use of adhesives, thus eliminating this undesirable feature. So far as the records show he compressed soluble chemicals only, and his best known tablet was "soda and potash." "Chlorate of potash" tablets were best known and made in the United States. How long the practice of compressing soluble chemicals without adhesives prevailed is not known, but there is reason to believe that these adhesives began to be used in the early seventies. It is definitely known that Dr. Fuller used them in preparing tablets proposed by him in 1878.

Tablet triturates appear to have been specially devised for molding insoluble drugs into tablet form, and there are reasons for believing that Dunton did this long before, because he had acquired a reputation at this time for his "quinine tablets," as they were then known. There was no trouble in making tablet triturates as usually understood, but the compression of insoluble agents without adhesives presented numerous difficulties. Without these agents it was necessary to use undue pressure, thus making an extremely hard tablet, which might,

and even did, pass through the system intact, would be void of medicinal action, and might jeopardize the safety of the patient. Difficulties also arose because the tablets adhered to the various parts of the compressor. Dunton, in his process patent, provided for several forms of lubrication. The ideas he advanced are fundamental and are still basic in the industry. It is reported that the secret of Dunton's success in producing "pure tablets" without the use of adhesives or foreign material was due to the fact that he made each alternate tablet of chalk, which must be looked upon as a process of lubrication, or cleaning out the mold preparatory to another operation.

The situation in the early eighties was, therefore, that the compressed tablet industry would be restricted to the manufacture of tablets from chemicals soluble in water, which placed the industry in a very awkward position in view of the fact that tablet triturates, and soluble tablets, as molded by Dr. Fuller, were not confronted with this obstacle. The desideratum was now to prepare tablets containing insoluble ingredients which would readily disintegrate in the system in order to obtain medicinal effects. An agent was needed which would break up the tablets when moistened or placed in water. It is reported that numerous investigations were made and discoveries claimed, but nothing appears in the records. If anything was discovered and used it was kept a trade secret until 1887, when Charles Killgore applied for a patent. Mr. Killgore relates the circumstances leading up to the discovery as follows:

"In the spring of 1887 Mr. Fraser called upon me and stated that he had received complaints that the acetanilid combinations did not disintegrate readily when placed in water and I told him that I would make experiments and see if the objection could not be overcome. The criticism of Mr. Fraser recalled to me an experience I had in trying to make bi-carbonate of soda tablets in 1881. In order to get a nice, smooth tablet I had added enough potato starch to the soda to keep the tablet from sticking to the dies and by so doing obtained a beautiful looking tablet and of course thought my troubles were over, but, on examining them the next day I found they went to powder on being touched. They had been near a sink in the back room and absorbed enough moisture to swell the fecula of the starch and you might as well have tried to pick up a soap bubble. Based on this experience I then made a series of experiments with acetanilid combinations and found that starch in proper quantities would accomplish the disintegration of the tablets when they came into contact with moisture, and further experiments demonstrated that it would work with a large percentage of tablets that were used. In May, 1887, I filed an application for a process patent covering the addition of starch to dried materials before being compressed, for the purpose of disintegrating them in the presence of moisture. The application was rejected on the ground that starch was used in so many products. Up to this time it had not been used in compressed tablets, but since then has come into general use, as I made no secret of it."⁴⁵

Mr. Kilgore's application, No. 238,375, which was filed May 16, 1887, is in part as follows:

"It is well known that the administration of medicines in the form of compressed tablets or pills, while having many advantages, has been open to disadvantage arising from the slowness with which the same dissolve in the stomach.

"The object of my present invention is to form compressed tablets or pills which, while possessing all of the advantages of those heretofore employed, are

⁴⁵ Private communication.

not attended by the disadvantage above referred to; in that when subjected to moisture they rapidly disintegrate. This result I accomplish by mixing with the ordinary ingredients constituting a compressed tablet or pill a percentage of starch which will so change the character of the compressed tablet or pill that the same will not be open to the objections heretofore existing.

* * * * *

"In making my improved compressed tablet or pill the same is prepared in the usual manner down to the point where the preparation is ready to be submitted to the action of the pressing machine. At this point I mix with the other ingredients a percentage of starch; and having done so, the mixture is subjected to the same operations as were heretofore employed for completion of the tablet or pill.

"Since the application of my improvement is not limited to tablets or pills of any particular constituents but may be generally applied, the percentage of starch to be preferably employed will vary in different cases. Some kinds of tablets or pills require a larger percentage of starch for obtaining the desired object than others. It will be sufficient for me to mention as an example, that in making compressed tablets or pills from bismuth, it will be found desirable to add about five percent of the starch. The starch being a substance which has substantially no injurious influences, of course an excess of it is not harmful.

"The tablet or pill resulting from my invention possesses, as far as I know, all of the qualities of those heretofore made excepting that when taken into the stomach it immediately disintegrates.

"I claim a compressed tablet or pill containing a substantial percentage of starch, for the purpose of facilitating disintegration, as set forth.

(Sgd) "CHARLES KILLGORE."

The rejection of the application is given in the following notation of the Patent Examiner on the application:

"The claim would not be patentable aside from novelty in view of the dec., Tarr vs. Webb, 2 O. G., 568.

"Starch is the most commonly used dividing agent. It enters into pills, tooth-powders, baking powders, and toilet powders generally. See Griffith's Formulary, p. 516, Br. Pat. No. 1630 of 1857, and Tooth and Baking Powders in the various Encyclopædias. Such having been compressed, there is neither novelty nor invention in applicant's procedure. See also Br. No. 202 of 1870. The application is rejected."

The reasons for disallowing the patent were general and, it must be said, not very convincing. The phenomenon observed was new and its application was undoubtedly novel. The discovery was a great triumph for the industry. From this time forward its growth was simply phenomenal. All conceivable solid drugs are now compressed into tablet form, and some fluids are also incorporated, often, however, with unsatisfactory results.

It seems hardly necessary to consider even briefly the various medicinal agents compressed. They may be found in simple or composite form in the general trade price-lists. It is, however, desirable to state somewhat in detail the excipients or adjuncts used in compressing them.

EXCIPIENTS.

The term excipient is applied to any substance other than the medicament used in the manufacture of, or which enters into the composition of, tablets or pills.

Excipients may, for convenience, be divided as follows: Liquids, adhesives, bases, disintegrators, absorbents, lubricants, and fillers.

LIQUIDS.

The liquids used consist essentially of water, ethyl and methyl alcohol, as well as mixtures of benzine and either of the alcohols. Their purpose is to facilitate granulation and to dissolve a small portion of the adhesive, thus increasing the adhesion or cohesion of the particles.

ADHESIVES.

These consist of cane sugar, milk sugar, acacia, tragacanth, glucose, gelatine, Irish moss, and dextrin. Cane and milk sugars are the most valuable and most commonly used. When they are properly employed no additional adhesive is necessary in many cases. Cane sugar is preferred by some on account of its greater solubility, while others prefer milk sugar because it makes a more porous and absorbent tablet. Cane sugar is used in the form of both powder and syrup. Acacia is employed in powder and mucilage form. The latter is more effective than the powder subsequently moistened. This adhesive must not be too freely used on account of its tendency to produce "insoluble tablets," or those which disintegrate with difficulty in the system. Tragacanth is seldom used except in cases where it is difficult or impossible to prepare sufficiently firm granulations by other means. Glucose, gelatine, dextrin, and flour are used only for certain mixtures. Gelatine in tablets is liable to become moldy, thus rendering the tablets unfit for use. Some, however, say that this criticism is unwarranted.

(To be continued.)

THE NEW AGE.

This is an age of social service. Never in all history has the world been so concerned in the welfare of "the other half"; never has there been such a strict inquiry into the life conditions of all peoples; and never has there been such concerted action to relieve suffering and social wrongs, as we see manifested so generally to-day. Surely the "millennium" is at hand. Well may we say with Riley:

"This world is a curious compound, with its honey and its gall,
With its tears and bitter crosses, but 'tis a good world after all.
And a good God must have made it—leastwise that is what I say,
When a hand is on your shoulder in a friendly sort o' way."

Everywhere the hand of social service is being laid upon the shoulder of the poor and unfortunate, the oppressed and the needy "in a friendly sort o' way." It is a great work and is enlisting the co-operation of all classes of people. The layman in his sphere, and the members of all professions are working side by side—each in his sphere—to bring about proper life conditions for all.—*Russell W. Bunting, D. D. S., in Lehn & Fink's Dentist's Diary.*

Contributed and Selected

NATIVE DENTISTS IN CHINA.

J. F. RUPERT, U. S. NAVY, HOSPITAL CORPS.

Now that China is awakening from her long slumber of seclusion and self-satisfaction, in line with her progress in other directions, many evidences of an intelligent interest in modern dentistry may be observed in the Celestial Empire. In the large port-cities, many Chinese of the better class will be seen to have visited up-to-date dental establishments by evidences of modern dental work which they display. This has been done usually by foreigners practicing in China, and in some instances has been performed abroad; but in other cases—a direct evidence of progress—very satisfactory dental work is performed by native practitioners who have been educated abroad or who have been instructed in China under the eye and direction of the men who have learned their profession in foreign lands.

While this modern dental work is the fruit of the late progressive movement in China, the native element of self-sufficiency still prevails for the greater part with the masses, and the native dentist, pursuing his practice along the same lines his ancestors have followed for centuries, still conducts his business perhaps on the very spot where his father practiced the same profession.

Throughout China, on street corners and in alleyways, the native dentist may be seen, exhibiting hundreds of incisors and molars, as evidence of his skill and as encouragement to others to add their bit of ivory to the stock already on hand, which collection probably comprises many inheritances from former generations.

His furniture consists of a table and chair. His instruments consist of the crudest forceps and scrapers made to order at the blacksmith shop. Of medicines he knows nothing. His real stock in trade are his wits and his general power of argumentation.

Silver fillings are made, but no gold work is attempted. He has no drills and the cavity is scraped out with home-made spoons. The technique of his work consists of filing silver coins and mixing these filings with mercury, which amalgam, after being inserted into the cavity, rapidly hardens; but trouble often arises later when as is likely the more or less exposed nerve resents such primitive treatment and the pseudo-dentist is at a loss for means of removing the filling. Nothing can then be done by him but extract the tooth.

The price charged for extraction of teeth is from 20 to 40 cents, local currency (about 8 to 16 cents gold), for each. Price is arranged to meet the financial standing of each individual; while earnest endeavor is made to convince the patient that *his* particular tooth is most difficult to extract and requires exceptional skill—all of which adds increased expense.

As in all dentistry practice, the Chinese practitioner will occasionally encounter cases which he would rather have had presented to the "man across the street," but the Mongolian practitioner thinks as much of his professional reputation as his more civilized *confreres*, and when such cases present themselves his wits are equal to the occasion. He dismisses the patient by stating that the tooth is a "blood tooth," and should it be extracted the patient will most surely bleed to death. This explanation should be sufficient for any one, white or yellow, but pain is not easily disposed of and in cases where the extraction of the tooth is insisted upon, the dentist will explain that as his assumption of the responsibility of extracting the tooth carries with it possibilities of grave results to his career and reputation, he cannot attempt the operation for less than \$5.00. This is expected to cause the patient to seek relief at a less price, and this is the usual result.

I have seen these street-corner dentists extract teeth by fastening a strong thread about the tooth and extracting it by leverage.

However, as in the practice of medicine, so in the practice of dentistry, we find many very good Chinese practitioners who use modern methods. In Nanking, at one time the Imperial capital of China and a city with an old and important history, showing evidence of the present progress in China along these lines, a young Chinaman has established a very fine dental parlor. A large waiting room for foreigners, with the latest magazines of America and Europe upon the table, and separate rooms for Chinese patients have been provided.

This man, Dr. Yin Seong Hoh, was taught his profession by an American dentist in Honolulu. He has a complete equipment, a strictly up-to-date and well-selected dental library, and his methods and practices are in accordances with modern ideas on asepsis and antisepsis. Nanking has not more than eighty foreign residents, mostly missionary people, and this energetic young man is building up a good practice among the Chinese who have learned about some of the benefits of European civilization. Shanghai has a Chinese dental firm, Kingman & Kingman, who have a large and well-equipped establishment. The wealthy Chinese are patronizing this work, and eventually it is bound to spread to the common people, for it is not from lack of confidence in such work that it is not more general, for crude dentistry has been practiced for centuries in China, but the price charged looks extravagant to people whose one ambition in life is to make money. A rich native of the great yellow empire spends money with prodigality, but he prefers, like most of us, to spend it in other ways than patronizing his dental brothers.

SPECIFICATION IN BUYING DRUGS.*

C. R. NOYES.

The interest and value of scientific work in pharmacy lies largely in its everyday application. I believe you gentlemen are more interested in hearing of the final results of experimental and research work as it applies to you and your daily business, than you are in the theoretical and purely scientific description of method, apparatus, etc. Following out this idea, I am going to give you the conclusions drawn from a very large amount of analytical data on the raw materials of the market. These conclusions naturally take the form of suggestions to you as to the specifications for the raw materials which you buy. In other words, I am going to try to suggest to you certain definite specifications which are good to use in buying your drugs, and through which you can take advantage of this scientific examination of market chemicals and drugs that has been done during the last six years.

From the wholesale druggist's standpoint there are two conflicting interests at work in the selection of the raw materials for sale. He is probably desirous of giving as good an article as possible and he is certainly influenced by the desire not to supply anything which does not comply with the stringent drug laws. On the other hand, he must meet competition. He must buy an article which he can sell at a profit, in competition with the articles put out by his competitors. He tries to talk "quality," but always fears that his customers believe he is trying simply to get a larger profit and that he is not giving them better goods for their money. The result of this is, that the average wholesaler is convinced that some druggists do not care for "quality" but simply wish the cheapest article they can buy. If, therefore, he is compelled, by either a real or fancied demand on the part of the retailers, to sell the cheapest grades of drugs, he is not willing to state frankly upon the label or in his catalogs the exact quality of these goods. If he were to do so, his cheaper grade would immediately, in the eyes of the purchaser, seem to be inferior to the competitive grade offered by some other house, which was not definitely classified by statements of its label. The result of this condition has been that the wholesale drug trade, on the whole, is endeavoring to market low-priced goods, and is glossing over, as much as possible, the inferiority of the goods. Gentlemen, the only cure for this condition lies with the retail druggist. If you will specify definitely what you want and insist upon having goods definitely labeled as to quality, you will get good drugs at reasonable prices, for you will force your jobbers to meet each other's prices on a common ground, instead of trying to beat each other's prices on an inferior ground. Therefore, I believe that this matter should be brought to your attention and I hope the facts which I shall give you hereafter, which facts are based on the analytical reports of thousands of samples, will lead you to realize the true situation and to remedy it by specifying your exact wants when ordering goods.

The principal conclusion which I have derived from this work, is that the best

*Read before the Northwestern Branch & Minn. State Pharm. Assoc., Feb. 19, 1914.

and safest course for the retail druggist is to specify "U. S. P." on every article included in that standard of authority, the Pharmacopœia.

First, let us see how that suggestion affects the buying of chemicals. A wholesale druggist's stock usually contains two grades of each common chemical. The commercial, or ordinary grade, he buys and sells in bulk, while the so-called "C. P." grade is bought and sold in original packages, under the label of the manufacturing chemist. You will not find "U. S. P." specified very generally on chemicals. Now the commercial grade is, to the average wholesale druggist, of unknown quality. He has been handling Epsom salts, cream of tartar, permanganate of potash, etc., in barrels and drums, for many years without considering anything but price in purchasing, and he probably knows little or nothing of their purity. Doubtless he is buying from some large producer, the most of whose product goes for technical purposes, and who may have heard of the United State Pharmacopœia, but probably pays it little regard. These drugs, being sold to the wholesaler under labels as above, are consequently sold by him under the same label. Occasionally, to be on the safe side, he may put the words, "for technical use only" or, "commercial" under the principal title, but usually, he sells the goods under the same label he finds the manufacturer using. While the wholesaler is almost entirely at fault in this matter, nevertheless it may be said that many articles bearing the label "for technical use only" are accepted by druggists without hesitation. At the other extreme from these commercial grades, you have the so-called chemically pure articles. Of course they are not chemically pure. No chemical, not even those of reagent quality, can be. But, at any rate, they are highly purified. Of "highest purity" is the proper designation. This is the ordinary selection which you may make in buying chemicals from the stock of a wholesale druggist. It is a case of "out of the frying pan into the fire." You either take chances on a poor quality or pay excessive prices for the best quality. I am not sure which is "the fire." Often, the guaranteed purity and the beauty of the so-called C. P. chemicals, do not warrant the price asked for them, and, in practice, their super-excellence is often not demanded and is wasteful. Frequently, too, by being adjusted to a different standard, they vary from U. S. P. chemicals in strength, so considerably, that they must be standardized, before using in a U. S. P. formula. This is shown by the variations in strength between the C. P. and the U. S. P. mineral acids. Is it possible, you ask, to get out of "the frying fan" without getting into "the fire?" I think it is. If you specify U. S. P. *always and only*, your difficulty will be solved. The Pharmacopœia is a thoroughly practical, as well as a scientific volume. Drugs meeting the requirements of the Pharmacopœia are, in almost every case, just good enough for medicinal purposes. What need is there of having them purer? You will be surprised to find that you will frequently pay no more for U. S. P. chemicals, guaranteed to you, than for the present bulk goods, the quality of which is unknown to you. On the whole, the Pharmacopœia committee has directed standards for purity that are not expensive to comply with. There is one consideration, however, that you must learn to overlook if you buy U. S. P. chemicals and consider prices. If you secure goods labeled with these initials, from a house that you know has graded them from their own examination you must disregard their appearance. A large part of the expense of pre-

paring C. P. articles, comes from the many re-crystallizations, re-distillations, etc., necessary to secure their fine appearance, which is so much admired. If you do not wish to pay the price, you must be satisfied with the frequently mediocre appearance of the U. S. P. articles.

As applied to chemicals, then, insist on those marked U. S. P. and refuse all goods labeled with such vague specifications as, "pure," "purified," "white," "medicinal," "redistilled," etc. These same remarks also apply to the drugs and oils that are found in the Pharmacopœia, although, in the case of these drugs you will less often find a pure grade in the average wholesaler's stock, and you will also find fewer retailers who desire to pay the price for the U. S. P. grade. I think, if you consulted the employes of the drug-department of any wholesale druggist you would find that, in nine cases out of ten, their instructions were to send the ordinary commercial or technical grade of oils and drugs, unless a better grade was specified. And this is the result of experience and not from choice. It is because the retailer has too often returned the better and higher priced article, when it was sent him without his specific instructions.

Now I propose to give you some definite examples of the difference between the U. S. P. grade of a number of articles and the ordinary grade:

Castile Soap. Very little of the castile soap you buy is made from olive oil, or wholly from olive oil. It is manufactured from a compound of olive oil and tallow, in varying proportions. The proportions you know nothing about. It may contain a large quantity of water or a small quantity of water. In other words, you may be paying "Castile Soap" prices for water and for tallow soap—unless you order "Soap, U. S. P." If you do, the chances are good that you will get a pure olive oil soap, containing not over 36 percent water, which is the normal and maximum amount.

Lime. If you buy lime for making lime water, you will get an article containing perhaps 50 percent magnesia and also probably quantities of iron and other impurities. These impurities are, to a certain extent, soluble in water along with the lime, and you cannot possibly have pure lime water, if you make it of such an article. Specify "Calcium Oxide, U. S. P.," and you will get a product of at least 90 percent purity.

Precipitated Sulphur. The commercial grade of this article is called "Lac Sulphur." The U. S. P. article is prepared with hydrochloric acid. In the manufacture of the cheaper article sulphuric acid is substituted. The result is that the precipitate contains a large proportion of calcium sulphate which is inert. Now, however, the manufacturers have taken a step further and "Lac Sulphur," as it appears on the market, is derived from the surface sulphur beds without purification. It is not precipitated but shoveled, and does not contain more than 40 percent or 50 percent of sulphur. The balance is clay. Why buy clay?

Alcohol. Commercial alcohol, as it is ordinarily sold, is 94 percent. It is to a certain degree impure. "U. S. P. Alcohol," costing but a few cents more, is the old cologne or deodorized spirits, and contains 95 percent alcohol. It is hardly at all more expensive if you consider the increased strength.

Turpentine. I doubt if many druggists, even the gentlemen who come here,

are aware that the United States Pharmacopœia requires that Rectified Oil of Turpentine should always be dispensed for internal purposes. The term "Rectified" is such a loose one that if "U. S. P." is not appended thereto, you may not know that this re-distillation has included the shaking out with soda, an expensive process which causes a loss and is likely to be omitted if possible. Thanks to your pure paint laws, the ordinary oil of turpentine is quite safe. You are notified on the package if you get anything that is not "U. S. P."

Tannic Acid. This article is almost never "U. S. P." and it may contain any amount of impurities. In this case, I believe the standard, in regard to the amount of resinous matter present, is too stringent and should be modified. If you insist on having a statement on the label as to how much resin is present, you can probably secure for yourself as definite a value without specifying "U. S. P.," and at the same time save a little on the cost.

Oil of Eucalyptus. As ordinarily sold, it is the Oil of Eucalyptus Amygdalina. This contains very little eucalyptol and is comparatively valueless. "U. S. P." is the specification that will get you your money's worth in this case.

Oil of Gaultheria. Frankly, I do not recommend the purchase of this oil nor that of Sweet Birch. Use methyl salicylate. I have personally experimented with the methods of analysis used by several houses of excellent reputation, who claim to put out the true oil of wintergreen, and I am convinced that they are deceiving themselves, when they believe that they are able to differentiate these products by chemical means. The feeling against the artificial oil is largely due—first, to the fact that it is artificial, and second, to the fact that, when first introduced, there were present considerable impurities of a phenolic nature due to imperfect manufacture. With the perfection of the processes of manufacture, the cause for this prejudice has been removed, and methyl salicylate should now be recognized to be equal if not superior to the natural oils.

Glycerin. On account of the fact that much the largest part of the glycerin-production goes to the making of nitro-glycerin, much of the product on the market is not "U. S. P." The two common impurities in glycerin are butyric acid and acrolein, the one very distasteful and the other very injurious. Be sure that you find "U. S. P." on the package, and do not depend on some favorite manufacturer's name, which you have been used to seeing since the days when glycerin was a by-product of candle manufacture.

Talcum. This is called French chalk. It is, of course, not chalk, and has not the slightest chemical relation to chalk. Nevertheless as sold it usually contains large amounts of calcium and magnesium carbonates, lime, etc. We have found as high as 50 percent of these impurities. Unless your talcum is going to be used for filtration purposes, you do not need the "Purified Talcum of the U. S. P.," but for any purpose it is desirable to avoid an excessive quantity of lime, chalk and magnesium carbonate. The way to avoid it is to specify "U. S. P."

Rosin. Are you aware that rosin or colophony is also in the Pharmacopœia? Rosin is so cheap that there is not anything cheap enough to adulterate it with, when you buy it whole. But if you buy the powder, look out. On account of its low melting point it is very difficult to prevent rosin from forming lumps again after it has been powdered. The result is that the powdered rosin on the market

usually contains from 25 percent to 50 percent of a filler, bran, flour, etc., put in, not to adulterate it, but to overcome the difficulty of manufacture. On the other hand, when you are ordering rosin, you doubtless do not want bran, and I would suggest that you see that the label on your goods tells you what you are getting.

Aloes. The same situation is found in the case of aloes. This frequently contains varying proportions of pea-meal, etc., when sold in powdered form. Now the Barbadoes aloes and the Socotrine are official in the Pharmacopœia. But Cape aloes is not, and therefore the average grade of Cape aloes is very poor, as it has no standard to measure up to. Why not require a statement, upon your purchases of Cape aloes, of the percentage soluble in boiling water? When you buy powdered aloes you have the possibility of getting insoluble matter, in the form of pea-meal, as well as in the form of dirt and impurities present on account of careless collection. Probably it would be interesting for you to know what the insoluble portion consisted of.

Asafoetida and Benzoin. With these you pay for the amount of alcohol-soluble matter present. The Pharmacopœia requires 50 percent of the asafoetida to be soluble, and that the benzoin should be almost wholly soluble. Of course, a large part of both of these articles, as they appear on the market, do not comply with these requirements and probably this does no harm provided you insist on knowing exactly what percentage of soluble gum resin you get.

Anise Oil and Cassia Oil, as they appear on the market, are largely the product of Chinese stills invented during the period when the Chinese were discovering gun powder and printing presses, and they have not been improved since. They are very crude articles and are exported in lead-lined, copper containers from which they absorb a considerable quantity of lead and copper. Almost all of the oil of cassia and a great deal of the oil of anise sold to the drug trade are these technical articles which contain at least one poisonous impurity. The pure oil may be procured for a not much higher price, but it will never be supplied unless its purity is insisted upon.

Oil of Juniper and Oil of Lavender. These are two oils which are official in the U. S. Pharmacopœia, but which are principally sold in the form of "imitations." By "imitations" is meant simply this: You take so much oil of juniper or oil of lavender and you add to it so much oil of turpentine or other cheap pine-distillate. You adjust the proportions so that the cost suits you, adding a little something for the labor of mixing. Then you sell it as "Oil of ———, Imitation," at low price, and many people prefer it to the real thing.

Beeswax. You can have beeswax or beeswax-compound. You usually have a beeswax-compound. This is another joke of the wholesale drug trade. Beeswax-compound contains anywhere from 2 percent to 70 percent paraffin wax, according to the sense of humor of the manufacturer. I must say that, in this case, the manufacturer is usually not the wholesale druggist, and, personally, I sympathize with the wholesale druggist who has to buy and sell what is wanted. Sometimes, this beeswax-compound is sold as country wax or cup wax. If you want to pay someone for melting up beeswax and mixing it with paraffin, I suggest that you insist on knowing how much paraffin they use, because the competi-

tion in this article will doubtless eventually produce a pure paraffin-wax colored to imitate beeswax, and sold as beeswax-compound, unless something is done to stop it.

Linseed is another thing which is usually given but very little thought. It depends for its value wholly upon the presence of linseed oil and yet ground flaxseed, or linseed meal of the market, is very frequently a product which has been partly reduced to the condition of ground oil cake. In other words, the oil has been partly removed from it. The name "U. S. P." prevents that.

There are a number of articles which do not properly come within the scope of this paper, because they are not in the U. S. Pharmacopœia, and yet I am persuaded to tell you what they are, because I seem to have been exposing some fakes and I might as well make a clean job of it.

Do you every buy crude carbolic acid? If you do, DON'T. Or, if you must, buy it on a percentage basis. It varies on the market from 95 percent to 10 percent of phenol. Sometimes it has no phenol in it at all. This is the case when you are supplied with the so-called domestic creosote oil, which is often nothing but gas-house residues.

Coal-Tar Creosote is another little joke originated by the chemical houses, but no longer fathered by them. In fact, the leading houses have refused to supply this article. Coal-tar creosote, used as a substitute for beechwood creosote, is a solution of phenol in water of any strength that the maker happens to decide upon. Any merits which this article may have, that the regular solutions of carbolic acid have not, are due to psychotherapy.

Almond Meal Compound may contain any percentage of starch, flour, etc., that the manufacturer prefers, or it may be made entirely from these articles and flavored with oil of bitter almonds. If you want almond meal made from almonds and not from peach kernels, which is just as good, I would suggest that you require a definite statement of what you are getting.

Horse Medley is coal dust. It is sold for black antimony but it never saw a piece of antimony. It is remarkable that the same marvelous medicinal property of sleeking a horse's coat should be produced by two such dissimilar articles as antimony and coal dust.

Calamine. According to authorities this is an impure zinc carbonate, depending perhaps for its medicinal effects upon its impurities, which offer an opportunity for the imagination to enter into the results that you get from it. A great deal of imagination, however, is required. "Calamine, a compound," is what you usually get. This article consists of powdered sand colored pink, either artificially, or by impurities. This must be a most efficient remedial preparation! Silica is, about, the most fixed chemical known. You will remember that it is only affected by roasting with alkalis, and the only acid that will affect it is hydrofluoric.

When you know this, you will naturally refuse to take such an article and will buy the so-called "Calamine, pure precipitated," which is on the market under the labels of the well-known chemical houses. This preparation is doubtless a little joke on the mineralogists. It so happens that, in the classification of minerals, the name of calamine has been applied in Europe, to an impure zinc

carbonate. By all of the American authorities, however, it is applied to a zinc silicate. So, when the American houses wish to put out a calamine that is beyond reproach, they follow the American mineralogists. Powdered zinc silicate is almost as inert as silica. I believe if you are willing to forego the mysterious properties of the impurities of the old calamine, you will do better by buying and selling zinc carbonate, U. S. P.

Probably I have been a little severe on some of these products and on those who place them on the market, but that has not been my purpose. Your wholesale druggist will give you what you ask for. The remedy for this situation rests with you, and not with the wholesaler. No blame attaches to you, for you have not been in a position to know what you were getting. But, you will find your wholesaler most willing to coöperate in giving you a good raw material, if you but say the word and keep right on saying the word. The word is "U. S. P."

BIBLICAL REFERENCES TO PHYSICIANS.

According to a writer in the *Chemist and Druggist*, biblical reference to the physician and his work are not particularly numerous, neither are they particularly flattering. In Genesis physicians are referred to only as "embalmers," a title too suggestive of undertaking to be agreeable; Job has a reference to "physicians of no value," by which he probably referred to the "irregulars" of his day; three of the texts are versions of the saying about them that are whole and need not the physician; two refer to the woman who had "suffered many things of many physicians," which Luke (himself a physician) softens to "had spent all her living on physicians." Luke, by the way, is the only Evangelist who quotes the proverb, "Physician heal thyself." This Evangelist figures in the only really complimentary text, "Luke, the beloved physician"; and there is even here nothing to show that it was his profession that made him beloved. It was Dean Swift, who preaching before the Royal College of Physicians, took for his text, 2 Chron., xvi, 12-13: "Yet in his disease he sought not to the Lord, but to the physicians. And Asa slept with his fathers," which decidedly suggests the connection of cause and effect.

Papers Presented to Local Branches

THE PRODUCTION AND CARE OF ANTITOXINS AND VACCINES.*

J. REVERDY STEWART, M. D.

I have been asked by the President of your Association to read a paper this evening on the production of antitoxins and vaccines, and I have tried to arrange my remarks in order to have them of interest to the pharmacist.

The enormous progress that has been made in the past twenty years, and indeed I might say in the past five years, has brought so many new angles in the treatment of disease, that it well behooves the pharmacist of today to keep in touch with the production of biologicals. For I believe—and perhaps my belief will be shared by many of the gentlemen present—that the coming way to cure a disease will be to prevent it.

I refer, of course, by such a paradoxical remark, to the question of immunity—both the “natural” and “acquired.” By “natural” we refer to the power of our bodies to resist infection. This power has probably been handed down by our forefathers to a certain point, and strengthened to a great extent by our exposure to attenuated forms of many prevalent pathogenic organisms. In a broad sense, “acquired” immunity, here, may be taken to mean both the condition of those who have passed through a mild or severe form of some disease and have produced their own protection against future invasion of that particular organism, and that of those in whom immunity has been produced, at least passively, by the injection of anti-bodies. These anti-bodies are usually contained in what we commonly know as antitoxins.

Of all antitoxins, the best known, and most widely used, is the diphtheria antitoxin. As the procedure in all is practically the same, it will be sufficient for me to explain the producer's side of this one only.

In 1883, the diphtheria bacillus was first described by Klebs, and in 1884, was cultivated on artificial media by Loeffler. Hence it is commonly known among bacteriologists, as the Klebs-Loeffler bacillus. In 1888, Roux and Yersin discovered the presence of toxin in broth cultures. This bacillus, and its power to produce toxin, is the foundation, the all-necessary starting point, in the production of antitoxin for diphtheria. We keep this bacillus constantly growing in the laboratory-incubators.

The culture now used by, practically, all the laboratories in the work, was obtained from a case of diphtheria, by Dr. Parks, of the New York City Board of Health, and has proved the strongest toxin-producer so far procured, although it has been grown for many years on artificial media.

After we have the bacillus, the next step is to get the maximum toxin-producer

*Read before the City of Washington Branch, April, 1914.

tion. This is done by growing it on specially prepared peptonized beef-broth. This broth must be made from fresh beef, freed from fat. To the extracted juice is added, $1\frac{1}{2}$ percent peptone and $\frac{1}{2}$ percent NaCl. It is then titrated, using phenolphthalein as an indicator. The acidity is reduced to 0.8. It is then flaked and sterilized in an autoclave at a temperature of 116° to 120° C., or about ten pounds steam pressure. This exposure to heat renders the beef broth sterile. It is then ready for inoculation.

This is done by transferring a small portion of membranous growth from our stock culture. The development is very rapid. In fact, the whole surface of the medium will be covered by a heavy membrane after twelve to eighteen hours' growth at 37° C. The growth is allowed to continue for from eight to ten days. The flasks are then taken from the incubator and examined microscopically. If pure, they are then titrated and should be found alkaline to phenolphthalein.

Filtering this culture through a germ proof filter, is the next step. After filtering, the toxin is then tested on guinea pigs to determine its strength.

This is done by injecting varying amounts. For instance, three pigs are selected, each weighing from 250 to 300 grams. They are injected subcutaneously, No. 1, 2, and 3, with 0.005 cc., 0.008 cc., and 0.01 cc. of toxin, respectively. The pig that survives is counted out of the test; the one that dies on the fourth or fifth day is taken to indicate the M. L. D. or minimum lethal dose of this particular toxin.

It is now ready for injection into the horse. I will say here that great care is exercised in selecting the animals for an antitoxin stable. They are kept in a quarantine stable until they have satisfactorily passed the test for glanders and tuberculosis. Temperatures are taken night and morning of all horses. When a horse is finally pronounced ready, the initial dose of toxin is given. This dose is usually about 0.1 of a cubic centimeter, and sometimes gives a very decided reaction. I have known on several occasions where a horse weighing from 1000 to 1200 pounds would be killed in from twenty-four to thirty-six hours following an injection of only 0.2 cc. of diphtheria toxin. The doses are gradually increased, as the immunity is established, until the horse will stand 1500 or even 2000 cc. of strong toxin. This amount would be sufficient to kill 3000 or more non-immunes. In many cases the horse will stand from 500 to 700 cc. of toxin without decided reaction. The blood is drawn from the jugular vein. From this point we will discuss antitoxin.

The blood is drawn into sterile jars containing sodium citrate solution, in sufficient quantity to bring the content to 2 percent. This prevents the coagulation, and allows the corpuscles to settle to the bottom of the jar. The jars of blood are kept in the ice box until the serum or plasma is ready to be decanted. The decanting is done by vacuum. The plasma is drawn into sterile containers. It is now ready for precipitation.

The method of precipitation has recently been decidedly improved upon by Dr. Benzhaf, of the New York Department of Health, and his method is now in use in our laboratory. I will here set forth the routine:

We first measure our plasma. To the total quantity is added 50 percent of a 4 percent NaCl solution. To the total quantity resulting from this mixture, is

added approximately 32 percent of a *saturated solution* of ammonium sulphate. This mixture is allowed to stand—usually over night. It is then heated in a water bath built especially for the purpose. The temperature of the mixture is brought to 60° C. and held there for ten minutes. It is then removed from the bath and filtered while hot through filter paper. This precipitation, called “first fraction,” has thrown down the euglobulin, which is collected on the filter paper, and, later, after being pressed to dryness, is discarded.

The filtrate is measured, and to the resulting volume is added, approximately, 38 percent ammonium sulphate in saturated solution. This we call our “second fraction” and results in the precipitation of the pseudo globulins, (and is high in antitoxin value). This precipitate is collected on the filter papers and is placed between absorbent or blotting paper and subjected to a great pressure in a press arranged for the purpose. By this means all moisture is extracted and the precipitate is scraped from the papers in the form of a dry, powder-like substance, which is immediately put into parchment bags and dialyzed in running water from six to ten days, during which time it is redissolved and practically freed from the salts which have been used in its precipitation.

The resulting antitoxin is now of a decided green color, and is ready for the preliminary filtration. This is accomplished by drawing it through a pulp paper by means of a vacuum pump. After this filtration, 0.8 percent sodium chloride is added and the antitoxin is ready to test.

The testing is an all-important feature and must be accurately and scientifically performed. The method of testing is as follows:

First. We must determine the L+ dose of our test toxin. The L+ dose is the quantity of poison, not only sufficient to neutralize one antitoxin unit, but it must contain excess sufficient to kill a 250 gram guinea pig on the fourth or fifth day. The exact dose now having been determined, this amount is mixed with varying dilutions of the antitoxin to be tested. For instance, a serum which is supposed to contain 300 to 400 units to the cc. is diluted as follows: 1:200, 1:250, 1:300, etc. One cc. of each of these dilutions is mixed with the L+ dose of the toxin in the injection syringes and allowed to stand at room-temperature for one hour, then injected subcutaneously into selected guinea pigs. If the animal receiving L+ plus the 1:250 dilution, lives, and the one receiving L+ plus the 1:300 dilution, dies, we know that the unit strength lies between these values and further tests will establish it almost accurately.

The strength determined, the antitoxin is filtered through germ-proof filters and one-tenth of one percent chloroform is added and thoroughly mixed.

This is now stock and is stored in the ice box at a temperature of 40 degrees where it is kept until filled into syringes and distributed to the pharmacist upon order.

I have here samples of antitoxin showing the various stages of its preparation, which I have tried, at least, to describe to you.

There are several other antitoxins, such as tetanus, antimeningococcus, streptococcus, and recently one has been developed for pneumonia at the Rockefeller Institute. A bulletin on this subject will soon be published.

In serums we have also the normal horse serum, which has been used extensively in the control of haemophilia with splendid results.

Vaccine now comes up for consideration. Until recently when one spoke of vaccine it meant only one thing to us all—smallpox vaccine. Since 1796 vaccination against smallpox has been practiced. This work was first done by Jenner, and his observations were published as far back as 1798. In spite of this lapse of time, the etiological factor which causes the disease is still unknown. We do know, however, that with successful vaccination and quarantine, the dreaded scourge has been robbed of many victims.

Vaccination today, is quite a different problem from the procedure of the past, and is gradually wearing down the prejudice held by so many, who were sufferers, either directly or indirectly, as a result of the unscientific method of charging our vaccine points directly from the lesions on the calf, or using the scab from the arm of one person to vaccinate another. In this way it was possible to carry infections and have very sore arms, or even much more serious consequences. Such danger at the present time is practically *nil*. For we now use great care in the selection of our seed lymph, and by so doing have now almost a pure vaccine. This is put on calves selected by and under daily inspection of a veterinarian. These animals are housed in a modern building, put up for this purpose alone, and kept in the best state of cleanliness. The calf, after vaccination, is kept under observation practically day and night, until the "take" is complete and the vaccine is ready to be removed and prepared for commercial use.

The "pulp," as we term the ripened vaccine as it comes from the calf, is brought to the laboratory and goes immediately into glycerin. The effect of the glycerin is to kill off the bacteria which have gotten into the vaccine during the period of incubation on the calf, leaving the true vaccine virus unharmed and still highly potent.

After weeks in glycerin the "pulp" is finely ground and fresh glycerin is added. It is then tested both bacteriologically and physiologically. The lymph having proved pure and potent is then charged on ivory points, or filled into capillary tubes, ready for use. The lymph will remain potent for a long time if kept under proper conditions. By "proper conditions," I mean that these points and tubes should be kept in a cool, dark place. These instructions, which are printed on every package, do not seem to be taken seriously by some pharmacists, and, consequently, the lymph dries and loses its potency much sooner than it should, and thence results the "failures" which not infrequently occur with all vaccines, a matter which is of no small moment to the physician, and of these cases, I assure you the producer is kept *well* and sometimes *harshly informed*. Within the past few days, a physician told me that he had to go to several places before he found one where vaccine was kept in an ice box. He had experienced trouble with vaccine kept on the shelf at room-temperature, and did not wish to have it repeated. I want to lay stress upon the fact that biological products should be kept in a cool and fairly constant temperature. If this rule is followed the results will be better for us all.

As an illustration of this, I will say that between February 5 and 19 of this year we had the opportunity to have our vaccine tested on about one hundred children in an institution of this city. The work was done by the physician of

the institution, and he reported 100 percent of "takes" in primary cases, with no commonly called "bad arms."

The recent development of bacterial vaccines has brought a new field, both to the laboratory and the pharmacist, and their use is rapidly becoming a routine with many physicians in treating furunculosis, otitis media, pyorrhea, gonorrhea—in fact, wherever pus production is present, and in septic conditions generally.

This treatment consists of making the vaccine from the bacteria or combination of organisms causing the pathological condition. This is done by growing the bacteria on suitable media, that is selecting the medium on which the best and most rapid growth takes place. After satisfactory development, the bacteria are washed off in sterile normal salt solution, and thoroughly shaken in a bottle containing beads. This is done to separate or thoroughly break up colonies or clumps of bacteria. This accomplished, they are exposed to heat sufficient to kill all the germs present. 0.1 percent to 0.2 percent trikresol is then added and the suspension, or emulsion as it is sometimes called, is allowed to stand over night.

The next day cultures are made on various media, both ærobic and anærobic, using from 1 cc. to 2 cc. for each tube. These are incubated for from two to four days, and, if they remain sterile, the vaccine is then ready to standardize, that is to count the bacteria in each cc. This procedure is the same as that used in determining the number of corpuscles in the blood.

After standardizing, any dilution desired lower than the original count can be made.

Not only does the injection of this vaccine control the infection, but produces an immunity that is more or less lasting against future recurrence.

This method of treatment is constantly being tried along new lines, and splendid results are being reported almost daily.

The theory is, that by the injection of the killed bodies of the bacteria, the opsonic index is raised and the body is able to successfully resist the invading bacteria. Raising the opsonic index means stimulating the action of the polynuclear leucocytes and preparing them to envelope the bacteria and look after their destruction. It might be said that you prepare your army to fight the foe.

This has been proved most conclusively in the use of typhoid vaccine in the Army and Navy, and also by the many injections made recently by the general practitioner. You are all, of course, more or less familiar with this work. To those of us who are following closely the study, it looks as if the practice would become even more general than the vaccination against smallpox.

In conclusion, I want to say, that the modern and very material advance in medical science, is being built on a more firm foundation, and the component parts of this foundation are, Anatomy, Physiology, Bacteriology, Pathology and Pharmacology. Let us each do what we can for their advancement and the benefit of mankind.

THE REVISION OF THE UNITED STATES PHARMACOPŒIA.*

JOSEPH P. REMINGTON, PH. M., CHAIRMAN, COMMITTEE OF REVISION.

The work of revising the United States Pharmacopœia is fast approaching completion, but, of course, it is impossible to announce a date of issue, because some pending and very important questions must be settled. It is expected, however, that printing in "galley" will begin July 1st.

Until 1906, the United States Pharmacopœia was accepted by the country as authoritative, when any one needed to use it for their benefit, but not authoritative when its tests interfered with what men called "business." This anomalous position was changed when the Food and Drugs Act made the Pharmacopœia the standard and the law of the land. The United States Pharmacopœia is only one out of thirty pharmacopœias used by other countries throughout the world.

The idea of an International Pharmacopœia, which would be authoritative, is regarded now as a dream of the future, but there is no good reason why all of the Pharmacopœias should not unite upon tests and rubrics, and, probably, the doses of medicines. The great difficulty in framing an International Pharmacopœia would be in selecting the articles of the materia medica and the preparations. The medical profession cannot be brought into harmony throughout the world with regard to the use of remedies against disease, and those found in an International Pharmacopœia would not be adequate, and it can readily be seen that such a book would be a very small one; as far as the United States is concerned many well-known and largely-used indigenous drugs would not be accepted by Germany, Russia, Japan, Austria and many other nations. A Pharmacopœia can never be an exploiter of new and untried remedies. That is not its function, and the book must contain a selection of drugs and medicines which are used in the various sections of the country, irrespective of special localities. Its title is the "Pharmacopœia of the United States of America." Internationalism is a grand idea and our fancy is tickled at the thought of one Pharmacopœia being used throughout the world, but the situation is not unlike that of universal peace, the disarmament of nations, and Church unity. It must be clear to everyone that, at this time, we are not ready for the culmination of these great movements. But there is no good reason why an earnest effort should not be made to induce the pharmacopœias of the world to accept as many subjects as possible upon which they can all agree; instead of an International Pharmacopœia, it would be much more practicable for each nation to have its own Pharmacopœia, with its own materia medica and pharmacy made to suit the people of the country, with an *international agreement on Standards*. This view seems to be substantially accepted by International Congresses, and every Pharmacopœial Commission hereafter will be expected to fall into line and at least make all of the very powerful and active remedies conform to one strength as, for instance, the fixing of the International Standard of arsenical preparations at one percent. An International Committee is at work endeavoring to frame tests for chemicals

*Read before New York Branch.

and assays, which will enable a physician to prescribe the best-known and most largely-used chemical substances of uniform purity throughout the world.

I am expected to speak more particularly of the present revision of the United States Pharmacopœia. It occupies a unique position; no Pharmacopœia of the world is revised upon the same plan. Pharmacopœias of the larger countries in the old world, are revised through a commission appointed by the Emperor, King, Queen, or ruler, but in the United States, the initiative comes directly from the people, and the medical and pharmaceutical professions, through a decennial convention, assembled at Washington, composed of delegates from all parts of the United States. Each body sends representatives who are believed to be most capable of determining the policy and general principles which should control the next revision. It has not been deemed wise to place the revision of such a work in the hands of men who belong to one political party, indeed your Chairman has never asked, and he does not know, how five men out of the fifty-one voted in the last presidential election, and if he did, it would make no difference in assignments of appointments. The reason given for the small honorariums or sums of money paid for services, has been the fear that money considerations would induce unworthy persons to make extraordinary political efforts to obtain control of the book to reward their friends or punish their enemies. The United States Government has been well represented in this revision, through its laboratories and the coöperation of the head of the Bureau of Chemistry, of the Department of Agriculture, Dr. Alsberg, and Dr. J. F. Anderson, Chief of the Hygienic Laboratory of the Marine Hospital Service. Several of the members of the Committee of Revision have official Government positions. It cannot be said that the Committee is not representative of the various branches of the healing art. The General Committee of 51, elected by the Convention of 1910, elect 15 of its members to have charge of the immediate revision. Each of these men become Chairmen of the Sub-committees and these Sub-committees are chosen for their especial fitness for the subject. Several of the members of the General Committee are on more than one Sub-committee. When the Executive Committee have reported on any branch of the work, the votes, in detail, from each member are reported, so that each member knows what is going on in each Sub-committee. The Executive Committee and the Chairman, both, have the right to appeal for a decision to the General Committee of Revision for a settlement. General questions, not falling immediately within the purview of a Sub-committee, have been referred to the General Committee directly. In this way, the consensus of opinion is obtained. This is a new plan for pharmacopœial revision, and is based upon the well known custom of deliberative bodies, and in fact, the principles underlying the Constitution of the United States.

The spirit which actuates both Committees and the Chairman is to get the best, without fear or favor. Publicity has been a prominent feature in this revision. For the first time in pharmacopœia building have the changes and standards and tests, been published in advance of the approval of the final text. This has been done to permit any one to frame a criticism or propose an improvement. This world-wide criticism or comment must have a limit fixed for the reception of comment or criticism, naturally, or the book would not appear for several years,

as it would be impossible to produce a work which could satisfy every criticism which could be made. Errors must, of course, be corrected whenever found and at once, but it is hoped, that with 50 or more experts reading proof, that every error will be detected before final printing.

The final draft on admissions and deletions must soon be forthcoming. There have been many admissions and more deletions. This subject has been thrashed over for nearly four years. The Convention disapproved of the admission of patented or proprietary preparations, mainly on the ground that everything in the Pharmacopœia should be free and open to all and that the Pharmacopœia should provide tests of identity and purity. If a manufacturer or owner will permit his synthetic or specialty to be introduced into the Pharmacopœia, he should sign an agreement giving to the Pharmacopœia such permission, otherwise he could secure whatever advertisement would come from the introduction of his specialty, and he might make any change in the appearance or the standard of strength or purity and the Pharmacopœia would have to frame standards and tests to suit the preparation sent out by the manufacturer. If the Pharmacopœia should introduce a synthetic without such an agreement, it would be possible for the manufacturer to have good grounds for a lawsuit and to demand an accounting and obtain damages for such loss as he believes he has sustained. In this connection a case was settled in Holland as follows:

"An action had been commenced by the Bayer Company, of Elberfeld, against a firm of wholesalers in Holland, for selling Aspirin Tablets which were not of their manufacture, thus infringing their trademark 'Aspirin.' The defense made to this action was that Aspirin was now included in the Dutch Pharmacopœia, and that, therefore, the word had come into public use and whatever rights Messrs. Bayer had previously, had now lapsed. The action was carried up to the High Court of Appeal in Holland, and Messrs. Bayer won their suit, the wholesalers being mulcted in damages, the Courts deciding that notwithstanding the word appears in the Dutch Pharmacopœia, Messrs. Bayer are still legally entitled to the word 'Aspirin' as their trademark."

If the Pharmacopœial Committee should decide to ignore the rights of an owner, and should introduce a synthetic without an agreement with him, no matter whether it was introduced under another name, the courts would rule in favor of the manufacturer or owner of the protected substance. Inasmuch as physicians can continue to prescribe the protected substance without let or hindrance, is it worth while, merely for the sake of seeing a synthetic in the Pharmacopœia to take such a step? The manufacturers of synthetics who have been consulted, have uniformly failed to give such permission and some have declared their intention of defending their rights through legal processes. An exception would probably have been made by an owner or manufacturer in a case of a patented or protected article, where the patent had a few months or probably a year to run, and, seeing a very moderate profit ahead, he might take advantage of the Pharmacopœia's introduction and give permission. The present Pharmacopœia, under the name of Acetphenetidin, admitted the extensively used and valuable phenacetin. These statements are made in order that you may understand the reasons which govern the Revision Committee in its decisions.

The Ninth Revision will differ from all those which have preceded it, mainly because much assistance has been rendered by manufacturing chemists and others, who have freely tendered their laboratory facilities and the services of their chemists, in trying out tests and standards and in perfecting detail. While this has greatly increased the correspondence, the time has been well spent because of the many valuable suggestions received. It has been necessary at times to arrange for hearings and conferences, and the effort has been made to invite every manufacturer or dealer having a special interest in the subject, to attend the hearings. A Committee of manufacturers was appointed, who were asked to get together, reconcile their differences and send a final draft to the Sub-committee. The Executive Committee of the U. S. P. did not accept every item in the report, but they did accept about 80 percent of the recommendations.

Conferences of the General Committee and the Executive Committee, have been held at the annual meetings of the American Pharmaceutical Association, and special conferences have been called in Philadelphia, of Sub-committees, with experts a number of times. In addition to this, the Committee has had valuable assistance from the local branches of the A. Ph. A. and State Pharmaceutical Associations. All of these communications have been tabulated, recorded and sent to the Sub-committees. In the preparation of the final text, by a system of collecting and recording by modern methods with card indexes, alphabetical lists and the valuable help of collaborators are grouped together, so that the editor may catch any suggestion which may correct an error or improve a process. Unlike many books, such as commentaries and text-books, a Pharmacopœia reflects the views of many persons, and is not in any sense the work of one man. It is constructive work and is republican, democratic and progressive. The plan is essentially American. There is a President and a Board of Trustees who have, during the work of revision, been kept in touch and have been supplied with circulars and the Executive Committee Letters. The Board of Trustees have the entire charge of financial affairs, making of contracts for the publication, and authorizing expenditures, but the work of revision is, of course, in the hands of the General and Executive Committees. The General Committee might be likened to the House of Representatives, and the Executive Committee, to the Senate. The Sub-committees have a parallel, in the Committees of the Senate and House of Representatives. The special Committees report to the bodies having the appointing or elective power.

For the first time in the history of Pharmacopœia making, the U. S. P. is using a method of publicity by printing before the issue of the book, in the pharmaceutical and medical journals, an abstract of the changes and standards, in order that these may be considered by all parties interested. These, must all be sent to the Chairman of the Committees of Revision before July 1st, the time fixed for beginning the printing. Any very important changes or errors discovered after July 1st, should be sent to the Chairman by telegraph.

It is not the intention, in the future, to wait for the usual period of ten years, to issue a supplement, and any addition or deletion which may become necessary, will be published, so that the book may be kept more fully abreast with the times. In this way, it is believed that the criticism made of the present and previous

pharmacopœias of being out of date, will be obviated, for the U. S. Pharmacopœial Convention is an incorporated and continuous body, each Convention taking over the property and effects of the previous Convention, new officers and committees being elected or appointed every decade.

The plan of revision has been worked out with the intention of providing the elements of stability and responsibility, and the experience of members gained in revision work, is a valuable asset in avoiding mistakes and errors of judgment. New men are elected to the Committee of Revision by the Convention, and a proper balance is sought to be maintained. Whatever criticism of this revision may be made in the future, it can never be said that every effort has not been made to have the work representative of all sections of the country.

The pharmacopœia is essentially a book of standards. Many men of many minds have contributed to its pages. It differs from ordinary books. It does not appeal to the sympathies or passions of men. It is a book without a plot. It advocates no propaganda, for *it*, itself is the propaganda. There is no exploiting of fads, no graft, no disposition to resent constructive criticism, and, now that the work is nearly finished, the Chairman declares that the sole object has been to provide pure, unadulterated, effective medicines of uniform quality, for the alleviation of pain and treatment of diseased conditions in the human race.

The lecture was illustrated with lantern slides as follows:

1. Text of the U. S. P. VIII.
2. Sub-committee No. 6 Bulletin, showing the first step in the revision—compiled criticisms and foreign standards.
3. Sub-committee No. 6 Bulletin, showing the first draft of modified text. Underlined portion differs from the U. S. P. VIII.
4. Sub-committee No. 6 Bulletin, showing the second re-drafted text as proposed for submission to the Executive Committee.
5. The Sub-committee report, as submitted to the Executive Committee.
6. Text submitted to the General Committee, for criticism and suggestions.
7. Publicity. Published Abstract of proposed changes in the text.
8. A page of the Report on Miscellaneous Galenicals, as submitted to the General Committee.
9. Circular-page, illustrating proposed text for type processes for fluidextracts.
10. Circular-page, showing a report on Inorganic Chemicals.
11. Circular-page, showing a report on Botany and Pharmacognosy.
12. Circular-page, showing a report on Assays.
13. Page, showing abbreviation and synonym to be inserted.
14. Page, showing proposed line-numbers for the U. S. P. IX.
15. Page, showing proposed paragraph numbers.
16. Page, showing proposed change in type for formulas.
17. Proposed title page, for the U. S. P. IX.

THE PHYLACOGENS.*

F. C. WALDECKER, M. D., NEW YORK CITY.

As time goes on we appreciate more and more the wisdom and farsightedness of the immortal Pasteur, who prophesied that the day would come when it would be possible to eradicate the infectious diseases by vaccination.

Bacteriology, from the time of Leeuwenhock in the latter part of the seventeenth century to the present day, is as interesting in its evolution as any subject which medicine provides. Its development extends over a period of two hundred years and, during this time, the foundation was laid for the rapid and important progress which has been made in the last three decades.

Bacteriology has revealed that certain micro-organisms produce certain diseases and to-day we are using, in the preparation of a variety of agents, these same bacteria for their own destruction. The value of these products, in the treatment and prevention of disease, is too well known to require emphasis.

Some may think that biologic therapy has grown like the proverbial mushroom, and that the workers in this field have been over-enthusiastic in bringing into use the many products of bacterial origin. But reflect, we have been using Antidiphtheric Serum for twenty years; bacterial vaccines have been in use almost fifteen years and Koch presented his first tuberculin to the profession twenty years ago.

Therefore, while at first thought, it may seem that discoveries and methods of treatment have been presented with unusual rapidity, the therapy has in fact grown but slowly.

At the beginning of the present decade much interest was manifested by the medical profession, in and about San Francisco, concerning the reports of the extraordinary results following the use of a new class of bacterial derivatives in the treatment of acute and chronic infections. The products used were originated by Dr. A. F. Shafer of California, who presented his discovery to the profession through the San Joaquin Medical Society at Fresno, California, in October, 1910, and later through the San Francisco Medical Society in January, 1911.

These products, derived from bacteria, were denominated Phylacogens, from the Greek words, *φύλαξ* and *γενναίω*, meaning "to produce a guard."

The principle upon which Phylacogen Therapy is founded, is that of mixed or multiple infection. Three theories are advanced by Shafer. First, that the human subject is at all times the host of a great variety of micro-organisms, and harbors pathogenic bacteria without harm to itself, during periods of physiologic resistance at or above par. When physiologic resistance is subnormal, and especially when solution of tissue-continuity occurs, the bacteria harbored assume pathogenic activity. Second, that practically all infections are mixed; that only in rare instances, is there infection by a single species of micro-organism;

*Read at the meeting of the Philadelphia Branch, American Pharmaceutical Association, April 7, 1914.

that while one species may, and usually does, predominate, the pathologic process engendered by it is accelerated and intensified by organisms of other species which are present. In other words, that in the course of an infectious disease, manifestations are due, not only to the effects of a single species of organisms, the specific infection, but also in part to the influence of other organisms, whose pathogenic role is not insignificant, and which must be combated in any successful scheme of therapeutics. Third, the growth of micro-organisms, infecting the human subject, can be arrested, and their effects neutralized, by the administration of metabolic substances generated during the development of germs in artificial culture media.

Shafer does not contend that these premises are original with himself, but that he has recognized their pathologic and therapeutic significance, and that his system of therapy by means of Phylacogen is new and a great step forward.

Instances of mixed infections will occur to all of you, as for example, gonorrhea shortly after onset, tuberculosis, and coryza. In tuberculosis, for instance, secondary infection is generally admitted to be the cause of fever, loss of weight, purulent expectoration, destruction of tissue and such other manifestations as appear in advanced tuberculosis. Further evidence of the existence of mixed infections, is the extensive use of so-called combined bacterial vaccines. Physicians many times have had cases of infection that they could improve but could not cure, through the use of a vaccine prepared from a single organism, while cure was rapidly established through the employment of a vaccine containing the predominant organism and such other bacteria as were associated therewith.

The Phylacogens are neither bacterial vaccines nor serums. They are sterile aqueous solutions of substances generated by bacteria grown in artificial media. They are prepared by cultivating a number of the common pathogenic organisms, such as the several staphylococci, streptococcus pyogenes, streptococcus rheumaticus, diplococcus and pneumoniae, bacillus coli communis, etc. The cultures are incubated at 37° C. for a specified time, the organisms are then killed, a preservative consisting of .5% phenol added and the fluid is then filtered through porcelain. This filtrate is basic Phylacogen and commonly known as Mixed Infection Phylacogen. It is used in the preparation of the specific Phylacogens.

The specific Phylacogens for the treatment of rheumatic and gonococcal infections, erysipelas and pneumonia, are prepared by adding an equal quantity of the basic filtrate, (Mixed Infection Phylacogen), to a filtrate obtained from the predominating organism. In other words, in the preparation of Rheumatism Phylacogen, 5 cc. of a filtrate made from the streptococcus rheumaticus, is added to 5 cc. of basic Phylacogen.

Culture tests are made of each lot of Phylacogen prepared, to determine whether the completed product is sterile. Co-incidentally, safety tests of the same preparations are made by injecting relatively large doses subcutaneously, into a series of animals. Should these investigations result satisfactorily, the product is passed as safe.

As to the physiological action of these preparations, little is known, and, for that reason, Phylacogen Therapy may be objected to under the charge of empiricism. While knowledge of the action of Phylacogen is highly desirable,

the absence thereof is not a valid criticism. Pasteur knew nothing of the action of his virus for the prevention of hydrophobia; Jenner knew nothing of the action of vaccine for the prevention of smallpox; the Jesuit Fathers knew nothing of the action of cinchona bark in the treatment of malaria. These men were empirics, but who at this date minimizes the value accruing to the human family from the use of smallpox vaccine and quinine?

Investigators are busy in attempting to reveal the mysteries in the physiological action of Phylacogen. Progress in research of this kind is slow, but progress has been made, and in all probability considerable light will soon be shed upon this most interesting subject.

Clinically, Mixed Infection Phylacogen is indicated in infections classed as surgical. In this connection, it must be understood, of course, that the Phylacogens are not what might be called "pus absorbers." When pus is present, it must be liberated. Mixed Infection Phylacogen is being used with success, in the treatment of infections in a variety of locations following surgical procedure and other injuries, in puerperal infections, empyema, osteomyelitis, otitis media, carbuncle, etc., etc. It is also being employed in the treatment of hay fever and bronchial asthma. A short time ago one would hesitate to suggest the use of a bacterial product in the treatment of hay fever or asthma, as their causative factors have for years been considered other than bacterial. Suffice it to say, however, that a number of patients have received benefit from the use of appropriate vaccines or of Mixed Infection Phylacogen, and a number have been cured. So-called "asthma," due to cardiac or renal disease, or produced reflexly through pathology in the nose or throat, are not appropriate cases for Phylacogen treatment.

Gonorrhea Phylacogen is indicated in the treatment of acute and chronic complications of gonorrhea. Reports of its efficacy in acute urethritis have appeared but their number is too few to establish its value in this condition. The common complications amenable to Gonorrhea Phylacogen, are acute and chronic prostatitis, vesiculitis and the arthritis, commonly known as gonorrheal rheumatism.

Erysipelas and Pneumonia Phylacogen, as their names imply, are used respectively in the treatment of erysipelas and pneumonia, the latter only when due to the pneumococcus.

Rheumatism Phylacogen is the one of the series that has been used most largely. It is indicated in the treatment of acute and of chronic arthritis due to the streptococcus rheumaticus, and such sequelæ as chorea and neuritis.

The Phylacogens are administered either subcutaneously or intravenously. The subcutaneous method is the one of choice. It accomplishes every purpose in the majority of cases, although the results are not as rapid as from intravenous administration. As a routine measure, the subcutaneous treatment has every advantage and the intravenous method should be employed in those few cases which do not yield to the less heroic procedure.

The injection of Phylacogen is usually followed by reaction, local, systemic, or both. These reactions may be slight or marked, depending principally upon the general condition of the patient and the size of the dose. From intravenous administration, there is no local manifestation other than the slight trauma inci-

dent to injections of this kind. Following the subcutaneous injection more or less local pain, redness and swelling may result. This depends largely, however, upon the site chosen for injection. As a rule injections made slowly into locations of loose tissue are rarely followed by marked reaction, while the reaction is usually greatest when large amounts are given rapidly into the leg or arm.

The systemic response appears usually within six hours. This is manifested by chill, lasting from a few to thirty or more minutes, and an increase in the temperature. Depending again upon the general condition of the patient and the size of dose, the systemic reaction may be mild or pronounced, and following an excessive dose, there may be added to the chill and increase in temperature, nausea, vomiting, diarrhea, great depression and general numbness, etc. Such symptoms, of course, are undesirable, and when they occur, it means that the dose has been in excess.

Clinicians, at this writing, are not agreed as to the necessity of pronounced reactions, but many are of opinion that, with marked systemic response, the cure is more rapidly established. Others hold that mild reaction only is necessary.

The degree of reaction in any patient, it must be remembered, lies entirely in the size of the dose. By well controlled dosage, pronounced reaction can almost always be avoided.

The dose of Phylacogen, as with all drugs, varies with the individual patients, but, as a rule, the initial dose subcutaneously is from 1 to 2 cc. Intravenously, the initial dose is from $\frac{1}{8}$ to $\frac{1}{4}$ cc. Subsequent doses, at intervals of from twelve to forty-eight hours, are to be gradually increased, when given subcutaneously, by from 1 to 2 cc.; when given intravenously by from $\frac{1}{8}$ to $\frac{1}{2}$ cc. The usual maximum subcutaneous dose is 10 cc., the maximum dose intravenously 5 cc.

Before closing this paper, which of necessity is but a brief outline of this new therapy, I wish to take the opportunity to say a few words concerning diagnosis. It has been said that once the diagnosis is established, the treatment is easy and I think we can all agree to the correctness of this assertion in its broad sense. Diagnosis is difficult and the success of any treatment will depend upon the accuracy with which it is established. The development of exact methods of diagnosis, has advanced rapidly during the past few years and the information furnished by various laboratory tests will many times establish the diagnosis and nearly always assist in its determination. In such a protean disease as "rheumatism," for instance, accurate diagnosis is often not easy, and possibly in no other condition are so many errors in diagnosis made. This is due, in great part, to the lack of a satisfactory etiological and pathological classification of the arthritides and in part to the close clinical resemblance between them.

It has been remarked that we, as physicians, are prone to call almost any pain about the joints "Rheumatism," because then we know what we mean, although we do not know what we are talking about. One eminent medical man says, "Rheumatism has sometimes turned out in my experience to mean aortic aneurysm, cancer of the pleura, tabes dorsalis, osteomyelitis, spondylitis deformans, bone tuberculosis, syphilitic-periostitis, lead poisoning, morphine habit, alcoholic neuritis, trichiniasis, and gonorrheal infection.

Acute rheumatic fever and many of the chronic rheumatic conditions are,

beyond doubt, caused by bacteria, but to maintain that all cases of chronic rheumatism are due to germ activity, demands more evidence than we can at this time provide. Naturally, a product of bacterial origin can render no service in a condition in which the causative factor is not bacterial.

The diagnosis being correct and the case suitable, Phylacogen Therapy will, in the great majority of instances, yield prompt and pleasing results, some actually astonishing. These filtrates will produce satisfactory effects more speedily than bacterial vaccines and they are successful in many conditions in which the older agents fail. However, the Phylacogens will not accomplish the impossible—they are not “cure-alls.” They have been employed for four years, during which time several thousand cases have been reported, and these indicate a high percentage of successes. Most failures, when they occur, may be considered due to lack of care in diagnosis, to indiscriminate dosage or to faulty technique.

Phylacogen, Vaccine and Serum Therapies, with the possible exception of surgery, are as exact in their scientific application as any therapy which medicine provides. Fulfill the requirements demanded, by a careful selection of cases and intelligent use and they will serve their purpose well.

BUSINESS EXPENSES IN GERMANY.

Apotheker Eugen Roth, of the Ludwig-Wilhelm Apotheke in Carlsruhe, has published for some years in the “Pharmazeutische Zeitung” a table showing the percentage of expense in relation to turnover. Especially interesting in the fact that during the past fourteen years the turnover resulting from dispensing has declined and that from counter-sales increased. The following table shows the percentage participation of the various items of expenditure in 1913, compared with the total turnover:

	Percent		Percent
Drugs and chemicals.....	13.8	Glass utensils.....	2.01
Specialties	26.67	Insurance	1.36
Dressings	1.60	Freights and postage.....	0.85
Indiarubber goods.....	0.43	Salaries and wages.....	15.43
Mineral waters.....	1.55	Heating and light.....	0.74
Stationery (labels, boxes, etc.)...	1.21	Various	0.86

The expenditure, not including taxes, rent, and interest, amount to 65.12 per cent of the turnover.—*The Chemist and Druggist* (London).

Reports of A. Ph. A. Committees

REPORT OF COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, Ph. M., 501 Federal St., Camden, New Jersey.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

AGARICUS.

White Agaric. Larch Agaric.

1. The dried fruit body of the fungus *Polyporus officinalis* Fries (Fam. *Polyporaceae*) collected from *Larix Pinus* Linné and *Larix Siberica* Ledeb.

2. Light, fibrous, somewhat spongy pieces of irregular shape, grayish-white to pale-brown externally; yellowish and resinous internally; fracture tough, fibrous; while friable it is difficult to powder.

3. The powder examined under the microscope shows numerous non-septate, narrow, mycelial threads and many cubical crystals of Calcium Oxalate .001 mm. to .002 mm. in diameter.

4. To boiling Alcohol it should yield not less than fifty percent of a resinous extract. Upon incineration it should yield not more than 2 percent of a white ash, rich in phosphates.

ALBUMEN OVI RECENS.

Fresh Egg Abumen.

The freshly separated liquid white of recently laid eggs of the hen *Gallus domesticus* Temminck (Fam. *Phasianidae*).

ASCLEPIAS.

Asclepias. Pleurisy Root.

1. The dried root of *Asclepias tuberosa* Linné (Fam. *Asclepiadaceae*).

2. Usually cut or broken pieces, of variable size of an irregularly fusiform root from 10

to 20 cm. long and 2 to 5 cm. thick, and occasionally branched, externally pale orange-brown, annulate above, the surface roughened by numerous fine intersecting grooves; bark thin; fracture tough, the broken surface granular and white, with inconspicuous pale-yellow wood bundles and large white medullary rays; odor slight; taste bitterish and disagreeable, somewhat acrid.

BAPTISIA.

Baptisia. Wild Indigo Root.

1. The dried root of *Baptisia tinctoria* (Linné) R. Brown (Fam. *Leguminosae*).

2. Fleshly, 1.25 to 4 cm. thick usually cut into elongated cylindrical pieces; the crown 5 to 8 cm. thick, more or less warty and marked by stem scars; outer surface dark-brown, transversely warty, or the thicker pieces covered with a soft and friable corky layer, bearing few branching rootlets; fracture tough, the fractured surface whitish; bark-section radially striate, wood section inconspicuously radiate, porous; nearly odorless; the bark tastes bitter and acrid, the wood nearly tasteless.

DELPHINIUM.

Larkspur Seed.

1. The dried seeds of *Delphinium Consolida* Linné and *Delphinium Ajacis* Linné (Fam. *Ranunculaceae*).

2. Irregularly tetrahedral, or by pressure

somewhat triangulate, acute at one end, obtuse or rounded at the other, about 2 mm. long and equally broad or slightly narrower; surface black or blackish-brown, deeply and narrowly furrowed, the furrows intersecting so as to give a sharply tuberculate appearance to the surface, with serrate or toothed edges; testa crustaceous; kernel whitish, fleshy; embryo small, in fleshy endosperm; odor very little; taste bitter, afterward biting and acrid.

DIOSCOREA.

Dioscorea. Wild Yam Root.

1. The dried rhizome of *Dioscorea villosa* Linné (Fam. *Dioscoreaceae*).

2. Knotted and woody, elongated, sparingly branched, 6 to 12 mm. thick, somewhat compressed, bearing scattered nodular projections at the sides, elongated, slender tough roots underneath and stem-scars on the upper surface; pale brown, surface more or less scaly from the partly detached thin outer layer; fracture short but not weak, the fractured surface whitish or pale-brown, with numerous small wood bundles; odorless; taste starchy and slightly acrid.

FRAXINUS.

White Ash Bark.

1. The dried bark, deprived of the corky layer, of the trunk of *Fraxinus Americana* Linné (Fam. *Oleaceae*) and probably of other species of *Fraxinus*.

2. In flat pieces of varying length and width 3-6 mm. thick; externally yellowish or pale brown, sometimes with ridges of a warty nature and fissures of a grayish-brown color with markings of lichens; inner surface, pale brown to yellowish, striate; fracture very uneven, somewhat fibrous; odor faintly aromatic; taste bitter, weakly acrid.

3. Ash not over 10 percent.

FRUCTUS RUBI.

Blackberry.

1. The fresh ripe fruit of varieties of *Rubus nigrobaccus*, Bailey, or *Rubus villosus* Aiton (Fam. *Rosaceae*).

2. An aggregate fruit, ovate to oblong-rounded or slightly pointed, composed of numerous shining black drupelets attached to an esculent receptacle; pericarps externally smooth or with only a few hairs (*R. villosus*); mesocarps fleshy, juice purple-red; endocarps hard, black, surfaces deeply wrinkled; taste sweet and slightly acid.

FRUCTUS RUBI IDAEI.

Raspberry.

1. The fresh ripe fruit of varieties of *Rubus Idaeus* Linné (Fam. *Rosaceae*).

2. An aggregate fruit, globular or hemispherical with a concave depression at the base where separated from the receptacle, composed of twenty or more small rounded polygonal succulent drupelets; pericarps externally red, hairs numerous; mesocarps fleshy, juice red; endocarps small stones with wrinkled surfaces; odor characteristic, aromatic; taste pleasant, sweet, acidulous.

3. For pharmaceutical purposes, the black raspberry, the fresh ripe fruit of cultivated varieties of *Rubus occidentalis* Linné (Fam. *Rosaceae*) may be used either in part or entirely in place of the red raspberry.

FRUCTUS SOLANI CAROLINENSIS.

Horse-nettle Berry.

1. The air dried ripe fruit of *Solanum Carolinense* Linné (Fam. *Solanaceae*).

2. Globose, slightly depressed and somewhat shriveled and wrinkled in drying .8 to 2 cm. in diameter, orange-yellow, glabrous, fleshy, two-celled, many-seeded, calyx and pedicle usually persistent; calyx stellate-pubescent, deeply five-lobed, the lobes ovate or ovate-lanceolate, acuminate and enclosing half or more of the berry; seeds orbicular, flat, yellow, smooth shining; odor pepper-like; taste bitter and acrid.

3. Ash about 5 percent.

GEMMAE POPULI.

Balsam Poplar Buds. Balm of Gilead Buds.

1 The air dried closed winter leaf buds of *Populus nigra* Linné and *Populus balsamifera* Linné (Fam. *Salicaceae*), collected early in the spring. Balsam poplar buds should be kept in tightly closed containers of glass or tin.

2. Conical, pointed, up to 2 cm. long and 2 to 5 mm. thick, consisting of closely imbricated scales, externally brown and glossy, glutinous with fragrant resin; odor pleasant, balsamic; taste aromatic, bitter.

JUGLANS.

Juglans. Butternut Bark.

1. The dried bark of the root of *Juglans cinerea* Linné (Fam. *Juglandaceae*) collected in autumn.

2. In quills, curved strips or chip-like pieces. 3 to 10 mm. thick; deep chocolate-

brown color on both surfaces and throughout, except for the faint intersecting whitish radial and tangential lines seen on transverse section; outer surface smoothish or somewhat warty, the inner bearing fragments of adhering thin stringy fiber; fracture short, rather weak, slightly fibrous; taste faintly aromatic, bitter, somewhat pungent and acrid.

JUNIPERUS.

Juniper Berries.

1. The carefully dried ripe fruit of *Juniperus communis* Linné (Fam. *Coniferae*). Juniper berries should be kept in air-tight tin or glass containers. Old or insect-infected fruit should not be used.

2. Nearly globular, about 8 mm. in diameter; externally smooth, shining black-brown to purplish-black with a blue-gray bloom, at the apex a three rayed furrow marks the cohesion of the three fleshy bracts forming the pericarp; internally loosely fleshy, greenish-brown, containing numerous large schizogenous cavities; seeds three, triangular ovate, hard, brown, with large uneven oil glands on the surface; odor aromatic; taste sweet, pleasant, terebinthinate, slightly bitter.

3. Ash not more than 5 percent.

4. Sections examined under the microscope exhibit a pericarp consisting of an epiderm of a single row of rounded polygonal cells filled with a brown granular substance, at the sutures of the bracts these become blunt papillae, a hypoderm of 2 or 3 rows of brown-red, wide collenchyma thickened at the angles; the fleshy portion (mesophyl) composed of loose irregular parenchyma with large oval canals and traversed by fibro-vascular bundles with areolated fibers; a sclerenchymatous ring of 6 to 8 rows of very thick cells with pitted walls many enclosing prismatic crystals of calcium oxalate; the seed-testa shows a layer of 2 to 10 rows of stone cells with radial markings on the walls and each enclosing a polygonal crystal of calcium oxalate; endosperm and embryo rich in fat and aleurone.

LAC VACCINUM.

Cow's Milk.

The fresh whole milk, complying with the legal standard, of the domestic cow *Bos taurus* Linné (Fam. *Bovidae*.)

MENYANTHES.

Menyanthes Leaves.

Buckbean. Marsh Trefoil.

1. The dried leaves of *Menyanthes trifoliata* Linné (Fam. *Menyanthaceae*).

2. Glabrous; petioles 10 to 15 cm. long, stout but soft and weak, the base more or less sheathed with broad, thin and membranaceous, somewhat translucent stipules; blade ash-green, trifoliate; leaflets sessile or very short-petioled 5 to 8 cm. long and usually about two-thirds as broad, obovate, blunt, entire or occasionally coarsely and unequally crenate; odor slight but characteristic; taste decidedly bitter.

3. Ash not more than 10 percent.

OLEUM AURANTII AMARI CORTICIS.

Oil of Bitter Orange Peel.

1. A volatile oil obtained by expression from the fresh peel of the Bitter Orange, *Citrus Aurantium* Linné *subspecies amara* Linné (Fam. *Rutaceae*). It should be kept in small amber-colored well-stoppered bottles, in a cool place. Oil that has developed a terebinthinate odor should not be dispensed.

2. A pale yellow liquid, having the characteristic, aromatic odor of orange and an aromatic somewhat bitter taste.

3. Soluble in four volumes of Alcohol, the solution should be neutral to litmus paper; also soluble in all proportions in Absolute Alcohol and in an equal volume of Glacial Acetic Acid.

4. Specific gravity: 0.846 to 0.854 at 25° C.

5. Its optical rotation dextrogyrate from 92° to 94° in a 100 mm. tube at 25° C.

6. Introduce 50 cc. of Oil of Bitter Orange Peel into a 200 cc. three bulb, fractionating flask. Distil the oil at the rate of 2 cc. per minute until 5 cc. of distillate has been collected. The angle of rotation of this distillate of 10 percent of the oil, should be equal to or slightly higher than that of the sample before distillation.

OLEUM AURANTII FLORUM.

Oil of Orange Flowers. Oil of Neroli.

1. A volatile oil distilled from the fresh flowers of the Bitter Orange, *Citrus Aurantium* Linné *subspecies amara* Linné (*Citrus vulgaris* Risso, *Citrus Bigaradia* Risso) (Fam. *Rutaceae*). It should be kept in small amber-colored well-stoppered bottles in a cool place, protected from light.

2. A pale yellow, slightly fluorescent, neut-

ral liquid, having the fragrant odor of orange blossoms and an aromatic, at first sweet then somewhat bitter taste.

3. Specific gravity: 0.868 to 0.875 at 25° C. Optical rotation is dextrogyrate from 1° 30' to 5° in a 100 mm. tube at 25° C.

4. Shaken with a concentrated solution of sodium bisulphate it assumes a permanent purple-red color.

5. Soluble in an equal volume of Alcohol, the solution having a violet fluorescence and a neutral reaction to litmus paper. Soluble in 2 volumes of 80 percent Alcohol, the solution becoming cloudy on further addition of Alcohol of same percentage.

OLEUM BERGAMOTTAE.

Oil of Bergamot.

1. A volatile oil obtained by expression from the rind of the fresh fruit of *Citrus Bergamia* Risso (Fam. *Rutaceae*). It should be kept in small amber-colored well-stoppered bottles in a cool place, protected from light.

2. A green or greenish-yellow liquid, neutral or only faintly acid, having a characteristic fragrant odor and a bitter taste.

3. Specific gravity: 0.875 to 0.880 at 25° C. Optical rotation dextrogyrate from 8° to 24° in a 100 mm. tube at 25° C.

4. Two volumes of the Oil, when mixed with one volume of Alcohol, should give a clear solution and this should not become turbid on the further addition of Alcohol. Soluble in two volumes of 80 percent Alcohol with not more than a slight cloudiness and no separation or oil globules. Soluble in all proportions in Glacial Acetic Acid.

5. If a weighed portion, about 2 gm. of the Oil be evaporated in a tared dish, on a water-bath, until the odor has completely disappeared, a soft green, homogeneous residue should be left, amounting to not more than 6 percent of the Oil (fixed oils).

6. To 2 gm. of Oil of Bergamot add 10 cc. of alcoholic potassium hydroxide, V. S., evaporate to dryness and incinerate. Extract the ash with water and acidify with diluted nitric acid, no cloudiness should be produced on addition of silver nitrate T. S. (Chlorinated Compounds).

7. To 2 gm. of Oil of Bergamot add 20 cc. of half-normal alcoholic potassium hydroxide V. S. and heat the mixture in a flask on a water-bath filled with boiling water under a reflux condenser for a half hour. Cool the

mixture and add 100 cc. Distilled Water and titrate with half-normal sulphuric acid V. S., using phenolphthalein as indicator, not more than 12.6 cc. of acid should be required, indicating a minimum content of 36 percent of ester, calculated as linalyl acetate, in the oil.

OLEUM MYRCIAE.

Oil of Myrcia.

Oil of Bay.

1. A volatile oil distilled from the leaves of *Pimenta acris* Wight (Fam. *Myrtaceae*). It should be kept in small well-stoppered amber-colored bottles, in a cool place, protected from light.

2. A yellow or brownish-yellow liquid having a pleasant aromatic odor and a pungent spicy taste.

3. Specific gravity: 0.965 to 0.985 at 25° C. Optical rotation laevorotatory from 2° to 6° in a 100 mm. tube.

4. With an equal volume of Alcohol, Glacial Acetic Acid, or Carbon Disulphide, it yields slightly turbid solutions. The alcoholic solution is slightly acid to litmus paper.

5. When mixed with an equal volume of a concentrated solution of sodium hydrate, it forms a semi-solid mass.

6. If 2 drops of the Oil be dissolved in 4 cc. of alcohol, and a drop of ferric chloride T. S. be added, a light green color will be produced; and if the same test be made with a drop of diluted ferric chloride T. S., prepared by diluting the test solution with four times its volume of water, a light bluish coloration will be produced, which soon disappears.

7. To 3 drops of the Oil, contained in a small test-tube, add 3 drops of sulphuric acid, cork the test-tube and allow the mixture to stand for half an hour, a resinous mass should be obtained. On adding to this mass 4 cc. of diluted alcohol, vigorously shaking the mixture, and gradually heating on a water-bath to the boiling point, the liquid should remain nearly colorless, and should not acquire a red or purplish-red color (distinction from oil of pimenta and oil of cloves).

8. Shake 1 cc. of the Oil with 20 cc. of hot water, the water should not give more than a scarcely perceptible acid reaction with litmus paper.

9. If, after cooling, the liquid in the test above be passed through a wet filter, the clear filtrate should produce, with a drop of ferric

chloride T. S., only a transient grayish-green, but not a blue or violet, color (absence of phenol).

OVUM GALLINACEUM.

Hen's Egg.

The recently laid egg of the hen *Gallus domesticus* Temminck (Fam. *Phasianideae*).

PASSIFLORA.

Passion Flower. Passion Vine.

1. The dried herbage of *Passiflora incarnata* Linné (Fam. *Passifloraceae*) collected after some of the berries have matured.

2. Stems glabrous or slightly pubescent above, striate, 6 to 8 mm. in diameter, of variable length, woody, hollow, the cavity about one-half the diameter; bark very thin, greenish or purplish; wood very porous and bordered on the inner side by a thin layer of pith; fracture uneven, of the stem smooth, of the bark coarsely fibrous.

3. Leaves more or less broken in drying, rather thick, glabrous or often pubescent, nearly orbicular in outline, base cordate, deeply 3 to 5 lobed, lobes ovate, acute, finely serrate, petioles 1 to 5 cm. long with 2 glands near the summit. Tendrils numerous and closely coiled.

4. Flowers solitary, axillary, peduncles as long as the petioles, usually 3 bracted; calyx cup-shaped 4-5 lobes, lobes linear, imbricated, cuspidate, corona purplish; petals 4-5 dirty yellow; ovary oblong, stalked; stamens monadelphous in a tube about the stalk of the ovary, separated above, anthers narrow, versatile.

5. Fruit 4 to 5 cm. long, an ovoid many-seeded berry; externally green or yellow, shriveled and wrinkled; seeds flat, ovate, yellowish to brown arilled.

6. Taste and odor slight.

7. Ash not over 12 percent.

PUMEX.

Pumice.

1. A substance of volcanic origin, consisting chiefly of complex silicates of aluminum, potassium and sodium.

2. Very light, hard, rough, porous gray masses or a gritty, gray-colored powder.

3. Permanent in the air, odorless and tasteless. The dry masses usually float on water.

4. Boil 10 gm. of Pumice with 50 cc. distilled water for one-half hour, adding water from time to time to maintain approximately the original volume and filter; the filtrate

should be neutral to litmus paper, and one-half of this filtrate when evaporated and dried at 110° C. should yield not more than 0.01 gm. residue (*limit of soluble substances*). The remaining half of the filtrate after slightly acidulating with hydrochloric acid should not yield a blue color with Potassium Ferrocyanide T. S. (absence of iron).

5. Boil 1 gm. with 25 cc. diluted hydrochloric acid for one-half hour, adding water from time to time to maintain approximately the original volume, then filter the liquid; the filtrate should yield upon evaporating to dryness, igniting and quickly weighing, not more than 0.05 gm. of residue.

SAMBUCUS.

Sambucus. Elder Flowers.

1. The air dried flowers of *Sambucus canadensis* Linné or of *Sambucus nigra* Linné (Fam. *Caprifoliaceae*) separated from the peduncles and pedicels.

2. Small, about 2 to 3 mm. broad, shriveled; calyx superior, five lobed; corolla cream colored to brownish-yellow, rotate, flat or slightly campanulate, regularly five lobed; stamens five inserted at the base of the corolla and alternating with its lobes, filaments slender, anthers oblong, yellow; pollen ellipsoidal or tetrahedral and rounded, covered with finely punctate markings and three parallel longitudinal slits; taste slightly bitter; odor faintly sweet and aromatic.

3. Ash white and not more than 8 percent.

SENECIO.

Senecio. Life Root.

1. The dried overground portions of *Senecio aureus* Linné (Fam. *Compositae*) gathered when flowering.

2. Stems 3 to 6 dm. long, if entire bearing a basal rosette of leaves; sparingly clothed with successively smaller leaves and bearing at the summit several yellow heads in a loose corymb, white floccose when young, but mostly glabrous when in flower; radical leaves on long slender petioles, mostly of rounded form 5 to 7 cm. broad, the base often cordate, the summit rounded, the margin crenate-dentate; stem-leaves gradually changing from the shape of the radical leaves to lyrate pinnate, then pinnatifid and sessile, and at length clasping, oblong and incised; heads slender peduncled, 12 to 25 mm. broad, the lance-linear involucre scales in about 2 series, closely appressed, rays about 10,

bright-yellow, disk flowers very numerous, small, bearing a glabrous akene and a white pappus; odor characteristically aromatic; taste bitter, slightly astringent and distinctly acrid and pungent.

STRONTII CARBONAS.

Strontium Carbonate.

1. It should contain at least 99 percent of Strontium Carbonate ($\text{Sr CO}_3 = 147.62$).

2. A white powder, odorless and tasteless.

3. Insoluble in water, soluble with effervescence in diluted hydrochloric, nitric or acetic acids. Addition of diluted sulphuric acid to these solutions produces a white precipitate.

4. 1 gm. should yield a clear solution with 10 cc. of diluted hydrochloric acid (*sulphate*).

5. 10 cc. of a 1:100 solution, solution being effected by a slight excess of nitric acid added to the water, should not become more than slightly opalescent at once on adding silver nitrate T. S. (limit of *chloride*).

6. Dissolve 1 gm. in water by means of a slight excess of acetic acid, and dilute to 100 cc. On adding to 10 cc. of this solution 5 drops of potassium dichromate T. S. no turbidity should develop within five minutes (limit of *barium*).

7. .5 gm. dissolved in diluted hydrochloric acid should not respond to the U. S. P. Time Limit Test for *heavy metals*.

8. Shake 2 gm. with 25 cc. of water and filter, on evaporation of the filtrate and drying the residue at 100°C . it should weigh not more than 0.01 gm. (limit of *soluble substances*).

9. Dissolve about 1.5 gm. (accurately weighed) in 30 cc. of hydrochloric acid V. S. and titrate the excess of acid with sodium hydroxide V. S., using methyl orange as indicator. Each cc. of normal acid consumed is equivalent to 0.07381 gm. strontium carbonate.

SUCCUS CITRI.

Lime Juice.

1. The expressed juice of the ripe fruit of *Citrus medica*, var. *acida* Linné (Fam. *Rutaceae*). 100 cc. should contain from 5 to 10 gm. of total acids, calculated as crystallized citric acid.

2. A clear or slightly turbid, pale yellow or yellowish-green liquid, having the characteristic odor and taste of limes.

3. Specific gravity: 1.025 to 1.040 at 25°C .

4. To 5 cc. of Lime Juice add 20 cc. solu-

tion of potassium hydroxide and heat in a 100 cc. flask together with 0.5 gm. of granular aluminum or aluminum foil on a water bath for 10 minutes, no odor of ammonia should be noticeable at any time during the heating (absence of *nitrates*).

5. If .1 cc. of barium chloride T. S. be added to 5 cc. of clear filtered Lime Juice, only a slight turbidity should be produced after standing two minutes (limit of *sulphates*).

6. If .1 cc. of nitric acid followed by .1 cc. of silver nitrate T. S. be added to 5 cc. clear filtered Lime Juice, only a slight opalescence should be produced after standing two minutes (limit of *chlorides*).

7. If 5 cc. each of sulphuric acid, alcohol and Lime Juice be heated, no odor of acetic ether should be developed (limit of *acetates*).

8. Add 1 cc. of an aqueous solution of potassium acetate (1 to 3) to 5 cc. of filtered Lime Juice and then add to the mixture alcohol in excess, a slight cloudiness may occur but no crystalline precipitate should be formed within 15 minutes (limit of *tartrates*).

9. Upon evaporation and ignition until free from carbon, Lime Juice should not leave more than 0.5 percent of ash. The ash from 5 cc. of lime juice when dissolved in a few drops of nitric acid and diluted with water should show not more than traces of phosphate when tested with ammonium molybdate T. S.

10. Lime Juice should contain not more than 0.04 percent of sulphurous acid (SO_2) when tested by the method of the U. S. P. IX Revision for determining SO_2 in gelatin.

11. Upon distilling 200 cc. of Lime Juice with excess of calcium hydroxide until 100 cc. of distillate is obtained, the specific gravity of the distillate should indicate not more than 2 percent of absolute alcohol by volume in the distillate or 1 percent in the lime juice (limit of *alcohol*).

12. Shake 10 cc. of Lime Juice acidified with sulphuric acid with 25 cc. of ether, separate the ether and evaporate it to dryness, the residue should not be crystalline and, when dissolved in about 3 cc. of water, should not produce a purplish color on addition of one drop of ferric chloride T. S. (*salicylic acid*).

13. Shake 10 cc. of Lime Juice acidified with sulphuric acid with 25 cc. of ether and

separate the ether and evaporate it to dryness, the residue should not be crystalline and, when dissolved in 3 cc. of water and carefully neutralized with ammonia water, should not produce a flesh colored precipitate on the addition of one drop of ferric chloride T. S. (*benzoic acid*).

14. Dilute 20 cc. of Lime Juice with 100 cc. of water, filter, if necessary, and add 4 cc. of diluted hydrochloric acid. Into this solution immerse a piece of wool which has been boiled in a very dilute solution of potassium hydroxide T. S. and then washed in water, and boil for 5 to 10 minutes. Remove the wool, wash thoroughly in water, and boil in a very dilute solution of hydrochloric acid. After washing out the acid with water, boil with about 200 cc. of 2 percent solution of ammonium hydroxide until the color on the wool, if any, is dissolved. Remove the wool, and add a slight excess of hydrochloric acid to the solution. Immerse in this solution another piece of wool which has been treated with potassium hydroxide solution in the same manner as the first. Boil. This second piece of wool should not be dyed (*aniline dyes*).

SUCCUS POMORUM.

Fresh Apple Juice.

The freshly expressed juice of sound, ripe, sour apples, the fruit of cultivated varieties of *Pyrus malus* Linné (Fam. *Rosaceae*).

TRIFOLIUM.

Trifolium. Red Clover Blossoms.

1. The dried flowering heads of *Trifolium pratense* Linné (Fam. *Leguminosae*).

2. Heads ovoid with rounded summit, mostly 12 to 25 mm. long and broad, shriveled, purplish and more or less brown from drying, consisting of many small papilionaceous flowers, crowded together and clothed at the base with broad, pointed, ciliate stipules of a pale green color with darker veins, and which may or may not be accompanied by diminutive trifoliate leaves. Flowers 12 to 15 mm. long; calyx about two-thirds the length of the corolla, the pilose campanulate tube a little longer than the four short nearly equal teeth and shorter than the narrower fifth one, calyx-teeth subulate, tapering; petals united into a tube below, the standard longer than the wings but when recurved appears shorter; stamens diadelphous (9 and 1); style slender; odor faintly aromatic

and somewhat tea-like; taste sweetish, then slightly bitter.

TRILLIUM.

Beth Root.

1. The dried rhizome of *Trillium erectum* Linné (Fam. *Liliaceae*) and closely allied species of *Trillium*.

2. Rhizome oblique, globular, oblong or obconic, truncate below, terminated by a small bud surrounded by a sheath of scarios leaf bases, annulated by leaf scars and fissured by stem scars; .6 to 2.5 cm. wide by .6 to 5 cm. long, more or less compressed laterally, rootlet scars in several concentric rows on the under side in the upper portions; externally yellowish to reddish-brown; internally of a pale yellow; fracture somewhat uneven with a more or less spongy appearance; odor distinct; taste bitter and acrid with a sensation of warmth in the throat and when chewed causing an increased flow of saliva.

3. Ash not more than 5 percent.

VERBENA.

Verbena. Blue Vervain.

1. The dried overground portion of *Verbena hastata* Linné (Fam. *Verbenaceae*) collected when flowering.

2. In broken or cut pieces of stout, obtusely quadrangular stems which bear opposite leaves and terminal interrupted panicles of spikes of blue flowers; rough, hairy throughout, except the corolla, the tube of which is externally pubescent; petioles 12 to 25 mm. long; leaves 6 to 12 cm. long, lanceolate, acuminate and acute, coarsely and sharply serrate, or the lower hastately lobed, deep green above, paler beneath, conspicuously veined; spikes erect, cylindraceous, densely flowered, each flower subtended by a lanceolate acute bract; calyx adherent, a little more than half the length of the corolla, tubular, 5 lobed, the mouth slightly oblique; corolla small, bright blue, salver-form, sub-equally 5 lobed; stamens adnate to the corolla tube, included, didynamous; fruit dividing at maturity into four one-seeded parts; odor heavy, especially if dampened; taste bitter and disagreeable.

VITELLUM OVI RECENS.

Fresh Egg Yolk.

The freshly separated yolk of recently laid eggs of the hen *Gallus domesticus* Temminck (Fam. *Phasianidae*).

Of General Interest

CALIFORNIA; 1915!

Representatives from the various branches of the pharmaceutical profession located in and about San Francisco met in enthusiastic conference in that city on the evening of April 20, to take preliminary steps toward the entertainment of the members of the profession who will be in attendance upon the various meetings of the craft which are to be held in that city during the maintenance of the Panama Pacific Exposition. An organization was effected with Mr. J. A. Sanford, the President of the California Pharmaceutical Association, as chairman. The meeting was addressed by Mr. James A. Barr, Chief of the Bureau of Conventions and Societies for the Exposition, who told of the painstaking work of his department, in planning for the proper accommodation of the many associations, who are to have their meetings at the Golden Gate during the fair.

Mr. Fred I. Lackenbach spoke of the warm responses which he had received, from all sources, to his suggestion that the A. Ph. A. hold its meeting in San Francisco in 1915. Addresses were made by several other gentlemen, in support of Mr. Lackenbach's proposition, and the meeting voted to appoint a committee of three to "work out" the details of plans for the accommodations of the members of the profession who attend the fair.



A SYMPOSIUM ON THE PROPOSED HARRISON BILL.

At the meeting of the Philadelphia Branch of the A. Ph. A., a number of letters were read on the subject of the so-called Harrison Bill, now pending in the U. S. Senate, and in view of the grave importance of the provisions of this bill to the pharmacists of the country, we give space to print these letters in the columns of the JOURNAL, trusting that a full and frank discussion of the matter will redound to the advantage of the profession.

Washington, D. C., May 4, 1914.

Dear Prof. Cook:

With reference to the so-called Harrison Bill and the misunderstanding of same by many retail pharmacists, permit me to discuss the question briefly and to say that this is largely due to their misconception of the necessity for such legislation by the Federal Government and also their lack of understanding of the provisions of the pending measure and what it is intended to accomplish.

The necessity for the so-called Harrison Bill was not made manifest by the medical profession, drug trade or any of its allied branches. It was the result of careful study, after due investigation, by Federal officers, covering a period of several years, into the evils of drug addiction all over the United States. The appalling conditions unearthed in Philadelphia and other large cities, where school children of tender age had contracted the drug habit, and the fact that a large majority of crimes the past ten years, and especially in the South, were directly traceable to the habitual use of narcotic drugs, led the Federal Government, through its officers, to originally draft a bill which had for its object the absolute control of narcotic drugs, so that they could be sold and used for medicinal purposes only.

This bill being so drastic in its provisions, and the knowledge that, if passed, it would cause no end of trouble for those who of necessity would be required to handle such drugs, led the American Pharmaceutical Association to consider the proposition and to suggest the advisability of the formation of a Conference, whereby all affected interests could come together on common ground, discuss the question and agree upon something feasible yet effective, that would not be unworkable nor prove a burden and at the same time would carry out the original object, the proper protection of the public. It therefore then is a public health measure, and not one, as some seem to think, which will grant special privileges to certain classes.

The American Pharmaceutical Association, in bringing together the Conference, acted with the noblest of objects in view, the welfare of the public, yet at the same time they have conserved the interests of the retail pharmacists as far as possible and have succeeded in removing what would have been a burden, namely, the keeping of records of all

sales of narcotic drugs and the making of returns of the same. * * *

(Then follows a brief review of the field covered by the bill as already printed.—Ed.)

By comparing the sections of the amended "Harrison Bill" with the bill as originally proposed, it will be seen that the burdensome task of keeping a record of all sales of narcotic drugs and annually making returns of same, has been eliminated through the efforts of the National Drug Trade Conference, that was organized through the efforts of the American Pharmaceutical Association, and instead, records of purchases are provided for and returns are to be made only when demanded. Is not this work of the American Pharmaceutical Association to be commended and has not the organization conserved the welfare and interests of the retail pharmacists?

As this is a revenue measure it will require all dealers to obtain a license and further provides that the duplicate order blank shall be purchased from the collector of internal revenue, the license-fee is small and the price of the blanks nominal, so that while it is a revenue measure, it will furnish revenue sufficient only to properly carry the act and its enforcement.

With this act in operation and the coöperation provided whereby the present state officials can obtain information necessary for the enforcement of state laws, it will then become unnecessary for the various states to enact new laws, present state laws being quite sufficient if enforced; if not, they can be amended.

The enforcement of present state laws, with this act in operation, will reduce illicit traffic in narcotic drugs to the minimum. That is all that is expected, and it therefore then should receive the support of every self-respecting retail pharmacist in the United States.

A careful study of the provisions of this proposed act leads me to point out that the legitimate retail pharmacist will have but few burdens thrust upon him by its enactment into law, and that the necessary extra labor entailed will be more than compensated for by the good he will do toward humanity, preventing future drug-addiction, overcome the wrecking of individuals and homes and the prevention of crimes, consequently I believe every effort should be put forth to assist in

securing the passage of the bill, thereby cleaning out the dope-sellers and at the same time assist in placing our calling in the position to which it is entitled and where it will be more respected.

Sincerely yours,

S. L. HILTON.

April 30, 1914.

My Dear Professor Cook:

I am pleased, indeed, to learn that the Philadelphia Branch of the American Pharmaceutical Association is to discuss the so-called "Harrison Bill" and its relation to the retail drug trade. It appears somewhat unfortunate that drug associations in various parts of the country have not discussed this proposed legislation in as temperate and as thorough a manner as might have been done if more accurate information regarding the object and scope of the proposed legislation had been presented.

The so-called Harrison Anti-Narcotic Bill, usually referred to as "H. R. 6282," cannot in any sense be considered a regulatory measure and will at best only secure for state and local officials the necessary information to make existing laws operative. This information is to be secured by utilizing the taxing power of the Federal Government in such a way as to impose a nominal license-fee on all who are in any way engaged in the sale or distribution of certain enumerated drugs. In addition to the license-fee, the law also requires that all sales of the enumerated drugs be recorded in a specific way, the method outlined being designed to impose the minimum of trouble to the dealer and to secure the maximum information for officials entrusted with the enforcement of Federal, state or municipal laws and regulations.

How essentially necessary authentic sources of information really are, to enforce local laws, has been amply shown in the state of Pennsylvania, in connection with the cocaine law, and has been further emphasized in the state of New York, where the recently enacted Walker cocaine law was found to be quite inoperative because of the promiscuous introduction of cocaine from without the state, and the development of the illicit traffic by peddlers and others in no way connected with legitimate drug business.

That much misleading information has been published from time to time in regard to the extent of the abuse of narcotic drugs must

be admitted, but from the retail pharmacist's point of view, the opposition that has been evidenced to the enactment of the Harrison Bill has been altogether unfortunate, in that the public at large has been misled into interpreting this opposition as a justification of the frequently-made charge that retail druggists and men connected with the drug business generally, are primarily to blame for the very widespread misuse of opium and coca, their alkaloids and derivatives. It is for this latter reason alone, that it appears altogether unfortunate that the members of the drug trade have evidenced any, even passive objection, to the enactment of the Harrison Anti-Narcotic Bill, as adopted by the House of Representatives last June. The adoption of the various amendments that have been offered to the Committee on Finance of the Senate, and more recently in the Senate itself, do not in any way improve the measure as a source of information, and if embodied in the law as finally enacted, would serve to increase, unnecessarily, the difficulties of enforcing the law without securing any reasonable amount of additional information for the benefit of persons entrusted with the enforcement of local regulatory measures.

From the point of view of the retail druggists and members of the drug trade generally, it would appear desirable to endorse any reasonable legislation that will secure the necessary information to clearly place the onus of the drug abuse where it rightfully belongs, and if it should develop that members of the drug trade are to blame for the promiscuous use of drugs of this type, druggists themselves should be the first to insist that the continuation of such abuse be corrected by additional legislation, and thus clearly show that the promiscuous distribution of habit-forming drugs is not recognized in any way as being a part of the legitimate traffic in drugs and remedial agents.

Very truly yours,

M. I. WILBERT.

My Dear Professor Cook:

Mr. White has handed me your letter of April 29, 1914, with the request that as Counsel for the N. A. R. D. that I answer the same.

In reply I have to say that should the Harrison Bill be so drafted so as to include all parties handling narcotics, and place them under regulations, which will apply with equal

force to all alike, it will be of the greatest benefit. But should this bill pass in a shape so that it will apply unequally to the different classes of people who handle narcotics, it will not only be inefficacious, but it will create such bad feeling and friction as will make its enforcement well nigh impossible.

When Mr. Henry of your city was here I took pains to explain this situation to him and he no doubt will be glad to furnish you any details regarding the legislation.

Yours very truly,

ALONZO H. STEWART.

Dear Dr. Cook:

It gives me a real pleasure to discuss the so-called "Harrison Bill" for consideration by the Philadelphia Branch, and in doing so, I am not unmindful of the fact, that my views regarding the merits of the so-called "Harrison Bill" differ or at least have differed on some vital points from the views as held by two members of the Philadelphia Branch who are also members of the National Drug Trade Conference, and I must take it somewhat for granted, that the views held by said members of the Philadelphia Branch are largely the views of the Branch membership. In this connection I feel called upon to say, that I have always approached the subject as much as possible from the view point of the retail pharmacist seeking to serve best the public need and welfare.

You request a brief contribution, and brevity will be my endeavor, though I must point out, that the many important features will permit brevity only at the expense of clearness and adequacy. The discussion as you say is to be on the so-called "Harrison Bill," in its amended form as now before the Senate, and I take this to mean "H. R. 6282, Calendar No. 213."

The Harrison Bill, in its present form represents an exercise of the taxing power of the Federal Government, and is incidentally only an exercise of its control over interstate commerce, all for the purpose of providing necessary regulation for the distribution of narcotics, which the several states are either unable or unwilling to provide, and frequently indifferent to enforce, in so far as they can provide them. The taxing power is exercised nominally only, not so much with a view of yielding revenue, as with a view of affording a constitutional ground for Federal activity. Constitutional limitations will

not permit the Federal Government to prescribe in direct terms who may or may not sell or distribute within the several states, but to a large extent this can be accomplished by indirection based upon state legislation. On that account a proper Federal law will need to give every person the right to pay the proposed tax, and thus become registered as a dealer in narcotics. Now it may be argued, that under the circumstances the requirement for a \$1.00 tax which all can pay, will not be very helpful, because any drug fiend will gladly pay such a tax of \$1.00 to secure the right of purchase and possession, by becoming a dealer, and then simply supply his personal wants. However, the Harrison Bill, as drafted, gives the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, the right to make needful rules and regulations, for carrying out the provisions of the Act, and this authority would seem to be wide enough to prescribe such regulations as will successfully limit the right to become registered as a dealer, to such persons who in fact are dealers, so that there would be but little danger that one who intends merely to be a consumer, could secure the right of possession as a registered dealer. This feature might possibly have been strengthened, but to attempt to do so may not have been expedient. Assuming, that, under this requirement, the right of possession for further distribution can be successfully limited to actual dealers, it must be granted, that, to this point, nothing more has been secured but what already exists, because the supply of narcotics for illegitimate use to-day comes from dealers of some sort, and there is no need evidently at present, for illegitimate users to become nominally dealers. It follows, that whatever benefit we are to secure from the proposed Federal legislation, must depend upon the greater restrictions which are placed upon the present dealers, most of whom we must assume will be entitled to registration under the intended Act. It is here, where the authority and power of the Federal Government is dependent entirely upon what it may not do directly, but what it may do to a large extent by indirection. To accomplish by indirection what the Federal Government may not do directly, there has been adopted a record system which has been embodied in the Harrison Bill, and, presumably, for the proper enforcement of a revenue measure the

distribution is required to be evidenced by a record of some sort. If this requirement for a record were made applicable to every distribution a large measure of success would seem to be assured. The entire frame work of the Harrison Bill contemplates that the drugs may reach the consumer only through sources, which by state law are authorized to alone supply the consumer for legitimate purposes. This result is secured by making all other distribution dependent upon having an Official Order Form, which of course can be had only by registered dealers. Since the entire narcotic evil ultimately comes from the traffic, which reaches the consumer, the all important question is, whether the control sought to be secured by indirection is sufficient in that respect. If the control over the drug and its distribution to the consumer, is incomplete or insufficient, then the entire proposed legislation is condemned to failure, for every other feature of the bill is merely an incident to the ultimate aim of limiting distribution entirely to legitimate final use and consumption. As already stated, the success of the Federal Act in limiting consumption of the drug to legitimate purposes is greatly dependent upon existing proper state legislation, always provided of course, that the control and supervision sought by indirection, through record requirement, is made uniformly applicable, so as to reach every case in which the drug is distributed for consumption. In my opinion, generally speaking, existing state laws are sufficient to act as a basis upon which indirect Federal control can be built. To me it seems, that the sufficiency of the Harrison Bill is therefore dependent upon the question of whether it aims to be uniformly applicable. Not considering at this point preparations which contain minimum quantities and which are exempted, the Harrison Bill if otherwise so drawn as to be enforceable, will because of the record requirement, limit successfully all distribution by retail pharmacists to consumers on prescriptions exclusively, and thus this source of supply for the consumer will be restricted to legitimate use. The bill requires with one unfortunate exception, that every distribution to the consumer be evidenced by a record in the form of a physician's prescription. Since the right to write prescriptions is limited throughout to certain classes, who are licensed to do so under state law, and since the right to fill prescriptions is limited to an-

other class licensed by state law, it would appear, that by making a record requirement in the form of prescriptions, one source of supply to the consumer will be sufficiently safeguarded. Up to this point the provisions of the Harrison Bill command utmost respect. Right at this point it fails, and, if unchanged, it will be largely a useless measure representing an enormous waste of time, energy and trouble. By Sub-section (a) of Section II, of the Harrison Bill, as advocated by the National Drug Trade Conference, and as contained therein, altogether because of the action of said conference, the distribution by physicians, dentists and veterinarians to the consumer are to be altogether without the need for record requirement. Under the bill a physician, dentist or veterinarian may distribute ten ounces of cocaine during a day and not be required to show what he has done with them, further than to say, that he has used them in the course of his professional practice. The fundamental idea of the Harrison Bill, is to control the existing evil by means of a system of record keeping. We may assume, or at least hope, that this would be largely successful, but the fundamental idea is not carried through to a logical conclusion, and while the law contemplates that the consumer may secure narcotics from about two hundred and fifty thousand physicians, dentists, veterinarians and pharmacists, it would enforce the fundamental idea with which success is hoped for, as against only less than fifty thousand, and would ignore it altogether with reference to the other, about two hundred thousand. If the fundamental idea underlying this proposed legislation means success, if uniformly carried out, it must be doomed to failure if applied to only one-fifth of those to whom it then should apply.

It has always been, and is now, my judgment that the physician, dentist or veterinarian, who would assume the functions of a pharmacist, should be governed by the exact same legal requirements and restrictions. It is my contention that the illegitimate traffic in narcotics is not by any means confined to possible wrong doers who are druggists, but that at least an equal amount may be placed at the doors of medical men. Therefore, to stop up the loopholes with respect to wrongdoers who may be found among only one-fifth of all who are to have the right to supply the consumer, is to make

a useless effort. It is reasonable to assume, that the improper traffic, which may now be carried on by some who constitute one-fifth of the total number, will be readily transferred, if necessary, to those who are now found among the other four-fifths to be guilty of such improper traffic.

Already I come to appreciate that my intended brief contribution is running away from me, and my further remarks will need to be confined to very brief statements. As a whole, the general intent and outline of the Harrison Bill, in view of constitutional limitations, should find approval. It means to accomplish the desired end by comparatively simple method. It places no particularly burdensome requirements upon either the manufacturing, wholesale or retail pharmacist. The method adopted for controlling and supervising all distribution among all dealers is likely to be effective. The rights of the legitimate retail pharmacist are not interfered with any more than is absolutely necessary, and no fair-minded pharmacist should complain with reference to the restrictions placed upon him, excepting in the matter of some important detail to which I mean to refer, but which it even now seems understood will be changed. But what is the use of giving expression to many things which are commendable, when primarily because of one practical defect the entire proposition is useless, and will produce no practical good. Even if everything else contained in the bill proves to be an exercise of the highest intelligence and as perfect as human mind can make, it is doomed to failure, so long as four-fifths of all who may lawfully supply the consumer, are not included within its most important provision.

Other defects to which I would point particularly are:

1st. That pharmacists who would fill a prescription for narcotics, are forced to know under penalty of fine and imprisonment, that the prescription is written by a physician who is also a registered dealer in narcotics.

2nd. The provision in Sub-section (b) of Section 2, which specifically limits the right to fill prescriptions to pharmacists. In my opinion such a provision in a Federal act is not constitutional. The exact same result is secured by substituting the word "dealer" for the word "pharmacist," and then because of legislation which exists in the

several states, only dealers who are pharmacists will be permitted to fill prescriptions.

3rd. Both Sub-Sections (a) and (b) of Section 2, in their present form, seriously endanger the constitutionality of the entire act, but this danger will be largely removed if the word "dealer" is substituted for the word "pharmacist," and if the exception and discrimination, with reference to record requirement as now made in favor of physicians, is removed.

All of these objections have been pointed out by the last Annual Convention of the N. A. R. D., and though the National Drug Trade Conference has been unwilling to admit or say, that it has acted on these objections, because so pointed out, the fact nevertheless remains that it has adopted changes which largely meet the objections, in all but the matter of requiring record keeping on the part of the physician when he assumes the functions of a pharmacist. Even in this respect, the Executive Committee of the National Drug Trade Conference has of late found itself compelled to advocate some record requirement, but in the form proposed it is wholly insufficient, because a dispensing physician could meet the requirement by entering in a book that he had dispensed one (1) ounce of cocaine on the fifth day of

May, without stating to whom and in what quantity he had dispensed it to each of the separate parties. So far as I have been able to measure the needs with reference to record keeping by dispensing physicians, etc., it should be exactly the same as is now in the bill made applicable to pharmacists, and on the other hand, administration by the physician himself to the patient in cases of emergency should not require record keeping.

There are, of course, other provisions in the bill which deserve attention in its discussion, but I am sure that I have taken up enough time and feel also that others from whom you will hear are better prepared to discuss them. To be concise with reference to them all, I advocate such changes as are now advocated by the National Drug Trade Conference, excepting only its late proposition for record keeping on the part of the dispensing physician, which is insufficient to meet the needs of the case. I believe that every person, be he physician, dentist, veterinarian or pharmacist, who would supply the consumer with narcotics other than administration in cases of emergency, should be made to make, have and show the exact same kind of a record for every distribution of the drugs.

Very truly yours,

FRANK H. FREERICKS.

PERSONALITY.

Personality implies intelligence and self-consciousness. A beast is an individual, but not a person. The mere animal feeds itself, but is not conscious of itself. The seat of personality is the center of all our bodily and mental activities. The idea of the bodily structure does indeed enter into the general conception of the person, but it is related to it just as our clothes are related to our bodies—as a mere adventitious appendage. It is not essential to the reality of the person, as that which constitutes a man's self survives the body; it is not essential to the identity of the person, as that remains unchanged amid all the changes of the body. The personality of a human being is centered in that which thinks and reasons, and wills; which loves, and fears, and hopes; which suffers, enjoys and feels.—*George Bush.*

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio

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63 Clinton Building, Columbus, Ohio

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

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All communications for insertion in the JOURNAL, or respecting advertising, requests for back numbers, and claims for missing numbers should be sent to the Acting Editor, 63 Clinton Building, Columbus, Ohio.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.



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Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

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Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co., Columbus, Ohio.

Under the heading, "The Pharmacist and the Law," will be found important amendments to the rules and regulations for the enforcement of the Food and Drugs Act. Under the amended rules the reception, by the Secretary of Agriculture, of guaranties from manufacturers and dealers, and the issuance of serial numbers, will hereafter be discontinued and all guaranties now filed will be stricken from the files and their serial numbers cancelled, and the use of such numbers is prohibited after May 1, 1915. The amendments further provide important regulations concerning the form of guaranty which may be given to dealers, in regard to their purchases and the manner by which it should be communicated, and relieves dealers from danger of prosecution when goods are purchased under such guaranty.



The entire pharmaceutical profession of the country, as well as its members located in Ohio, are indebted to Prof. George B. Kauffman for his successful efforts to stay the unwise and extravagant attempts of ignorant officialism in Ohio, to annoy the members of the profession with absurd construction of the laws.

Without Prof. Kauffman's efforts in behalf of the sane construction of the insecticide laws, recently passed in Ohio, every druggist in the state would have been put to great annoyance and expense, but by his action in organizing the druggists to oppose the Agricultural Commission, a permanent injunction has been granted by the courts and a needed lesson has been given to officials everywhere, that a sane interpretation must be given to all laws, and that justice and common sense are the foundations upon which all laws should be based.

A CORRECTION.

To the Editor:

Referring to the last paragraph on page 662, of the May issue of the JOURNAL, allow me to correct the statement therein, which implies that A. Schleimer introduced the use of cacao butter in making tablets.

As early as 1902 Edmund White (who now is President of the Pharmaceutical Society of Great Britain) and R. A. Robinson, Jr., contributed a paper which was read before the Dundee meeting of the British Pharmaceutical Conference, in which they proposed a mixture of one part of oil of theobroma and three parts of starch as a general excipient for tablets. At the Bristol Conference, in the following year, Edmund White and Henry Rodwell went further into the subject, and showed that by the use of an emulsion of theobroma the method could be used on a large as well as on a dispensing scale.

Yours very truly,

F. A. UPSHER SMITH.

<>

THE AMERICAN DRUGGISTS' FIRE INSURANCE CO.

The regular quarterly meeting of the Executive Board of The A. D. F. I. Co. was held on May 15 and 16, all of the members of the Board being present.

The business for the first quarter of the year was shown to have made splendid progress, the insurance written during that time amounting to \$3,834,934.70, at a net premium of \$39,889.30, which shows an increase over the business of the first quarter of the preceding year amounting to \$632,761.37, at a premium increase of \$6,603.91.

Fire losses of the company for the first three months of 1914, amounted to \$19,875.78, and the expense charged against the first quarter amounted to \$11,162.40.

On the 31st day of March, the company had in force 7216 policies for insurance, amounting to \$13,039,857.70, at a premium of \$133,856.15. During the first three months of the year the company saved its policyholders \$13,296.40 in their premium expense.

College and Society

MASSACHUSETTS COLLEGE OF PHARMACY.

The Forty-sixth Annual Commencement of the Massachusetts College of Pharmacy was held in Horticultural Hall, on Thursday, May 14. The Class Day program, at 2 p. m., was followed, at 3 o'clock, by the graduating exercises. The Class Day address of welcome was delivered by Charles Patrick Norton, the class history was read by Edward Louis Faucogney, and Joseph Hugh Cooney gave the oration. The prophecy came from Ralph Elliott Coburn. Alice Gardner Coleman made the Class Will, John Douglas Glancy, of the post-graduate section of the class, read an essay on Safe-guarding the Milk Supply, and the Farewell Address was delivered by Robert Edson Bemis.

President C. Herbert Packard presided at the graduating exercises. The prayer was made by the Rev. Frederick A. Wilmot, and the Hon. Samuel W. McCall delivered the Commencement address. Mr. McCall spoke of the importance of pharmacy as a profession and cautioned the graduates to have a care—in this age of specialization—that in their devotion to their work they do not allow themselves to become narrow, and he suggested that an active interest in the social, political and industrial problems of the day would, by fostering a broad open-mindedness, counteract the tendency to think and work along one line only.

The candidates for degrees were introduced to the President by Dean Theodore J. Bradley, who made a brief but thoughtful address to the class. As Mr. Lyman W. Griffin, the Secretary of the College, called the roll of the candidates for graduation, the President conferred the degrees, with some appropriate remarks to each individual student, afterward speaking to the class as a whole in his usual happy and forceful way.

Prize Nominations to Membership in the A. Ph. A. were awarded the following graduates

Joseph Hugh Cooney, for highest rank in senior organic chemistry; awarded by John G. Godding.

Emil Hermann Trumpold, for highest rank

in senior pharmacy; awarded by Prof. E. H. LaPierre.

Charles Patrick Norton, for highest rank in senior analytical chemistry; awarded by Prof. T. J. Bradley.

Robert Edson Bemis, for highest rank in senior materia medica.

Herman Jacob Epstein, for highest rank in senior general chemistry; both awarded by Pres. C. H. Packard.

The music for the afternoon was by the Salem Cadet Orchestra.

List of graduates, 32 for degree of Graduate in Pharmacy (including four women), and seven for the degree of Pharmaceutical Chemist:

Degree of Graduate in Pharmacy—Arthur Henry Barnes, Jr., Robert Edson Bemis, Elmer William Bennett, William Charles Bruzga, Herbert Francis Carbonneau, Ralph Elliott Coburn, Alice Gardner Coleman, Joseph Hugh Cooney, Joseph George Dion, Everett Leslie Emery, Herman Jacob Epstein, Edward Louis Faucogney, Edward Rudy Gifford, William Wallace Gifford, Nora Marceline Gobie, Kevork Gostan Gostanian, Charles Connor Hearn, Moses Jacobson, Bertram Francis Jones, Samuel Lourie, Emma Clare MacDonnell, Hortense Merrill, Howard Chamberlain Newton, Charles Patrick Norton, Frederick Vincent Palladino, Albert Solomon Pearlman, Samuel Kalil Saleeby, Earl Fuller Smith, Clarence Thompson, Eli Salmon Troupin, Emil Hermann Trumpold, John Francis Turner.

Degree of Pharmaceutical Chemist—Thos. Call Armstrong, Roy Chester Charron, Nicholas Ernest Dyer, John Douglas Glancy, Max Mackler, George Allen Moulton, Jr., Edward George Nagle.

The dinner of the Alumni Association complimentary to the class of 1914, at 6:30 p. m., was a very enjoyable part of the day, with about 130 people gathered about the tables. This dinner was at Horticultural Hall, as was also the class reception and ball, which was attended by many friends of the graduates.



ST. LOUIS COLLEGE OF PHARMACY.

The Twenty-ninth Annual Commencement exercises of the St. Louis College of Pharmacy were held on the evening of May 20th, at the Sheldon Memorial Auditorium, in St. Louis. The Hon. Charles Nagel delivered

the valedictory address on behalf of the faculty.

The candidates for the degree of Graduate in Pharmacy and Bachelor of Pharmacy were introduced by the Dean, Professor H. M. Whelpley, and those for the degree of Pharmaceutical Chemist by Professor Charles E. Caspari. The following were awarded degrees:

Graduate in Pharmacy — Monte Earl Barnes, Lydia Frankie Batdorf, Frantz Frederick Berg, Edgar Van Bratton, Ph. B. '08, Louis Edward Brown, Coke B. Browning, Hillard D. Carlos, Jr., Thomas Bowden Chambers, George William Collins, Ph. B. '10, William Daniel Curran, Charles Raymond Davis, Clifford H. Fischer, Walter Freudenberg, Adam Guthrie, Jr., Ph. B. '12, Oliver O. Hedrick, Frank John Helms, Ernest Barthol Hoehn, John Atchison Hudson, Elmer Gaynor Joseph, Henry Adam Karber, Frank Kincaid, Louis Oscar Kloeckner, William Krummenacher, Charles Lasersohn, Junius Blanton Linn, Willard McKee Lyons, William Paul Massock, Albert Henry Mayerhoffer, William Leslie McQueary, Fred George Messerschmidt, Edwin Archer Monell, Albert William Mueller, Arthur August Overman, Cressie Delahae Panhorst, Cecil Robert Parks, Alexander Pearlstone, Virgil Earl Pirtle, Benjamin James Pope, David S. Ralston, Ph. B. '12, Walter Augustus Reese, Ph. B. '12, Edwin Jerome Rhein, Kenneth Parke Riley, Edwin Louis Schroeder, Verner Franklin Smith, Gilbert Spieldoch, Mrs. John Esther S'Renco, Hans Alwin Weber, Odus Pharr Wilkinson, Lee Howard Witty, Claud Oakley Wright.

Bachelor of Pharmacy—William Francis Brennan, Hull Wesley Butler, William Henry Duckworth, Arthur Henry William Charles Kloepper, Charles F. Lanwermyer, Chester William Lieder, Albert Leo Spaedy.

Pharmaceutical Chemist—David S. Ralston.

The awards for honors were as follows:

Senior Class Scholarships and Prizes.

The Alumni Prize, a gold medal, conferred upon a candidate for the degree of Graduate in Pharmacy for the best examination in all branches, is won by Frantz Frederick Berg.

The College Silver Medal conferred upon a candidate for the degree of Graduate in

Pharmacy for high averages in all branches, is won by Frank John Helms.

The recommendation for membership in the American Pharmaceutical Association, with dues for 1914 given by the college, is awarded to Junius Blanton Linn.

Honorable mention: Graduate in Pharmacy Class—Miss Cressie Delahae Panhorst, Miss Lydia Frankie Batdorf, Fred George Messerschmidt, Alexander Pearlstone, Walter Freudenberg, William Paul Massock.

Honorable mention: Bachelor of Pharmacy Class—William Henry Duckworth.

Junior Class Scholarships and Prizes.

The Edward Mallinckrodt Scholarship for 1914-15, Joseph Frey.

The Meyer Brother Scholarship for 1914-15, Glenn Adrian Burkhart.

The J. S. Merrell Scholarship for 1914-15, Roland Henry Kraege.

The Alumni Prize, some Standard Work on the subject of Pharmacy, or allied branches, Herbert W. Bixon.

Honorable mention: Junior class—Joseph Frank Evans, Sam Honigberg, Philip Ludger Chiles.



KANSAS CITY COLLEGE OF PHARMACY.

The Twenty-ninth Annual Commencement of this institution was held on Thursday evening, May 7th, at Spalding's Auditorium. The members of the graduating class were: Charles A. Bailey, Paul H. Blinn, Ralph E. Foster, Anna Freesman, James J. Flynn, Roscoe M. Hutchinson, Cristobal Martinez, W. Frank Malson, Clyde W. Moll, W. R. McDanel, Walter F. Probst, Ray O. Piper, George A. Walkup, Sumner R. Williams, Harry E. Price, Earl Dewees, George E. Seidler.

The Junior Medal was awarded to Giles E. Wickmire, of Larned, Kansas, and honorable mention was given to Harry Kelly and Thos. D. Evilsizes, of Kansas City.

The Alumni Medal for Chemistry was awarded to Ralph E. Foster, of Perry, Oklahoma, who also received the College Medal for highest general average in all courses. James J. Flynn and Roscoe M. Hutchinson received honorable mention.

The annual ball given by the Alumni Association to the graduating class occurred on the evening of May 5th, at Drexel Hall.

Mr. and Mrs. D. Victory Whitney were members of the Reception Committee. Professor Whitney is Director of Pharmaceutical

Laboratories and Professor of Pharmacy, and Mrs. Whitney is Professor of Botany and Pharmacognosy at the College.



NEW JERSEY PH. A.

The New Jersey State Association will hold its annual meeting on the 16th, 17th, 18th and 19th instant, at the New Hotel Breslin, Lake Hopatcong, and a most pleasurable and profitable meeting will undoubtedly result from the very comprehensive scope of the program outlined. This association is one of those which seems to have successfully solved the question of combining properly the entertainment features with those involving solid instruction, profitable to every member. The list of queries proposed as subjects for papers should be most fruitful of results in the way of information of weighty import, not alone to the members of this association, but also to the pharmaceutical profession at large.



The Pennsylvania Pharmaceutical Association will hold its annual meeting at Buena Vista Spring Hotel on June 23-24-25. From the very interesting list of subjects for queries, sent to the members, some papers of exceeding interest to the trade are to be looked for.



The Massachusetts State Pharmaceutical Association will convene at the New Ocean House, Swampscott, for the thirty-third annual meeting on June 16-17-18. The program promises a very interesting and pleasurable meeting.



WOMEN'S PHAR. ASSOCIATION PACIFIC COAST.

The regular monthly meeting was held April 24, 1914, in the Assembly Hall, San Francisco. Mrs. R. E. White, the President, presided.

The roll call showed a large attendance. Discussions were held on Isotonic Salt Solutions, the preparation of Extract of Malt and Cod-Liver Oil, Methods of preparing Ichthyol Capsules, Iodothyrene and Thyroidectin.

A communication was received from Miss Clarissa Roehr, Secretary *pro tempore* of the San Francisco Branch of the A. Ph. A., inviting the participation of the members in the next meeting of that Branch.

Miss Mabel Dolcini read a paper on Ozone, and Mrs. F. F. Rajotte presented a paper on Boils. The discussion of the evening was on The Card-Index for Stock, and Miss Nelson,

Mrs. White, Miss Dolcini and Dr. Winslow spoke upon that question.



ATLANTA WOMAN PHARMACIST CLUB.

The Atlanta Woman Pharmacist Club met in the library of the Southern College of Pharmacy, April 24th, 1914, for the purpose of forming a permanent organization.

Dr. R. C. Hood, Dean of the Southern College of Pharmacy, acted as temporary chairman.

The following list of officers were elected: Miss Margaret Kimmel, President; Mrs. G. E. Matthews, Secretary, and Miss Bertha Davis, Treasurer.

It was voted that the club retain the title "Atlanta Woman Pharmacist Club."

The purposes of the club are to keep its members informed of the advance of the pharmaceutical profession, to uplift woman's position in the pharmaceutical world, and to meet socially for the entertainment of its members and guests.

Miss Bowie read an interesting paper entitled "Woman in Pharmacy," and it was decided that at each meeting the members would read papers, tell of the interesting things met with in their work, and make suggestions for the good of the club and its members.

The matter of fees being brought before the meeting, it was voted that each member be assessed an initiation fee of 25 cents and regular dues of 20 cents per month.

It was also voted that the regular meeting of the club be held on the third Friday of each month.

After the business meeting, refreshments were served.

The meeting then adjourned to meet Friday, May 15th, 1914.

Mrs. G. E. MATTHEWS, Secretary.



KANSAS PHARMACEUTICAL ASSOCIATION.

The Kansas Pharmaceutical Association met at Hutchinson on May 12, 13 and 14. There was a very gratifying attendance of the members, notwithstanding that the meeting-place was far from all the large cities and in the less-densely populated western portion of the state.

The address of President C. C. Reed was replete with timely suggestions of benefit to the members of the profession. Secretary

D. v. Reisen reported a large amount of work accomplished in many ways for the relief of vexatious conditions affecting the trade, and an increase of membership in the Association,—seventy-nine members being added during the past year, making a total roll of nearly six hundred and fifty.

The Association voted to continue its affiliation with the N. A. R. D. and also that, in the future, members of the Kansas State Board of Pharmacy shall not be eligible to serve more than two successive terms.

The special guest of the occasion was Mr. Thomas H. Potts, the National Secretary of the N. A. R. D. To the great regret of all present Mr. Potts was unable to take part in all the proceedings of the meeting, owing to a sudden illness, from which he did not entirely recover until after the adjournment of the meeting.

Dr. J. B. Wood, representative of P. D. and Co., read a very interesting paper on "Biological Products," which was of much interest to the members, and Mr. R. E. Bell, of Frederick Stearns & Co., contributed a paper upon "Cooperation," from which many of the members derived a number of ideas which will undoubtedly result in profit to them.

A special commemorative meeting was held by the Association in memory of Mr. Charles M. Becker, late of Ottawa. Mr. Becker served for many years as a member of the Kansas Board of Pharmacy. Many of the members paid a fitting tribute to his name and memory.

The following board of officers was elected: President, Walter J. Bangs; First V. P., J. W. Giesburg; Second V. P., E. E. Bloom; Secretary, D. v. Riesen; Treasurer; John Schmitter.

The Association were the guests of the Traveling Men's Association at a banquet given at the Bissante Hotel. Plates were laid for three hundred guests and the affair reflected much credit on the hosts.

The ladies were charmingly entertained during the days of the convention by a musicale and women's reception and a grand ball at the Elks' Club, and every minute of their stay in Hutchinson was made enjoyable.

Mrs. C. E. Wherrett was elected President, and Mrs. N. C. Edelblute, Secretary of the Ladies' Auxiliary.

It was voted to hold the next meeting at Wichita, May 11-12-13, 1915.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Acting Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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CHICAGO.

The Chicago Branch of the A. Ph. A. was honored at its April meeting, the evening of the twenty-first, with an address by Professor John Uri Lloyd of Cincinnati. Professor Lloyd's subject, "The Evolution of American Materia Medica," led to many reminiscences and his talk was very earnestly received by the audience.

Secretary Gathercoal introduced the new A. Ph. A. button, samples of which had been received from Treasurer Whelpley and orders were taken for twenty of the buttons. They were voted very neat in design and excellent in finish.

The May meeting will be devoted to a criticism favorable and unfavorable of the changes in the monographs of galenicals for the new pharmacopœia as recently published by the Revision Committee. Several pharmacists, members of the Branch, led by I. A. Becker, pharmacist at Michael Reese Hospital, are preparing criticisms to be presented at this meeting.

E. N. GATHERCOAL, Secretary.

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CITY OF WASHINGTON.

The April meeting was held on the sixteenth of that month at the National College of Pharmacy.

The director of the National Vaccine and Antitoxin Institute of Washington, D. C., Dr. J. R. Stewart, described to the large number of members and guests, and to the entire senior class of the National Col-

lege of Pharmacy, present by special invitation, in a most interesting and detailed fashion, the origin and development, manufacture, characteristics, and peculiarities of each vaccine and antitoxin now in practical use, and outlined the character of experimental work now being conducted to increase the scope and efficacy of this form of medication. He supplemented his address with exhibits showing antitoxins in various stages of manufacture and with demonstrations of the uses of various types of syringes.¹ Following his address, he answered all questions propounded to him concerning this line.

When he took his seat, he was given a rousing vote of thanks.

The May meeting was postponed to June 6, 1914, when the branch will visit the Department of Agriculture Drug Farms, opposite the Arlington National Cemetery, in Virginia, at 1:30 p. m. At this meeting, Dr. Stotsenberg, who is in charge of the farms, will, after showing the members around, give a talk on drug plant culture, fake money-making schemes involving such culture, and a number of other subjects interesting to the retail druggist and to the general public.

HENRY B. FLOYD, Secretary.

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DENVER.

At the meeting in March, Mr. A. W. Clark read the following paper on "Trade Conditions."

Mr. Clark prefaced the delivery of his paper by reading a clipping from a trade journal which strongly advised that a proprietor should "stand-in" with his clerks. The clipping stated that it was quite as commendable an aspiration to desire to "stand-in" with clerks, as it was to wish to "stand-in" with the public, and that a man who only hires clerks to do the small things in his business will always have a small business.

Mr. Clark, continuing, said:

I shall not attempt in this paper to make an elaborate analysis of trade conditions, or to give the reasons for them, for, as the viewpoint of every business man is obtained, as a rule, from the front-door of his own store, every one has reasons of his own for their existence, and his remedy for those

¹Dr. Stewart's paper appears in another portion of this issue.

conditions which need reformation. My only purpose in reading this paper is to attempt to entertain you; to assist you in passing a pleasant hour in a social way, and to offer to you, only in a general way, a few suggestions for your consideration. Our Branch meetings have been a source of pleasure to me and I presume every member should do his part toward making them of enjoyment and profit to all the members, and it is with that purpose and desire that I offer these suggestions for your consideration.

It seems to be generally conceded that trade is not what it should be and does not amount in volume or show sufficient profit to justify our present expensive methods of securing it.

How may we better these conditions?

Reducing the expense account naturally comes up for consideration first, but this does not always bring the desired result, especially if it is done at the expense of the quality of service furnished.

To cover the field of local drugdom and furnish actual statistics would take much time, besides I am at a loss to know just where to go for the information and facts that will show the real conditions.

The jobber and the banker might furnish some very interesting material, but to make matter of this nature public would be a rank violation of business ethics.

I here suggest as a general underlying principle to be adopted by the man of limited financial resources when starting in business, that he consult and advise frequently with his jobber and banker, making correct statements to them regarding his resources and as his business may progress, of his sales-credits, etc., and that he consult with them both before contracting any considerable debt or signing of binding contracts, etc.

By doing this he will have time to consider the thing himself that he proposes to do, and he will have the advice of the man that has, as a rule, a much broader business experience than he himself possesses.

I believe that many business men would gain very materially by adopting this rule, men that may have been in business for years as well as the young man just nosing his way in.

It is not necessary to suggest this policy to experienced men for it is presumed that they know the importance of it and have benefited by it.

It seems to be the opinion of some that the business of an attorney is to get their clients out of trouble, but as a matter of fact the real business of an attorney is to keep them from getting in, therefore it is well to be advised before acting, and to whom may we go for that advice more freely than to the ones that prosper as we prosper, or who suffer loss should we fail, viz.: the jobber and the banker.

If the above suggestion had been adopted by all our local business men, conditions in Denver, I venture to assert, might be far better than they are today.

As we look over the local field, seemingly, we find too many persons trying to operate or to conduct drug stores.

This statement seems to be substantiated fully if we may judge their success by their financial rating.

Had some of these advised with their jobber or banker I do not believe they would have gone into business.

This condition of an excess number of stores seems to be found more frequently in the city than in the country.

"Can we find any remedy for it that is practical?" is a question often asked.

The elimination of the less competent and the survival of the stronger and better qualified is the usual rule that maintains, and this will in time undoubtedly apply here—it is gradually working out that way. It may be possible to hasten this elimination process by consolidating several stores in one, to be operated under the combined management of the several now independent proprietors.

For instance, when by close application and long hours several stores are operating and each supporting in a limited way, one person, would it not be possible to consolidate several of these stores, giving one three-man store in place of three stores of one man each, and giving better working hours, a fair remuneration and better opportunity to enjoy some of the blessings of our God-given sunshine and the glorious mountain scenery that lie at our very doors,—scenery and sunshine and pure air, not excelled in any part of the known world, all this, without price and with but very little effort, may be enjoyed in Colorado.

Then again, another remedy might be for the proprietor to just simply forget that his store is called a drug store, just forget the drug end of the term and operate a good

store, a little neighborhood store, with a notice on the door, "Open at 8 a. m., close at 6 p. m.; no Sunday business."

Considering the curtailing of expense and satisfaction that would be derived, our proprietor might find himself as well-off financially at the end of the year, as he does now working under present conditions.

This is not intended to reflect on the small man simply because he is operating a small store, but is offered just as a suggestion to fill in, and in all seriousness, the fact remains, that it is almost impossible to do any considerable amount of prescription work in any considerable number of stores in Denver, for the reason prescriptions are not written in proportionate number to the number of drug stores. The wide range in the number of articles possible for the physician to prescribe, and the great number of physicians writing prescriptions in a city the size of Denver make it impossible for the majority of stores to stock all of the items prescribed, that are more or less in daily demand.

To put it another way, comparatively, there are only a few druggists that are justified (considering the limited demand) in stocking all the remedies that are in general use.

The consolidation of several stores in each district, would remedy the conditions just stated and if this be done in all parts of the city, more complete stocks might be carried at a profit where now they show a loss. The people would be better served and a waste, that is now almost criminal from an economic viewpoint, would be corrected and saved.

Will this condition ever be remedied by the American people? For this condition, being true of Denver, applies to other cities in this country.

Making a low price on drugs does not bring more business. Generally speaking, people do not buy more drugs because the drugs are cheap or sold at a low price, that is, in the same way one might buy clothing or merchandise. A man might buy two shirts instead of one, if the price be attractive, but we do not presume he would take two doses of castor oil simply because he could get the two for the price of one.

As a rule the doctor that gives his services for a dollar, does not have as many patients as the two or five-dollar man. After all, it

is not so much the price in either case as it is the man.

If the price of drugs be reduced one-half in the city of Denver, we do not presume (barring the joy-producing variety) the amount consumed would be very materially increased. The personality of the man is reflected in his establishment, be it large or small, and is a special factor in making for success or failure. This applies to all mercantile houses, it extends to railroad management and very much so in the operating of a drug store or pharmacy.

To our methods of doing business we might apply the old saying: "It is not what you do but how you do it."

Then again, it is well to watch the successful man, the man that succeeds. Contact with better men, generally is of benefit to the man that may not be quite so good. We all have much to learn in this game called "trade."

There is an evolution going on in drugdom, in Denver, and in the nation, and no man can stay it or turn the tide very materially. We, as individuals, may assist in the moulding or shaping of it, but we cannot expect to have everything our way.

Large financial interests are taking over numbers of drug stores in the thickly populated centers, seemingly for the purpose of securing an outlet for certain lines of goods.

It does not seem to be their purpose to elevate pharmacy, or the pharmacist, in the way many have hoped for, but, seemingly, their purpose is to commercialize pharmacy, and incidentally the pharmacist.

These conditions, fortunately, have not been as pronounced in Denver as in some other cities.

We seem to have entirely different local conditions to contend with—different from Eastern and different from Western in many respects.

If Denver were a larger city, we might expect them to prevail here.

In the years that have passed, we, in Denver, have prospered to a greater degree than some of our less fortunate brethren in the East. We have had coöperation of the jobber and the retailer, something that has not existed in many Eastern cities, of any considerable size.

Just what the future has in store for us, no

man knows, but let us remember the principles which have stood for prosperity. Do not turn from the old to the new, without considering what is to be gained by the turning.

It seems that much might be gained by legislation and enforcement of present laws—laws that are supposed to protect the people and benefit us as well.

If our laws are unjust and do not correct the evils that exist, let us try and amend the same.

Our Board of Pharmacy should be of service to us in regulating the pharmacy end of our business. Let us work with them to bring about this result. Surely the raising of requirements for qualification, with enforcement of the law, will eventually help to some extent, and at the same time guarantee to the people better and more intelligent drug store service.

Our State Board of Health should work advantageously with us in correcting many evils, that some think now exist.

Every druggist should be willing to assist them in enforcing the law.

The act of March 3, 1907, regulating the sale of food and drugs in Colorado, is in the main good, and, having a standard for drugs, we have an advantage over the grocery man, who really has no standard for many food products.

As business men, we should not feel that we must depend upon the law to protect us, over and above any other class of citizens. We should first learn to protect ourselves. Being amenable to the law and contributing to its support, we have the right to expect the benefit that may be derived from an intelligent enforcement of it.

If our fellow druggists could but realize the benefit gained by social contact in our Branch meetings—even in the way of trade betterment—we would soon have to secure a larger meeting room.

While a talk of this nature may touch upon only a few of the many viewpoints of trade, it may sandwich in with some of the more scientific and interesting ones, for pharmacy and merchandising seem to go hand in hand, more and more, and the pharmacy of the future may be more commercialized than it is today, if the signs of the times are correctly interpreted.

SAINT LOUIS.

The Saint Louis Branch met in regular session at the College of Pharmacy on Friday evening, April 17th, with President Wilkerson presiding. The minutes of the previous meeting were approved as read.

The Chair then briefly outlined the talk he gave before the Saint Louis Pharmaceutical Society, with the view of uniting that Association with the A. Ph. A. Branch. After some discussion, a motion was made and carried, that a committee be appointed to confer with a committee of the Society to ascertain the feasibility of uniting the two associations. The Chair appointed on that committee, Messrs. Mackelden, Buehler and Bierman.

The subject for discussion was, "Shorter Names and Synonyms for some U. S. P. and N. F. Preparations." Mr. E. A. Sennewald cited a list of U. S. P. preparations which in his opinion should have shorter names or synonyms. Professor Good read a list of synonyms and shorter names that have been presented to the revision committee for some U. S. P. preparations.

The following motion received unanimous indorsement:

Resolved, "That the use of coined names in the United States Pharmacopœia, should be discouraged except those applied to well known products which are no longer protected by patent or proprietary rights."

It was further moved and carried that a copy of this motion be sent to Professor Joseph P. Remington, Chairman of the Revision Committee.

Mr. Mackelden brought up the subject of summer meetings, stating that these outings help to keep up interest in the Branch. A motion was adopted that the President appoint a committee to arrange for summer outings, and Messrs. Mackelden, Hoester and Kring were appointed as that committee.

JULIUS C. HOESTER, Secretary.



PITTSBURGH.

At the May meeting much valuable instruction was given concerning the use of collapsible tubes for the dispensing of ointments, by Dr. F. J. Blumenschein. In opening the subject, the doctor said, "The trend of the times is toward cleanliness, and this trend should find the pharmacist leading the procession. One of the ways by which he can keep to the front is in the use of clean and progressive methods in compounding and dis-

pensings. While most of the pharmaceuticals are being standardized, and methods for improvement in manufacturing and marketing are being proposed, the ointments and allied products are being neglected. Ointments are dispensed in all kinds of containers,—bottles, tin and wood boxes, porcelain and glass jars of various colors,—without a thought as to whether the preparation is affected by light, air, moisture or the container itself. Collapsible tubes for prescription work should be made of pure (block) tin. This should be insisted upon, as they are often made of alloys of lead and other injurious metals. The advantages of collapsible tubes are many. First, the patient can use the last portion of the ointment, with the knowledge that it is just as free from contamination as the first portion, and, second, the dispenser is not required to handle a returned container, from which he might contract anything from simple itch to smallpox. A canvass of the oculists, to learn why they so frequently prescribe ready prepared ointments in tubes, revealed the fact that, while they prefer freshly prepared ointments, they are willing to prescribe something which, while not as good, yet always carries the assurance of being clean. Of course, all ointments cannot, owing to their composition, be dispensed in metal tubes, yet a great many may be so dispensed. The cost is but slightly greater, and they require a little more time to prepare, but these disadvantages are greatly offset by the fact that a better price can be demanded and increased prestige gained by doing things right.

"Ointments which have been fused, or that have to be sterilized, can be readily poured into the tube; others can be placed in waxed paper and rolled into a cylinder in the hand, then placed in the tube and by partly closing the paper, it can be drawn out, leaving the ointment in the tube."

The subject of "The Sale of Heroin; Its Legal and Moral Status," was discussed from every viewpoint, by Drs. J. A. Koch, G. W. Kutscher, Louis Emanuel, President Andrew Campbell and B. E. Pritchard. A motion was unanimously adopted, commending the Harrison Anti-Narcotic Bill now pending in the Senate, and instructing the Secretary to convey to Senators Penrose and Oliver the request of the Pittsburgh Branch, that they urge the immediate passage of the measure in the interests of humanity.

B. E. PRITCHARD, Secretary.

NASHVILLE.

The Nashville Branch of the A. Ph. A. held one of the most interesting meetings of the year, at Furman Hall, Vanderbilt University, May 14, with Dr. J. O. Burge in the chair.

Dr. J. M. Rogoff made a preliminary report of some pharmacological experiments he has been making, to determine the amount of deterioration of aqueous alkaloidal solutions. His work, so far, has been confined to that upon solutions of morphine, atropine, pilocarpine and strychnine, testing them upon cats and frogs, and his results indicate a gradual deterioration of these solutions with age. His final results will be reported to the Scientific Section of the A. Ph. A., at the Detroit meeting. A paper entitled "Board of Pharmacy Questions," was read by W. R. White, and discussed by Messrs. Ira B. Clark, M. E. Hutton, Dr. E. A. Ruddiman and Dr. J. M. Rogoff. The subject for the evening, "Shorter Hours," was then taken up for discussion.

The Secretary read the results obtained, by sending out 200 return cards. These showed that 84 percent favored shorter hours, and that 92 percent favored closing certain hours on Sunday, but there was much divergence of opinion as to the best way of accomplishing the reform. After remarks by various members, the Branch adjourned until September.

W. R. WHITE, Secretary.



PHILADELPHIA.

The regular monthly meeting was held at the Drug Club, on Tuesday evening, May 5. After hearing the reports of the officers and of the various committees, it was decided, upon motion by Mr. W. L. Cliffe, to recommend to the American Pharmaceutical Association that the proposed national headquarters be located in Philadelphia, and the committee was directed to communicate with the proper officials of the parent body, and advise them of the advantages which Philadelphia possesses for the proposed headquarters.

A vote of thanks to the Philadelphia Drug Club for the use of its rooms for meeting purposes during the past year, was proposed and unanimously carried.

The program of the evening consisted of a discussion of the Harrison Bill and other legislative questions of state importance. Professor Charles H. LaWall presented a

paper entitled "Some Pennsylvania State Laws, Other than Pharmacy Laws, Which affect the Retail Druggist."

Secretary R. P. Fischelis presented a brief review of the Harrison Bill and amendments, and read communications from Messrs. Samuel L. Hilton, Martin I. Wilbert, A. Hopkins Stewart and F. H. Freericks, on the same subject.

C. Mahlon Kline spoke at length on the proposed anti-narcotic legislation, telling of the work of the National Drug Trade Conference and of the various state laws which propose to regulate the traffic in narcotic drugs. Mr. Samuel C. Henry gave the views of the N. A. R. D. on this question, and also spoke favorably on the Nelson Amendment now before the Senate.

At the conclusion of the discussion, it was voted that the Philadelphia Branch go on record as approving the purpose of the Harrison Bill, and as favoring the Nelson Amendment. This being the last meeting before the summer recess, adjournment was taken until October.

ROBERT P. FISCHELIS, Secretary.



NEW YORK.

The April meeting of the New York Branch of the American Pharmaceutical Association was held at the College of Pharmacy on the 13th, with Professor Army in the chair, and with Louis Berger acting as Secretary, in the absence of Secretary McCartney.

Treasurer Weinstein reported a balance of \$98.87 in the treasury. Chairman Anderson, of the Legislative Committee, informed the Branch regarding conditions at Albany, reporting the passage of the Walters-Seelye Bill placing the regulation of the hours of labor for drug clerks back under the pharmacy act, and of the Boylan anti-narcotic bill. Dr. Anderson also spoke of the amendment proposed to the Harrison Bill, relative to keeping a record, by physicians, of narcotics dispensed by them, and of the opposition created thereby. The progress of the Stevens price-maintenance bill was reported, as well as an announcement of the approaching meeting in interest of the bill.

Dr. George C. Diekman, Chairman of the Committee on the Progress of Pharmacy, read an interesting report, which discussed for the most part the work of the German Apothecaries Society, notably at the Uni-

versities of Berlin and Goettingen, on the examination and exposure of questionable proprietary medicines. The following items were dealt with:

Salicol—a tablet marketed by Dr. M. Weitemeyer, of Erfurt, said to contain acetosalicylic and citro-salicylic acids, which upon investigation of Von C. Mannich and L. Schwedes, was found to consist of acetosalicylic acid. The claim made that the tablet contained in addition to the above, citro-salicylic acid, was pointed out to be false and misleading.

C. Mannich and G. Leemhuis, in *Apotheker Zeitung*, No. 19, 1914, page 194, report on the examination of codeine tablets, as follows:

The investigation was undertaken in response to the request of the German Apothecaries Society. The tablets were claimed to contain 0.05 gm. of codeine phosphate each, and had been obtained by a physician through agency of a mail-order concern. Upon examination the tablets were found to be uneven in size and thickness. This variation was very material.

In weight these tablets varied between 0.16 and 0.25 gm. For purpose of ascertaining the codeine content, the following procedure was employed. Ten tablets, weighing 2.07 gm., were treated with 10 gm. of diluted solution of sodium hydroxide, until they disintegrated. The mixture was then shaken out with 100 cc. of ether. Forty cc. of the ether containing the basic codeine were allowed to vaporize at low temperature, and the residue (codeine) dried at 100° C. and weighed.

The residue thus obtained was found to weigh 0.1829 gm. for the 10 tablets, which equals 0.01829 gm. for each tablet. As a control, a determination of the phosphoric acid, by the ammonium molybdate method, was carried out. The amount of phosphoric acid found corresponded closely to the amount of codeine found. Calculation shows that each tablet contained 0.015 gm. of codeine phosphate, instead of 0.05 as claimed.

It would therefore seem that the quantity of codeine phosphate was mis-stated, and that each tablet contained only about one-third of the quantity claimed.

M. Pawlewskis' Eye-Water, which was claimed to strengthen weak eyes, cure cataract and glaucoma, heal inflamed eyelids, granulated eyelids, cure scurvy and bleeding of the gums, was found to contain zinc sul-

phate 1.25 percent; sodium chloride 1.32 percent; water q. s., and it was pointed out that extravagant claims had been made for an old and well-known preparation which is being marketed under a new name.

Schumacher's Cell Regenerator, No. 13, was reported in *Apotheker Zeitung*, No. 18, 1914, page 186, by C. Mannich and S. Kroll, as consisting entirely of sugar of milk.

A physiological determination of the value of certain digitalis preparations was made by Von Dr. Anton Lehnert, Bad Duerkheim; and Professor Oswald Loeb, Goettingen:

The authors examined a number of well-known digitalis preparations, with a view to establishing their therapeutic value in a physiological way. They employed the method of Frankel-Gottlieb, comparing the results found, in the examination of the preparations, with the results found upon using an infusion of digitalis, prepared from titrated digitalis leaves obtained from the firm of Caesar & Loretz.

The folia digitalis titrata, of Caesar & Loretz, was found to show a constant therapeutic value when tested from year to year, which the authors state to be as follows: Each 0.1 gm. of the substance is the equivalent of 5 Gottlieb units.

A Gottlieb unit is designated, the smallest quantity of substance required to produce a systolic cessation of heart-action in a frog, weighing from 29-32 grams, with certainty, within 30 minutes.

Digitalis dialysata Golaz: The preparations intended for intravenous injection, showed only from 16 to 40 percent of their claimed value. The preparations intended for internal medication were found to correspond in their declared value.

Digifolin: This preparation is placed on the market, both in solution and tablet form. Its activity conformed closely to the claimed values, and the contents of the packages were found unchanged after 11 months.

The authors claim that their results have been confirmed by other investigators.

An exhaustive report on concentrated ipecac infusions was referred to as having appeared in *Phar. Zentralhalle*, 1914, No. 11, page 249, the authors of which were Von C. Mannich and W. Duehr, and the conclusions reached were as follows:

(1) That a properly prepared infusion of ipecac contains only about three-fourths of the alkaloidal value of the drug employed.

(2) That an infusion prepared with the aid of a concentrated infusion (1:20) formula of Dieterich, contains only two-thirds the quantity of alkaloid, as will be found in a properly and freshly prepared infusion.

(3) That alkalis should under no circumstances be added. This is sometimes done in order to impart a deeper color to the product.

(4) That the concentrated preparations of the market are unreliable, and that they always contain a much lesser quantity of alkaloid than an infusion properly made.

The report was discussed by Messrs. Raubenheimer, Latham and Weinstein.

Dr. Diner called attention to the approaching meeting of the State Medical Society, to be held at the Hotel Astor, and moved that the Branch send delegates. The motion was carried.

Dr. J. L. Mayer then read the paper of the evening, entitled "The Standardization of Volumetric Acid and Alkali Solutions."*

The paper brought out an interesting discussion, participated in by Messrs. Schmidt, Roemer, Raubenheimer, Niece and Arny.

LOUIS BERGER, Acting Sec'y.



SAN FRANCISCO.

Thursday evening, May 12th, the San Francisco Branch of the American Pharmaceutical Association was permanently organized. The following officers were elected: President, Dr. Albert Schneider; First Vice-President, Jennie M. White; Second Vice-President, Arthur Reum; Secretary-Treasurer, Clarissa M. Roehr; Council Member, Dr. A. Schneider.

Communications were received from Mr. J. W. England and Dr. F. E. Stewart. Mr. England, as Secretary of the Council, conveyed the unanimous approval of that body to the organization of the San Francisco Branch. Dr. Stewart congratulated the members and wished the future success of the Branch.

The following program was presented during the evening:

The United States Pharmacopœia:—

"From the Standpoint of the Chemist," by Arthur Reum.

"From the Standpoint of the Pharmacist," by Clarissa M. Roehr.

*This paper appeared in full in the last issue of the JOURNAL.

"From the Standpoint of the Pharmacognosist," by Dr. A. Schneider.

"The Italian Pharmacopœia," by Dr. A. S. Musante.

"The British Pharmacopœia," by Miss M. Low and Mrs. R. E. White.

"The Homeopathic Pharmacopœia," by Mr. Lengfeld.

Discussions on the German Pharmacopœia and on the French Codex were postponed to a later date.

The next meeting will be held on June 9th in the office of the Pacific Pharmacist. The members will discuss a paper on "Some Points for the Pharmacist Regarding the Products Used in Organo-therapy," by Dr. John Zieg.

CLARISSA M. ROEHR, Secretary.



CINCINNATI.

The first annual meeting of the Cincinnati Branch, A. Ph. A., was held at Lloyd's Library, May 12, with Vice-President Prof. Theo. D. Wetterstroem in the chair.

The Treasurer, Mr. F. S. Kobbe, presented his annual report, which was accepted, and a vote of thanks was tendered him for his efficient service.

The Secretary followed with a complete record, covering the work of the first year's life of the Branch. The report was accepted with a recommendation to preserve the original minute book and its insertions.

Mr. Edward Voss, Jr., Chairman of the Committee on Membership, reported for that committee.

Prof. C. T. P. Fennel, Chairman of the Committee on Pharmaceutical Progress, made a report and, being the accredited member of this Branch to the Council of the parent body, he gave information regarding the work accomplished by the Council. A resolution of regret regarding the resignation of Prof. J. H. Beal as General Secretary, was passed, deploring the necessity for the retirement of one who has performed such efficient service in the cause of American Pharmacy.

The annual report of the Legislative Committee was presented by Hon. Frank H. Freericks in a very comprehensive manner, covering the different pending bills of state and national importance, such as the Duffy Anti-Narcotic Bill, the Itinerant Venders' Bill, the Stevens Bill, the Harrison Bill, the Clapp Bill and others. The report was accepted, and it

was voted that it be sent in its entirety to the JOURNAL for publication.

The presiding officer, Prof. Theo. D. Wetterstroem, read the following resolution, passed by the Agricultural Commission of Ohio, April 28, 1914:

"The Agricultural Commission of Ohio interprets the Insecticide and Fungicide Act and the Feed Stuff Act as exempting from their provisions all drugs, chemicals, etc., recognized by the U. S. P., N. F. or other recognized standards; all preparations extemporaneously prepared or compounded for customers for consumption and not for resale; all preparations for which no claims are made for insectidal or fungicidal properties, and all proprietary medicinal preparations and stock foods upon which license-fees have been paid by the manufacturers."

It was decided to incorporate this resolution in the report of the Legislative Committee.

Mr. Chas. G. Merrell made a report for the Committee on Transportation to the A. Ph. A. meeting, and was followed by the Chairman of the Nomination Committee, Mr. Edw. Voss, Jr., who presented the following ticket:

President, E. H. Thiesing; First Vice-President, F. W. Weissmann; Second Vice-President, J. F. Kutchbauch; Treasurer, Julius Greyer; Secretary, Chas. A. Apmeyer; Executive Committee, A. O. Zwick, three years; C. T. P. Fennel, two years; C. G. Merrell, one year.

The report was signed by F. S. Kobbe, Wm. L. B. Brittain and Edw. Voss, Jr., Chairman.

The report being duly accepted, the Secretary was instructed to cast one ballot for the nominees, which being done, the newly elected officers were duly installed by the presiding officer, each pledging his earnest support to the Branch, as well as to the parent body.

CHAS. A. APMEYER, Secretary.

The report of the Legislative Committee is as follows:

REPORT OF THE COMMITTEE ON LEGISLATION OF THE CINCINNATI BRANCH OF THE A. PH. A.

Mr. President and Members:

Your Committee on Legislation begs to report at this annual meeting that during the year there has been no legislation, either state or national, which is of particular con-

cern to pharmacists. There are, however, at this time two bills pending in Congress which are of very special interest, and which will be referred to herein.

The state laws of interest to the various branches of the drug trade which were enacted during the year 1913, and which came to be in force since that time, have been reported on at one of the regular monthly meetings during the year. They included the Agricultural Commission Law, the so-called Duffy Anti-Narcotic Law, an amendment to the Pure Food and Drug Law which declared a drug to be misbranded if labels bear or contain any statement, design or device regarding the curative or therapeutic effect of the article or any of the ingredients or substances contained therein, which is *false and fraudulent*, and finally the Insecticide Law. Since these laws became effective, the Agricultural Commission has taken up the duties which rested heretofore with the Board of Pharmacy and which were transferred to it. There appear to have been many prosecutions on account of the violation of various laws, particularly, however, with reference to the violation of the so-called Duffy Anti-Narcotic Law. While it is too early to express an opinion on the value of this particular work under the direction of the Agricultural Commission, there is but little doubt that the Commission will have many advantages in the proper enforcement of such laws, and consequently conditions should be correspondingly improved. The Duffy Anti-Narcotic Law and its enforcement by the Agricultural Commission has certainly resulted in numerous prosecutions and convictions, and continued determined activity in this respect is bound to be very helpful in the control of the narcotic evil. It, of course, is not possible for your committee to know the merits of the various prosecutions which have been made. In this connection, it is to be regretted that the Agricultural Commission construes the law as being inapplicable to physicians, dentists and veterinarians, at least such is reported to be the case. It is altogether impossible for your committee to understand how the Agricultural Commission would construe this law as not requiring physicians, dentists and veterinarians to write and file prescriptions when they themselves dispense the drugs in question. There seems to be no room for such strained construction under a plain reading of the Narcotic Law,

and in keeping with its terms physicians, dentists and veterinarians should be required to write and file prescriptions when they themselves dispense the drug. We at this time recommend that this matter be brought more directly to the attention of the Agricultural Commission, and that they be advised that this Branch of the American Pharmaceutical Association believes the law to be equally applicable to physicians, dentists and veterinarians who make a practice of dispensing. The Insecticide Law, the many uncalled-for provisions of which were brought to the attention of the Branch during the year, has since been attacked in a suit brought under the direction of the Ohio State Pharmaceutical Association, and particularly because of the earnest effort of Prof. Geo. B. Kauffman, the Chairman of its Council. We report with pleasure and satisfaction that the lower court has sustained the contention of the Ohio State Pharmaceutical Association, and has held the law to be unconstitutional because of discriminating features. Upon just what ground the decision of the lower court has been based, we do not yet know, because a publication of the opinion has not yet been available.

In considering state legislation generally, and its enforcement, it is of special interest to know, that an Itinerant Venders' Law of the State of Louisiana, in which the Supreme Court of said state upheld special license features and regulations to govern the sale of drugs by itinerant venders, has on error to the Supreme Court of the United States, been upheld by it. The decision of the Louisiana court, which was under review by the Supreme Court of the United States in this case, seems to be in direct conflict with a decision rendered on a similar law, by the Illinois Court of Appeals. We find, therefore, that the highest courts of two different states have come to different conclusions with reference to the constitutional limitations which govern state legislatures, and while the Supreme Court of the United States has sustained the conviction as made under the Louisiana law, it must be in mind, that the question before the Supreme Court of the United States was simply to decide whether the Louisiana law infringed upon the constitutional rights of citizens of the United States. Of necessity it had to leave to the state court the question as to whether the constitutional limitations of the state had

been infringed, and as already pointed out in this respect, there was a direct conflict in the decision as reached by the Illinois and Louisiana courts respectively. While some weight is added to the Louisiana decision, because of the affirmation of the Supreme Court of the United States, yet the more important question will still remain for independent decision by the several state courts, and the state courts, generally speaking, outside of the Southern States, would be more inclined to follow the decision of the highest court of Illinois than to follow the highest court of the State of Louisiana.

In proposed national legislation, the Harrison Anti-Narcotic Bill continues to be a center of interest on the part of the various branches of the drug trade, no doubt also on the part of the medical profession. The bill is still pending in the Senate of the United States. Fortunately, the National Drug Trade Conference has seen fit to advocate amendments to the bill as first approved by it, which are in keeping with the needs as pointed out by the Cincinnati Convention of the N. A. R. D. In fact, all of the amendments as they were advocated, have found either total or partial approval by the Drug Trade Conference, including the need for record requirement on the part of dispensing physicians, dentists and veterinarians. However, the proposal of the National Drug Trade Conference, with reference to the record requirement to be made of physicians, etc., who dispense and distribute narcotics, is not sufficiently definite and certain, and will not be particularly helpful to control the illegitimate distribution of narcotics by such persons, unless changed, so as to definitely require a record for each separate distribution, other than the administration of the drug by physicians themselves in cases of emergency. It appears that the need for such further change has been pointed out to various Senators, and we may hope somewhat that the change will still be made before the so-called Harrison Bill finally becomes a law. At any rate, it is now possible to say, that some of the much needed changes will surely be embodied in the law, and also that the discrimination as first made and proposed in favor of dispensing physicians has come very generally to be recognized as being improper and as seriously impairing the effectiveness of the intended law.

Another bill now pending in Congress

which is of particular interest to all of the various Branches of the Drug Trade is the so-called Stevens Price Maintenance Bill. It is the purpose of this bill to allow the manufacturer of trade-marked or proprietary articles to designate the price at which his products shall be sold to the trade and to the consumer. This bill is an outcome of the continued agitation for legalizing price regulation, as first commenced by the National Association of Retail Druggists. The movement and the support for such legislation has now taken on considerable force, and the public generally, as well as its representatives, are being educated on the need for it, and the advocates of price regulation have certainly made wonderful progress, so that it is now within reason to expect that such legislation will be enacted in some form within a reasonable time. The provisions of the Stevens Bill in singling out trade-marked and proprietary articles, are possibly not so complete as they should be, for there seems to be no good reason why the same rights should not be accorded the manufacturer of a patented or copyrighted article, in view of the fact that the courts have held that the owner of patented or copyrighted articles may not dictate the price at which such articles shall be sold by dealers. There is also some question as to the constitutional right of Congress to enact a law which, beyond the contract provisions, is to govern the owner of property which has come to be under the exclusive jurisdiction of the state as distinguished from interstate. In other words, it is a question, whether when property has come to the exclusive ownership of a resident of a given state he can be denied, beyond the terms of an actual contract, by an act of Congress to dispose of such property as he sees fit. The theory of the Stevens Bill in this respect seems to be based on an assumed analogy with the patent and copyright authority of Congress, and such analogy in fact does not exist. Your committee has not found time to devote special study to this feature, and is not prepared at this time to express a definite opinion with reference to it, but believes it well to call attention to the matter for general consideration. Whatever the case may be, the all-important fact is, that the progress for legalizing price regulation during the year has been most wonderful, and that the public and the legislators are becoming thoroughly im-

pressed with the need for some relief in this respect, and when the campaign of education has sufficiently progressed, there is no doubt about finding some legal and constitutional method for properly taking care of the matter.

Respectfully submitted,

WM. C. LAKAMP.

FRANK H. FREERICKS.



CHICAGO.

The Chicago Branch met for the last regular monthly meeting of the season at the University of Illinois School of Pharmacy building, the evening of May 19th, with President J. H. Wells in the chair.

Mr. Wells introduced Mr. L. A. Becker, who lead the discussion of the evening on the topic, "The Preparations of the New U. S. P." Mr. Becker made suggestions as to the improvement or correction of several formulas and tests. He criticised the tests for iron in "Aqua," stating that he found the "heavy metals test," of the present Pharmacopœia, more efficient than the proposed test for metals. He said that the proposed test for iron should not read "immediately" but should have a time limit. Iron 1-100,000 required one minute, to develop a positive reaction, 1-500,000 required $3\frac{1}{2}$ to 5 minutes, solutions of 1-1,000,000 showed the color only in 7 to 10 minutes. He pointed out in connection with "Aqua Destillata Sterilisata" and "Liquor Sodii Chloridi Physiologicus," the necessity for extreme care in sterilization, and recommended, for the latter solution, fractional sterilization, using the autoclave at 115° to 120° for 15 to 20 minutes on three successive days, or boiling for one hour on three successive days. Should the pharmacist become the purveyor of this preparation to the physician, the directions as proposed for sterilization, will lead to many disputes, for where there is infection, from either instruments, dressings, suture materials, or preparations, the physician often seeks to put the blame on any other cause rather than to ascribe bad results to his possibly faulty technique or poor judgment. For the pharmacist's protection against accusations of this nature, the process of sterilization should produce unquestionable results.

Mr. Wm. Gray followed Mr. Becker with the following suggestions:

Liquor Cresolis Comp.: Use Sapo Mollis and Cresol equal parts. Dissolve with heat.

Tinct. Iodi: Use 40 cc. of water to the liter of tincture for insuring solution of the K. I.; *Tinct. Aurantii Dulcis* and *Tinct. Limonis Cortex* Retain the present formula; oil will be lost by grating; *Tinctures in General*: There should be some form of standardized concentrated preparation of the assayed drugs, which could be diluted to make U. S. P. tinctures, for the benefit of pharmacists who cannot afford to make such tinctures with assay process for the same. The present Tincture of Nux Vomica is an example. Otherwise the entire preparation of assayed tinctures is going into the hands of the pharmaceutical manufacturer. The plan proposed would allow considerable saving both in cost of container, menstruum and freight.

A communication was received from Mr. R. E. Rhode, who commented as follows: *Aromatic waters* should be made with magnesia instead of talcum. Recently boiled water may lead to better preparations.

Solution of Magnesium Citrate should be made by the cold process, and with Spirit of Lemon, instead of the oil. The proposed process is altogether too complicated for what is practically an extemporaneous preparation and, furthermore, a volatile oil should not be added to a hot liquid. He recommends the return to the use of the name Tr. Saponis Mollis or Spir. Saponis Mollis instead of Linimentum Saponis Mollis.

In the discussion of Mr. Gray's suggestion of "concentrate" for tincture-making, Professor Clark opposed the idea, believing that a druggist using guaranteed assayed drugs, should be educated to prepare U. S. P. tinctures directly from them.

Professor Day suggested that neighborhood-druggists should club together and engage an expert to make the U. S. P. preparations in larger quantities and of standard quality.

Mr. Storer, in commenting on the preparation of Green Soap and Comp. Solution of Cresol, stated that he prepared the soap in 50-pound quantities, with careful manipulation and with not too close an adherence to the formula, and then allowed it to age for three months. From this soap he prepared the Cresol Solution and allowed it to age some months before use. Both preparations were declared to be very satisfactory.

Secretary Gathercoal read a letter from Mr. Fred Meissner, of LaPorte, Trustee of the Pharmacopœia, who stated that the pros-

pects for the new U. S. P. to be in print early this fall were very good indeed.

The annual convention of the Illinois Pharmaceutical Association at Fox Lake, June 11, 12 and 13th, was announced, and a general invitation to be present was issued.

Arrangements for the Chicago delegation to the convention at Detroit were also discussed.

The meeting adjourned until the third Tuesday in October.

E. N. GATHERCOAL, Secretary.

The Pharmacist and the Law

NEW YORK ANTI-NARCOTIC LEGISLATION.

The bill known as the Boylan bill, for the regulation of sales of chloral, opium, any of the salts, alkaloids or derivatives of opium, hypodermic syringes or needles, has become a law in the State of New York.

The bill prohibits the sale of these drugs and articles except upon the prescription of a physician, veterinarian or dentist, with the exception of preparations containing minimum quantities of such drugs. The law also provides for the keeping of records by the person prescribing any of the drugs mentioned in the bill, and also for the recording, by every dealer, of the name and the address of every person to whom such drugs or articles are sold. It also provides for the commitment to a hospital or institution of persons proven to be habitual drug-users, and for their detention therein until they are deemed to be cured of their morbid desire. It further provides for the revocation of the license of any pharmacist, physician, veterinarian, dentist or registered nurse, who may be addicted to the abuse of any habit-forming drug, or who has been convicted of violation of any of the provisions of the act, but, while in the first instance, it provides for the re-issuance of a license on the reformation of the habits of a habitual drug-user, the revocation of a license after conviction, seems to be intended to be of permanent continuance,

not subject to a revision. The full text of the bill follows:

AN ACT TO AMEND THE PUBLIC HEALTH LAW, IN RELATION TO THE SALE OF HABIT-FORMING DRUGS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:—

Section 1. Chapter 49 of the laws of 1909, entitled "An act in relation to the public health, constituting chapter 45 of the consolidated laws," is hereby amended by adding after article 11 a new article to be article 11a thereof, to read as follows:—

ARTICLE 11a.

Habit-Forming Drugs.

Sec. 245. Sale prohibited; exception. No pharmacist, druggist or other person shall sell, have or offer for sale or give away any chloral, opium or any of its salts, alkaloids or derivatives, or any compound or preparation of any of them except upon the written prescription of a duly licensed physician, veterinarian or dentist, provided that the provisions of this article shall not apply to the sale of domestic and proprietary remedies, actually sold in good faith as medicines and not for the purpose of evading the provisions of this article, and provided further that such remedies and preparations do not contain more than two grains of opium or one-fourth grain of morphine or one-fourth grain of heroin or one grain of codeine or ten grains of chloral or their salts in one fluid ounce, or if a solid preparation, in one avoirdupois ounce, nor to plasters, liniments and ointments for external use only.

Sec. 246. Prescriptions; certificates. It shall be unlawful for any person to sell at retail or give away any of the drugs, their salts, derivatives or preparations mentioned in section 245 of this chapter, except as herein provided without first receiving a written prescription signed by a duly licensed physician, veterinarian or dentist. The prescription must contain substantially the following:—The name in full of the physician, veterinarian or dentist issuing such prescription, his office address, his office hours and telephone, and the name, age and address of the person to whom and date on which such prescription is issued. It shall be unlawful for any duly licensed physician, veterinarian or dentist to issue any such prescription containing any of the drugs, their salts, derivatives or preparations mentioned in section 245 of this chapter except after a physical examination of any person for the treatment of disease, injury or deformity. It shall be unlawful for any person to sell at retail any of the drugs or preparations of any of those mentioned in section 245 of this article without first verifying the authority of any prescription containing more than four grains of morphine, thirty grains of opium, two grains of heroin, six grains of codeine or four drams of chloral. Such veri-

fication can be made by telephone or otherwise. Such prescription so received shall be filled out at the time of receiving the same for the full quantity prescribed and no prescription so received shall be filled out more than ten days after the date which said prescription be dated. Such prescription, from which no copy shall be taken, shall be retained by the person who dispenses the same and shall be filled but once. Such prescription shall be kept on the general prescription file and given a regular consecutive number on such file. On such prescription shall be inscribed the name and address of the purchaser making such purchase and the date upon which said sale is made. Any person who sells at retail, furnishes or dispenses any of the drugs mentioned in section 245 of this chapter upon a written prescription by a duly registered physician or veterinarian or dentist shall at the time of dispensing the same, place upon the package a label or deliver therewith a certificate stating the name and address of the person selling or furnishing the same, the name and the address of the physician, veterinarian or dentist upon whose prescription such sale is made, the date of sale, and the name of the person to whom such sale is made. Any person, other than a manufacturer of any of the drugs mentioned in section 245 or a wholesale dealer in drugs or a licensed pharmacist, licensed druggist, duly registered practicing physician, licensed veterinarian or a licensed dentist, who shall possess any of the drugs mentioned in section 245 or their salts, derivatives or preparations, shall be guilty of a misdemeanor, unless said possession is authorized by the certificate described in this section.

Nothing herein contained shall be construed to prohibit the sale of any of such drugs by any manufacturing pharmacists or chemists, or wholesale or retail pharmacists, or druggists, to other manufacturing pharmacists or chemists, or wholesale or retail pharmacists, or druggists, or to hospitals, colleges, scientific or public institutions, except that such sales shall be made in the manner provided in the next succeeding section.

Sec. 247. Order blanks; filing. The State Commissioner of Health shall prepare and furnish to all Boards of Health or officers official order blanks, serially numbered in duplicate, bound in book form, with carbon or transfer paper between the duplicate pages. The said official order shall be furnished by the local Health Board or officer to any local, duly licensed physician, dentist, pharmacist, druggist or veterinarian, upon which must be written all orders for the purchase of any of the drugs enumerated in section 245 of this chapter for the use of such physician, dentist, pharmacist, druggist or veterinarian. It shall be unlawful for any person to sell, furnish or dispose to any physician, pharmacist, druggist, veterinarian or dentist any of the drugs enumerated in section 245 of this chapter without first receiving from such physician, druggist, veterinarian or dentist an official order blank as provided in this section, which offi-

cial order shall be retained by the person or corporation who sells, furnishes or dispenses any of the drugs enumerated in section 245 of this chapter, and such official order shall be kept in a separate file or book and an entry made or caused to be made on the order stating the date of sale, the name and address of the purchaser and the name of the person making such sale.

Sec. 248. Physicians, etc., to keep records. All physicians, druggists, pharmacists, veterinarians and dentists shall keep on record the name and address of each person to whom such physician, dentist or veterinarian administers or disposes in any way whatsoever any of the drugs enumerated in section 245 of this chapter, and the quantity so administered, disposed of or given away. Such record shall be preserved for five years and shall always be open for inspection by the proper authorities. Any violation of this section is hereby declared to be a misdemeanor.

Sec. 249. Hypodermic syringe; sale of; record; penalty. It is unlawful for any person to sell at retail or to furnish to any person other than a duly licensed physician, dentist or veterinarian, an instrument commonly known as a hypodermic syringe or an instrument commonly known as a hypodermic needle, without the written order of a duly licensed physician or veterinarian. Every person who disposes of or sells at retail, or furnishes or gives away to any person, either of the above instruments, upon the written order of a duly licensed physician or veterinarian, shall, before delivering the same, enter in a book kept for that purpose the date of the sale, the name and address of the purchaser, and a description of the instrument sold, disposed of, furnished or given away. Any person or persons who sell, dispose of or give away an instrument commonly known as a hypodermic syringe, or an instrument commonly known as a hypodermic needle, except in the manner prescribed in this section, shall be guilty of a misdemeanor.

Sec. 249-a. Commitment of habitual drug users; procedure; discharge. The constant use by any person of any habit-forming drug, except under the direction and consent of a duly licensed physician, is hereby declared to be dangerous to the public health. Whenever a complaint shall be made to any magistrate that any person is addicted to the use of any habit-forming drug, without the consent or direction of a duly licensed physician, such magistrate, after due notice and hearing, is satisfied that the complaint is founded and that the person is addicted to the use of a habit-forming drug, shall commit such person to a state, county or city hospital or institution licensed under the State Lunacy Commission. Whenever the chief medical officer of such institution shall certify to any magistrate that any person so committed has been sufficiently treated or give any other reason which is deemed adequate and sufficient, he may discharge the person so committed. Every person committed under the provisions of this section shall observe all the rules and regula-

tions of the institution or hospital. Any such person who wilfully violates the rules and regulations of the institution or repeatedly conducts himself in a disorderly manner may be taken before a magistrate by the order of the chief medical officer of the institution. The chief medical officer may enter a complaint against such person for disorderly conduct and the magistrate, after hearing and upon due evidence of such disorderly conduct, may commit such person for a period of not to exceed six months to any institution to which persons convicted of disorderly conduct or vagrancy may be committed, and such institution shall keep such persons separate and apart from the other inmates, provided that nothing in this section shall be construed to prohibit any person committed to any institution under its provisions from appealing to any court having jurisdiction for a review of the evidence in which this commitment was made.

Sec. 249-b. Revocation of licenses. Any license heretofore issued to any physician, dentist, veterinarian, pharmacist or registered nurse may be revoked by the proper officers or boards having power to issue licenses to any of the foregoing upon proof that the licensee is addicted to the use of any habit-forming drug or drugs after giving such licensee reasonable notice and opportunity to be heard. Whenever it shall appear after one year from date of revocation of such license that such licensee has fully recovered and is no longer an addict to any of the drugs herein prohibited, such board may grant a rehearing and in its discretion reissue the license of such licensee.

Sec. 249-c. Revocation of license after conviction. Whenever any physician, dentist, veterinarian, pharmacist or registered nurse is convicted in a court having jurisdiction of any of the violations of this article, any officer or board having power to issue licenses to any such physician, dentist, veterinarian, pharmacist or registered nurse may, after giving such licensee reasonable notice and opportunity to be heard, revoke the same.

Sec. 249-d. Penalties. Any violation of any of the provisions of this article shall be deemed a misdemeanor. Nothing contained in this article shall be construed to amend or repeal section 1746 of the penal law.

Sec. 2. This act shall take effect July 1, 1914.



FOOD INSPECTION DECISION NO. 153.
AMENDMENT TO REGULATION 9, RELATING TO
GUARANTIES BY WHOLESALERS, JOBBERS, MANUFACTURERS, AND OTHER PARTIES RESIDING IN
THE UNITED STATES TO PROTECT DEALERS FROM
PROSECUTION.

Regulation 9, of the Rules and Regulations for the enforcement of the Food and Drugs Act, June 30, 1906 (34 Stat., 768), is hereby amended, effective May 1, 1915, so as to read as follows:

REGULATION 9. GUARANTY.

(Section 9.)

(a) It having been determined that the legends "Guaranteed under the Food and Drugs Act, June 30, 1906," and "Guaranteed by (name of guarantor), under the Food and Drugs Act, June 30, 1906," borne on the labels or packages of food and drugs, accompanied by serial numbers given by the Secretary of Agriculture, are each misleading and deceptive, in that the public is induced by such legends and serial numbers to believe that the articles to which they relate have been examined and approved by the Government and that the Government guarantees that they comply with the law, the use of either legend, or any similar legend, on labels or packages should be discontinued. Inasmuch as the acceptance by the Secretary of Agriculture for filing of the guaranties of manufacturers and dealers and the giving by him of serial numbers thereto contribute to the deceptive character of legends on labels and packages, no guaranty in any form shall hereafter be filed with and no serial number shall hereafter be given to any guaranty by the Secretary of Agriculture. All guaranties now on file with the Secretary of Agriculture shall be stricken from the files, and the serial numbers assigned to such guaranties shall be canceled.

(b) The use on the label or package of any food or drug of any serial number required to be canceled by paragraph (a) of this regulation is prohibited.

(c) Any wholesaler, manufacturer, jobber, or other party residing in the United States may furnish to any dealer to whom he sells any article of food or drug a guaranty that such article is not adulterated or misbranded within the meaning of the Food and Drugs Act, June 30, 1906, as amended.

(d) Each guaranty to afford protection shall be signed by, and shall contain the name and address of, the wholesaler, manufacturer, jobber, dealer, or other party residing in the United States making the sale of the article or articles covered by it to the dealer, and shall be to the effect that such article or articles are not adulterated or misbranded within the meaning of the Federal Food and Drugs Act.

(e) Each guaranty in respect to any article or articles should be incorporated in or attached to the bill of sale, invoice, bill of lading, or other schedule, giving the names and quantities of the article or articles sold, and should not appear on the labels or packages.

(f) No dealer in food or drug products will be liable to prosecution if he can establish that the articles were sold under a guaranty given in compliance with this regulation.

W. G. McADOO,
Secretary of the Treasury.

D. F. HOUSTON,
Secretary of Agriculture.

WILLIAM C. REDFIELD,
Secretary of Commerce.

Washington, D. C., May 5, 1914.

Council Business

COUNCIL LETTER No. 17.

PHILADELPHIA, PA., April 21, 1914.

To the Members of the Council:

The following letter has been received by the Secretary of the Council from President George M. Beringer:

"I have been giving very earnest thought to Council Letter No. 16 and the communication presented therein from General Secretary and Editor James H. Beal. Since you communicated with me over the telephone the receipt of this letter of Dr. Beal, the matter has weighed very heavily upon me.

There is no question but what Dr. Beal's health must be conserved and that the Association is confronted with the necessity of relieving him at an early date from his position as Secretary and Editor. The necessity is for a most careful canvass of the field and the selection of the proper person or persons for these two offices is one of great importance to the Association. With the enlarged activities of the A. Ph. A. it is going to be exceedingly difficult for any one person to successfully fill both of these positions. It would be difficult to find in one individual all the qualifications that are required. Our previous Secretaries have set a very high mark for this position and the standing of the American Pharmaceutical Association as the exponent of American pharmacy demands that this standard shall be maintained.

Personally, I am strongly averse to the acceptance of the resignation of Dr. Beal as Editor and Secretary in the manner in which it is proposed to be done by Motion No. 28. I would like to see Dr. Beal retained as Secretary and Editor at least until the Detroit meeting. His name should be continued as the Editor and General Secretary until that time, even though his services in the interim be merely nominal. I believe that the Association can very well afford to assume this position. The work done by Dr. Beal as Secretary as well as his other work in behalf of the Association has endeared him to every member and merits at least this small recognition. The Association does not want to be left even temporarily without a Secretary, even though his connection be nominal.

If it is in order, I would move as a substitute for the two motions Nos. 28 and 29:

First—That the resignation of Dr. James H. Beal as Editor and Secretary be accepted with the sincere regret of the Council and with the understanding that such resignation shall not take effect until September 1, 1914.

Secondly—That Dr. James H. Beal be relieved of the active work of the Secretaryship and Editorship of the JOURNAL as far as possible and that he be authorized to make the best arrangements he can with Mr. Ernest C.

Marshall or other person or persons that he may select, to carry on the work of the offices of Secretary and Editor under his direction until September 1st.

This would enable Dr. Beal to make the best arrangements for his personal comfort and with the least interruption of the work of the Association."

The first substitute motion will be known as *Motion No. 30*, and the second as *Motion No. 31*.

Dr. Beal has been communicated with in reference to above, and signifies his willingness to retain the *nominal* title of Editor and General Secretary until September 1st; provided, however, that somebody can be designated as *Acting Secretary and Editor*, to whom business matters addressed to him can be referred.

J. W. ENGLAND,
Secretary of the Council.

415 N. Thirty-third Street.

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COUNCIL LETTER No. 18.

PHILADELPHIA, PA., April 28, 1914.

To the Members of the Council:

Motion No. 27 (Election of Members; Applications Nos. 91 to 123 inclusive), and Motions No. 30 (Accepting Resignation of Dr. James H. Beal as Editor and General Secretary), and No. 31 (Authorizing Dr. James H. Beal to engage a person or persons to carry on the work of the offices of Editor and General Secretary until September 1; substitute motions for Motions No. 28 and No. 29), have each received a majority of affirmative votes.

The following letter has been received by the Secretary of the Council from President George M. Beringer:

"I am sending you herewith a letter received under date of April 20th from the Drug Products Co., Inc. Will you kindly include this communication in an early Council letter?"

The letter referred to is as follows:

"Mr. G. M. Beringer, President, American Pharmaceutical Association, 501 Federal St., Camden, N. J.:

Dear Mr. Beringer—Confirming recent conference with yourself, Mr. F. M. Apple, Mr. J. R. Muir and the writer, in the interest of the public welfare and the retail drug trade, we shall be pleased to co-operate with the efforts of the American Pharmaceutical Association to have the coffin-shaped Bichloride of Mercury Tablet adopted as the official design or shape for this poisonous tablet, and, to encourage and further such a

movement we will be willing to assign our exclusive rights and claims, including application for patent, to the American Pharmaceutical Association.

We also wish to confirm the writer's contention made to you in person, namely, that he regards himself as the inventor and originator of the coffin-shaped Bichloride of Mercury Tablet and can present proof that it was his intention to market such a tablet prior to the existence or incorporation of the Drug Products Co., Inc., to whom the claim has been assigned.

We direct your attention to the date of patent office letter of acknowledgment of our application for patent which is September 2, 1913, No. 787813, and also date of application for similar patent as stated in correspondence to you from The Norwich Pharmacal Company which is given as November 18, 1913, No. 801748! This in itself indicates prior right on our part. It is also a fact that our advertisement of this tablet was the first to appear in any of the papers in this country, and it is a further fact that the tablets we are marketing to-day are precisely as they have been from the beginning, with Poison on one side and skull and crossbones on the other, while the tablets as marketed today by The Norwich Pharmacal Company are not the same with respect to embellishments as marketed by them previously.

The Commissioner of Patents has denied our application for patent on the grounds that it is lacking in patentable novelty, in view of what is shown in design patent 20135, Booth, September 9, 1890—bottles and figures, however, if there is any possibility of amending the present application or in formulating a new joint application for a design patent to be assigned to the American Pharmaceutical Association we will gladly join with Mr. Franklin M. Apple and any others who may have any rights in the matter. We also shall be pleased to encourage and support proper legislation to make the coffin-shaped the sole type for Bichloride of Mercury antiseptic tablets and to restrict this design or shape to that purpose only. As a matter of fact, we have taken considerable interest in this phase of the question and have communicated and corresponded with members of the Legislature in several of the different States.

Thanking you for the courtesy which you have already displayed and awaiting your further valued advice, we remain,

Cordially yours,

THE DRUG PRODUCTS CO., INC.,

H. NOONAN, President.

New York, April 20, 1914."

The following communication has been received from George M. Beringer, Chairman of the Committee on Unofficial Standards, under date of April 25, 1914:

"At the Nashville meeting, the Committee on Unofficial Standards was instructed to forward to the Editor of the JOURNAL the

monographs for standards, when tentatively adopted, for publication in the JOURNAL, and to make a report on same to the Council.

In compliance with this instruction, I will report for the Committee that we have forwarded to Editor Beal monographs on the following subjects:

Agaricus	Amari Corticis
Albumen Ovi Recens	Oleum Aurantii
Asclepias	Florum
Baptisia	Oleum Bergamottæ
Delphinium	Oleum Myrciæ
Dioscorea	Ovum Gallinaceum
Fraxinus	Passiflora
Fructus Rubi	Pumex
Fructus Rubi Idaci	Sambucus
Fructus Solani Carolinensis	Senecio
Gemmæ Populi	Strontii Carbonas
Juglans	Succus Citri
Juniperus	Succus Pomorum
Lac Vaccinium	Trifolium
Menyanthes	Trillium
Oleum Aurantii	Verbena
	Vitellum Ovi Recens."

The following communication has been received:

"Mr. J. W. England, Secretary, Council A. Ph. A., Philadelphia, Pa.:

Dear Sir—At a meeting of members of the American Pharmaceutical Association residing in San Francisco and vicinity the organization of a San Francisco Branch was proposed. It was decided to petition the Council for permission to permanently organize. I am enclosing a petition asking that permission.

The proposed Branch will meet on the second Tuesday of the month. The next meeting has been called for May 12th, 723 Pacific Building, San Francisco. I do not know the exact procedure to become officially recognized, but I hope we may organize permanently on that evening.

Very truly yours,

(Signed) CLARISSA M. ROEHR,
Secretary *pro tempore*.

San Francisco, April 17, 1914."

To the Council of the American Pharmaceutical Association

We, the undersigned, members of the American Pharmaceutical Association, respectfully petition your honorable body to permit the establishment of a local Branch to be known as the San Francisco Branch of the American Pharmaceutical Association:

Val. Schmidt, 1845 Polk St.

S. A. Sharp, 1845 Polk St.

H. L. McDonnell, S. E. Cor. Powell and Geary Sts.

Claude T. Headen, 201 Frederick St.

John H. Dawson, 2489 Howard St.

Stewart McGee, 1635 Julia St.

J. G. Munson, 54 N. 5th St., San Jose.

Edward F. Varney, 1301 Broadway, Oakland.

R. A. Leet, 1301 Broadway, Oakland.

Frank T. Green, 500 Devisadero St.

H. B. Carey, 1294 7th Ave.
 Arthur Reum, 1291 Stanyon St.
 Albert Schneider, 723 Pacific Bldg.
 T. L. Lengfeld, 1350 Sutter St.
 J. M. White, 416 Hayes St.
 A. A. Poehner, 1515 Golden Gate Ave.
 Tony Prior, 282 San Jose Ave.
 James H. Winter, 1375 Valencia St.
 Carl F. Stange, 1400 18th St.
 Westersvon Krakan, 2801 Bryant St.
 J. H. Flint, 2489 Howard St.
 David H. Fletcher, 3993 Washington St.
 Philomena M. N. Goodman, 3163 Mission St.
 J. W. Boyken, 2574 Mission St.
 Henry M. Donahue, 2290 Market St.
 John Zieg, 35 Second St.
 Clarissa M. Roehr, University Hospital.

Motion No. 32 (Organization of San Francisco Branch, A. Ph. A.). Do you approve of the organization of the San Francisco Branch of the American Pharmaceutical Association?

J. W. ENGLAND,
 Secretary of the Council.

415 N. Thirty-third Street.

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COUNCIL LETTER No. 19.

PHILADELPHIA, PA., April 30, 1914.

To the Members of the Council:

The following letter has been received from President George M. Beringer:

"CAMDEN, N. J., April 28, 1914.

To the Council of the American Pharmaceutical Association:

Gentlemen—There has arisen a situation in respect to the Section on Commercial Interests that I believe is without precedent and is not covered by the by-laws.

At the Nashville meeting, Mr. Gus Lindvall was elected Chairman of this Section. On March 26th, Mr. Lindvall wrote to the President that he had sold out his drug business in 1913 and had planned a trip abroad and would not be present at the Detroit meeting. He was of the opinion that his Associates, because of other duties or uncertainty of attending the meeting, were not in a position to assume the chairmanship of the Section and prepare the necessary programs. On April 9th, Mr. Lindvall wrote to your President tendering his resignation.

Immediately on receipt thereof, your President engaged in correspondence with the Secretary of this Section and the Associates elected at the Nashville meeting. There was no time to lose if a satisfactory program was to be arranged for the sessions of the Section at the Detroit meeting as provided for in the program. As the result of our correspondence and at the request of the Associates, Mr. Harry B. Mason has consented to accept the chairmanship of this Section. I am pleased to make this appointment subject, of course, to the approval of the Council.

In the absence of a precedent, I am not sure of the authority of the President to fill such vacancies, but assume that my action in this matter will meet with the approval of the Council.

Mr. Mason's recognized ability and energy and his past work in behalf of the Association bespeak a good program and successful meetings of this Section at Detroit. Mr. Mason's appointment as Chairman of this Section, doubtless, will carry with it his appointment as an ex-officio member of the Council the same as that of other Chairmen of Sections. Yours sincerely,

GEORGE M. BERINGER, President."

Motion No. 33 (Approval of Appointment of Harry B. Mason as Chairman of Committee on Commercial Interests). Do you approve appointment of Harry B. Mason as Chairman of Committee on Commercial Interests?

J. W. ENGLAND,
 Secretary of the Council.

415 N. Thirty-third Street.

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COUNCIL LETTER No. 21.

Philadelphia, Pa., May 22, 1914.

To the Members of the Council:

The following communications have been received from Julius A. Koch:

PITTSBURGH, May 15, 1914.

Prof. Julius A. Koch, Pittsburg College of Pharmacy, Pittsburg, Pa.:

DEAR SIR—We have duly received your letter of May 9th and in accordance therewith and in keeping with our previous letter, we enclose herewith a formal assignment of a patent on Antiseptic Leaves to the American Pharmaceutical Association.

This assignment is made absolute as in the case of the coffin-shaped tablet. We understand that it will only be effective so far as the Association is concerned provided this form is made official.

We would also like to suggest that so far as it may be practical, the Association use its efforts to secure a price maintenance plan on the sale of this article for the benefit of the pharmacists of the country, for were we to continue in the exclusive manufacture, we would endeavor to protect the retail druggist so far as the legal limitations would permit.

We are glad to place this article in the hands of the Association and hope that our action may be of value to the pharmaceutical world at large. Very truly yours,

THE WM. S. MERRELL CHEMICAL CO.,
 CHARLES F. MERRELL.

"ASSIGNMENT."

WHEREAS, Charles G. Merrell and R. W. Proctor, both citizens of the United States, residing at Cincinnati, in the County of Hamilton and State of Ohio, have invented a new,

original, and useful improvement in packages for Antiseptic Poisons, for which they made application for letters patent, which was filed in the United States Patent Office upon February 7, 1914, and serially numbered 817,364; and

WHEREAS, The Wm. S. Merrell Chemical Company, Inc., duly incorporated under the laws of the State of Ohio, and doing business at Cincinnati, in the County of Hamilton and State of Ohio, has acquired the entire interest in said invention and in and to the letters patent of the United States to be obtained therefor; and

WHEREAS, The American Pharmaceutical Association, Inc., duly incorporated under the laws of the State of* _____, and doing business at _____, in the County of _____, and State of _____, is desirous of acquiring an interest in said invention and in and to the letters patent of the United States to be obtained therefor. Now, therefore,

Be it known that for and in consideration of the sum of one dollar, to us in hand paid, the receipt of which is hereby acknowledged, and other valuable consideration, the said The Wm. S. Merrell Chemical Company, have sold, assigned and set over, and do by these presents hereby sell, assign and set over unto the said American Pharmaceutical Association, Inc., its successors and assigns, the entire right, title and interest in and to the said design and in and to the letters patent of the United States which may be granted therefor; and we do hereby authorize and request the Commissioner of Patents to issue the said letters patent to the said American Pharmaceutical Association, Inc., in accordance with this assignment.

In testimony whereof, we have hereunto set our hand and affixed our seal this _____ day of _____, 1914.

(Signed) GEORGE MERRELL,
President.

Witnesses: Charles H. Busch.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER No. 22.

Philadelphia, May 22, 1914.

To the Members of the Council:

The following program for the sixty-second annual meeting of the American Pharmaceutical Association, to be held at Detroit, Mich., August 24-29, 1914, is submitted:

Program for the Sixty-second Annual Meeting.

Monday.

- 9:00 a. m. Meeting of the Council.
- 3:00 p. m. House of Delegates.

*The American Pharmaceutical Association was incorporated at Washington, D. C., February 21, 1888.

- 7:30 p. m. First General Session.
Meeting of the Committee on Nomination.
- 9:30 p. m. Joint Reception of the Presidents of the A. Ph. A. and M. S. P. A.

Tuesday.

- 9:30 a. m. Second General Session.
- 9:30 a. m. First General Session M. S. P. A.
- 10:00 a. m. National Association of Boards of Pharmacy.
- 10:00 a. m. Ladies' Shopping and Visiting, etc.
- 2:00 p. m. National Association of Boards of Pharmacy.
- 2:30 p. m. Women's Section.
Scientific Section.
Joint Session of Commercial Section and M. S. P. A.
- 7:30 p. m. House of Delegates.
- 7:30 p. m. Meeting of the Council.
- 8:30 p. m. Conference of Pharmaceutical Faculties.

Wednesday.

- 9:30 a. m. Section on Education and Legislation.
- 9:30 a. m. Pharmacopœias and Formularies.
- 10:00 a. m. National Association of Boards of Pharmacy.
- 12:30 p. m. Luncheon of College Alumni.
- 2:00 p. m. National Association of Boards of Pharmacy.
- 2:30 p. m. Section of Practical Pharmacy and Dispensing.
- 2:30 p. m. Scientific Section.
- 7:30 p. m. Meeting of the Council.
- 7:30 p. m. Ladies' Reception.

Thursday.

- 9:30 a. m. Section on Education and Legislation.
Scientific Section.
Joint Session of Practical Pharmacy and M. S. P. A.
- 10:00 a. m. National Association of Boards of Pharmacy.
- 1:30 p. m. Excursion.

Friday.

- 9:30 a. m. Historical Pharmacy.
Section on Pharmacopœias and Formularies.
Women's Section.
Commercial Section.
- 2:30 p. m. Automobile Ride.

- 7:30 p. m. Re-organization Meeting of the Council.
- 8:00 p. m. House of Delegates.
- 8:00 p. m. Ladies' Reception.
- 8:30 p. m. Joint Session of the Section on Education and Legislation, the A. C. P. F., and the N. A. B. P.

Saturday.

- 9:00 a. m. Meeting of the Council.
- 10:30 a. m. Final General Session.

Do you approve the above program? This will be regarded as *Motion No. 35 (Approval of Program for 1914 Annual Meeting.)*

J. W. ENGLAND,
Secretary of the Council.

UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the Seven Days Ended April 22, 1914.

Rucker, W. C., Assistant Surgeon-General. Directed to proceed to Sandy Springs, Md., April 21, 1914, and to Rockville, Md., May 5, 1914, for the purpose of delivering lectures on "Rural Sanitation." April 17, 1914.

Carter, H. R., Senior Surgeon. Detailed to represent the Service at a meeting of the Section for the Eradication of Malaria of the Drainage Congress, to be held at Savannah, Ga., April 22, 1914. April 20, 1914.

Brooks, S. D., Senior Surgeon. Granted 6 days' leave of absence from April 18, 1914. April 17, 1914.

Williams, L. L., Surgeon. Directed to instruct an officer under his charge to proceed to East Hampton, N. Y., not later than April 19, 1914, for special temporary duty. April 18, 1914.

Cobb, J. O., Surgeon. Detailed to attend the meeting of the American Nurses' Association, to be held in St. Louis, Mo., April 23, 1914, and present a paper on "The Potential Influence of the Nurse in the Health of the Nation." April 14, 1914.

Guiteras, G. M., Surgeon. Directed to proceed to Havana, Cuba, for period not to exceed one week, to study plague situation and measures in force for its eradication. April 18, 1914.

Perry, J. C., Surgeon. Granted 46 days' leave of absence, with pay, from April 14, 1914, and 12 months' leave of absence, without pay, from May 30, 1914, with permission to go beyond the seas. April 15, 1914.

Nydegger, J. A., Surgeon. Directed to proceed to the Immigration Station, Ellis Island,

N. Y., when most convenient, and remain for a few days, for the purpose of witnessing the various tests there used for the determination of mental development. April 18, 1914.

Gardner, C. H., Surgeon. Granted two days' leave of absence from April 17, 1914, under paragraph 193, Service Regulations. April 17, 1914.

Lavinder, C. H., Surgeon. Relieved from duty in charge of the Marine Hospital at Savannah, Ga., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. April 6, 1914.

von Ezdorf, R. H., Surgeon. Directed to extend the work of investigations and studies of malaria so as to include the states of Kentucky, North Carolina, Oklahoma, Tennessee, and Texas. April 15, 1914.

Corput, G. M., Surgeon. Detailed at the request of the President of the State Board of Health of Louisiana, to attend the meetings of the Louisiana State Health Officers, the Louisiana State Medical Association, and the Conference for the Betterment of Health Among Negroes, to be held in New Orleans, La., April 20-25, 1914. April 18, 1914.

Ramus, Carl, Surgeon. Granted 12 days' leave of absence, on account of sickness, from April 10, 1914. April 18, 1914.

Schereschewsky, J. W., Surgeon. Directed, after having completed the necessary steps preliminary to the investigation into the sanitary condition of the garment workers' trade and the physical status of the employes engaged therein in New York, N. Y., to return to Washington, D. C., for preliminary work in regard to methods for the determination of the presence of noxious gases in the air, and in connection with hygienic conditions of illumination. April 15, 1914.

Glover, M. W., Surgeon. Granted 16 days' leave of absence, on account of sickness, from March 23, 1914. April 18, 1914.

Pierce, C. C., Surgeon. Directed to proceed to Gaithersburg, Md., April 17, 1914, and to Brookville, Md., May 12, 1914, for the purpose of delivering lectures on "Rural Sanitation." April 17, 1914.

de Valin, Hugh, Passed Assistant Surgeon. Directed to proceed to Laytonville, Md., May 8, 1914, and to Silver Springs, Md., May 15, 1914, for the purpose of delivering lectures on "Rural Sanitation." April 17, 1914.

Preble, Paul, Passed Assistant Surgeon. Directed, upon receipt of instructions from the officer in charge of the investigation of the pollution of the Ohio River, to proceed to Cincinnati, Ohio, to familiarize himself with the organization, scope, and plans of the investigation. April 14, 1914.

Thometz, H. M., Assistant Surgeon. Granted one day's leave of absence *en route* to Seattle, Wash. April 15, 1914.

Galloway, T. C., Assistant Surgeon. Directed to report to commanding officer of the revenue cutter "Unalga" at San Francisco,

Cal., for duty on summer cruise in Alaskan waters. April 1, 1914.

Porter, J. Y., Quarantine Inspector. Directed to proceed to Havana, for conference with Cuban authorities relative to plague infection at that port. April 20, 1914.

Willetts, David C., Technical Assistant. Directed to proceed via Washington, D. C., to Milledgeville, Ga., for duty in field investigations of the public health. April 20, 1914.

La Grange, J. V., Pharmacist. Granted one day's leave of absence, April 16, 1914. April 15, 1914.

CASUALTY.

Acting Assistant Surgeon B. F. Duke died at Pascagoula, Miss., April 7, 1914.

BOARDS CONVENED.

Boards of medical officers convened to meet Monday, April 27, 1914, at 10 o'clock a. m., for the physical examination and the presentation of questions for the mental examination of candidates for appointment as Assistant Surgeons in the Public Health service, as follows:

Marine Hospital, Stapleton, N. Y.

Detail for the board:

Senior Surgeon G. W. Stoner, chairman.

Assistant Surgeon C. P. Knight, recorder.

Marine Hospital, San Francisco, Cal.

Detail for the board:

Surgeon R. M. Woodward, chairman.

Surgeon J. M. Holt, recorder.

Marine Hospital, Chicago, Ill.

Detail for the board:

Surgeon J. O. Cobb, chairman.

Assistant Surgeon Jos. Bolten, recorder.

Marine Hospital, Chelsea, Mass.

Detail for the board:

Surgeon H. W. Wickes, chairman.

Passed Assistant Surgeon G. L. Collins, recorder.

Marine Hospital, St. Louis, Mo.

Detail for the board:

Surgeon M. J. White, chairman.

Acting Assistant Surgeon H. C. Wakefield, recorder.

Marine Hospital, New Orleans, La.

Detail for the board:

Assistant Surgeon T. J. Liddell, chairman.

Assistant Surgeon C. V. Akin, recorder. April 18, 1914.

Board convened for re-examination of alien Jacob Weguschin, landed from steamship "Main," to meet at Baltimore, Md., on call of the chairman.

Detail for the Board:

Senior Surgeon H. R. Carter, chairman.

Surgeon J. A. Neydegger, member.

Assistant Surgeon C. E. Waller, recorder. April 15, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the Seven Days Ended April 29, 1914.

Rucker, W. C., Assistant Surgeon-General. Directed to proceed to Baltimore, Md., for the purpose of delivering an address before the Merchants' and Manufacturers' Association on the subject of typhoid fever, April 28, 1914, at 8 o'clock p. m. April 27, 1914.

Banks, C. E., Senior Surgeon. Directed to proceed to Manitowoc, Wis., for the purpose of making an investigation of the water system of the steamer "Iowa" and advising with officials of the Goodrich Line. April 24, 1914.

Guiteras, G. M., Surgeon. Upon the request of the Secretary of the Navy, approved by the President, April 21, 1914, directed to proceed to Vera Cruz, Mexico, and report to the commander-in-chief of the fleet for such duty as he may assign. April 24, 1914.

Detailed as medical officer of the port of Vera Cruz, Mexico. April 28, 1914.

Wickes, H. W., Surgeon. Authorized, when occasion arises, to direct one of the officers engaged in immigration work at Boston, Mass., together with a clerk, if necessary, to proceed to New Bedford, Mass., to assist in the examination of arriving immigrants. April 24, 1914.

von Ezdorf, R. H., Surgeon. Upon the request of the Secretary of the Navy, approved by the President, April 21, 1914, directed to proceed to Vera Cruz, Mexico, and report to the commander-in-chief of the fleet for such duty as he may assign. April 24, 1914.

Fox, Carroll, Surgeon. Granted one day's leave of absence, April 14, 1914. April 18, 1914.

Goldberger, Jos., Surgeon. Directed to inspect such insane asylums and other institutions and localities in Georgia, Alabama, Florida, Kentucky and other southern states as may be necessary to inaugurate studies of institutional prevalence of pellagra and its cause. April 22, 1914.

Gwyn, M. K., Surgeon. Granted two days' leave of absence on account of sickness, April 9-10, 1914. April 24, 1914.

Schereschewsky, J. W., Surgeon. Granted 10 days' leave of absence from April 17, 1914. April 28, 1914.

Pierce, C. C., Surgeon. Directed to proceed to Germantown, Md., April 24, 1914, for the purpose of delivering a lecture on "Rural Sanitation." April 24, 1914.

Warren, B. S., Surgeon. Granted 5 days' leave of absence returning to station from New Orleans, La. April 22, 1914.

Smith, F. C., Passed Assistant Surgeon. Detailed to represent the Service at the meeting of the National Association for the Prevention and Study of Tuberculosis, to be held in Washington, D. C., May 7-9, 1914. April 27, 1914.

Simpson, Fiench, Passed Assistant Surgeon. Granted 5 days' leave of absence from April 13, 1914. April 24, 1914.

Krulish, E., Passed Assistant Surgeon. Granted 24 days' leave of absence *en route* to Juneau, Alaska. April 21, 1914.

Jones, W. M., Assistant Surgeon. Directed to report to the commanding officer of the revenue cutter "McCulloch" at San Francisco, Cal., May 1, 1914, for duty in the summer cruise in Alaskan waters. April 17, 1914.

Waring, C. H., Acting Assistant Surgeon. Directed to proceed to Milledgeville, Ga., for duty in connection with epidemiological studies of pellagra under the direction of Surgeon Joseph Goldberger. April 22, 1914.

Taylor, H. A., Technical Assistant. Directed, upon receipt of instructions from Surgeon R. H. von Ezzdorf, in charge of malaria investigations, to proceed from time to time to such places in the Southern States as he may designate for the purpose of making malaria surveys, collecting specimens, etc. April 23, 1914.

Willets, David G., Technical Assistant. Directed to proceed to Milledgeville, Ga., via Washington, D. C., for duty in connection with field investigations of pellagra. April 24, 1914.

Holt, E. M., Pharmacist. Directed to proceed to Fontainebleau, Miss., to superintend shipment of serviceable property to the New Orleans Quarantine Station, then to proceed to New Orleans Quarantine Station for temporary duty. April 27, 1914.

Smith, L. C., Pharmacist. Directed to accompany Passed Assistant Surgeon R. A. Herring to the Savannah Quarantine Station for the purpose of selecting such articles of furniture, shipped from Blackbeard Island, as will be useful in the special hospital to be established in Spartanburg, S. C. April 21, 1914.

BOARDS CONVENED.

Board of medical officers convened to meet at Portland, Me., for the re-examination of an alien certified for trachoma.

Detail for the Board:

Surgeon W. P. McIntosh, chairman.

Surgeon H. S. Mathewson, member.

Acting Assistant Surgeon A. F. Stuart, recorder. April 25, 1914.

Board of medical officers convened to meet at Buffalo, N. Y., for the re-examination of two aliens certified for trachoma.

Detail for the Board:

Surgeon C. H. Gardner, chairman.

Acting Assistant Surgeon W. L. Savage, member.

Acting Assistant Surgeon W. K. O'Callaghan, recorder. April 22, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the Seven Days Ended May 6, 1914.

Carter, H. R., Senior Surgeon. Directed to proceed to the Bureau, Washington, D. C., April 28, 1914, for conference relative to quarantine matters. April 29, 1914.

Directed to proceed to Mobile, Ala., and such other places in the Southern States as may be necessary, to assume charge and direct malarial investigations. April 30, 1914.

Carmichael, D. A., Senior Surgeon. Granted 14 days' leave of absence from May 27, 1914. May 2, 1914.

Brooks, S. D., Senior Surgeon. Leave of absence for 6 days from April 18, 1914, amended to read "6 days' leave of absence from April 20, 1914." May 1, 1914.

Sprague, E. K., Surgeon. Detailed to attend the meeting of the American Association for Promoting Hygiene and Public Baths at Newark, N. J., May 13, 1914. May 2, 1914.

Granted 6 days' leave of absence from April 21, 1914, on account of sickness. May 2, 1914.

Schereschewsky, J. W., Surgeon. Detailed to represent the Service at the annual meeting of the National Association for the Study and Prevention of Tuberculosis, to be held at Washington, D. C., May 7-9, 1914. May 5, 1914.

Gwyn, M. K., Surgeon. Granted one month's leave of absence from April 14, 1914, on account of sickness. May 2, 1914.

Spratt, R. D., Passed Assistant Surgeon. Directed to proceed to Rochester, Pa., for the re-examination of an alien to observe results of a grattage operation. April 30, 1914.

Mullan, E. H., Passed Assistant Surgeon. Re-assigned to duty at the Immigration Station, Ellis Island, N. Y., effective May 20, 1914, in accordance with paragraph 168, Service Regulations. May 5, 1914.

Olesen, Robert, Passed Assistant Surgeon. Granted 7 days' leave of absence from April 26, 1914, on account of sickness. May 2, 1914.

Leake, J. P., Passed Assistant Surgeon. Directed to proceed via Eccles, W. Va., in company with the Director of the Bureau of Mines to investigate mine explosion at that place. On completion of this duty directed to proceed to Bowling Green and other places in Kentucky for investigations of smallpox. April 29, 1914.

Bailey, C. A., Acting Assistant Surgeon. Directed to proceed via Washington, D. C., to Quebec, Canada, for duty in the medical examination of immigrants. April 29, 1914.

Schug, F. J., Acting Assistant Surgeon. Directed to proceed to Seattle, Washington, for instruction by Surgeon B. J. Lloyd in the diagnosis of trachoma. April 30, 1914.

Roehrig, A. M., Pharmacist, re-assigned to duty at the Marine Hospital, Buffalo, N. Y., effective March 24, 1914, under paragraph 168, Service Regulations. May 5, 1914.

Scott, E. B., Pharmacist. Granted 1 day's leave of absence, May 5, 1914. May 2, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the Seven Days Ended May 13, 1914.

Assistant Surgeon General J. W. Trask. Detailed to attend the meeting of the National Conference of Charities and Corrections to be held in Memphis, Tenn., May 15, 1914, for the purpose of presenting a paper before the Public Health Section of the conference.

Also to stop *en route* at Bellbuckle, Tenn., for the purpose of delivering a public health address at the Training School for Boys in that town. May 8, 1914.

Senior Surgeon C. E. Banks. Granted 5 days' leave of absence, from May 15, 1914. May 6, 1914.

Surgeon W. J. Pettus. Granted 2 months' leave of absence, with pay, from May 21, 1914, and 3 months' leave of absence without pay, from July 21, 1914, with permission to go beyond the sea. May 11, 1914.

Surgeon C. P. Wertenbaker. Granted 1 month's leave of absence, on account of sickness, from May 10, 1914. May 9, 1914.

Surgeon M. H. Foster. Directed to proceed to Saratoga Springs, N. Y., to make a re-examination of an alien for the purpose of ascertaining the result of the grattage operation. May 11, 1914.

Surgeon C. W. Vogel. Granted 1 day's leave of absence, April 22, 1914, and 14 days' additional leave of absence, from April 29, 1914, on account of sickness. May 12, 1914.

Passed Assistant Surgeons A. M. Stimson, W. C. Rucker, Richard H. Creel, R. E. Ebersole, and J. W. Trask. Directed to report to the chairman of a board of commissioned medical officers at the Bureau, June 11, 1914, for examination to determine their fitness for promotion to the grade of Surgeon. May 11, 1914.

Passed Assistant Surgeon R. D. Spratt. Granted 4 days' leave of absence from May 16, 1914. May 6, 1914.

Passed Assistant Surgeon J. P. Leake. On request of the State Board of Health of Kentucky, directed to proceed to Bowling Green, Ky., and such other points in that State as may be necessary to make an investigation of smallpox and the relation of vaccine to its prevention. April 28, 1914.

Assistant Surgeons R. A. Kearny, W. F. Draper, and J. M. Gillespie. Directed to re-

port to the Chairman of a board of commissioned medical officers at the Bureau, June 8, 1914, for examination to determine their fitness for promotion to the grade of Passed Assistant Surgeon. May 11, 1914.

Assistant Surgeon R. C. Derivaux. Directed to proceed to such points in the Southern States as the officer in charge of the malaria investigations may indicate for the purpose of making malaria surveys, collecting specimens, etc., May 8, 1914.

Assistant Surgeon J. S. Ruoff. Relieved from duty at the Marine Hospital, Stapleton, N. Y., and directed to proceed to the Sanatorium, Fort Stanton, N. M., and report to the medical officer in charge for duty and assignment to quarters. May 7, 1914.

Acting Assistant Surgeon R. E. Wynne. Directed to proceed to Martinsburg, W. Va., for duty in field investigations of the public health. May 9, 1914.

Technical Assistant H. A. Taylor. Directed to proceed to such points in the Southern States as the officer in charge of the malaria investigation may indicate for the purpose of making malaria surveys, collecting specimens, etc. May 9, 1914.

PROMOTION.

Assistant Surgeon Carlisle P. Knight promoted and commissioned as Passed Assistant Surgeon, effective March 25, 1914. April 29, 1914.

BOARDS CONVENED.

Board of commissioned medical officers convened to meet at the Bureau June 8, 1914, for the purpose of examining certain Assistant Surgeons to determine their fitness for promotion to the grade of Passed Assistant Surgeon.

Also to convene at the Bureau, June 11, 1914, for the purpose of examining certain Passed Assistant Surgeons to determine their fitness for promotion to the grade of Surgeon.

Detail for the Board:

Assistant Surgeon-General W. G. Stimpson, Chairman.

Senior Surgeon H. W. Austin, Member.

Surgeon H. S. Cumming, Recorder. May 11, 1914.

Detail for board of commissioned medical officers convened for preparation of a new "Nomenclature of Diseases," amended, as follows:

Assistant Surgeon-General W. C. Rucker, Chairman.

Assistant Surgeon-General J. W. Trask, Member.

Passed Assistant Surgeon Hugh de Valin, Recorder. May 11, 1914.

Board of medical officers convened to meet

at Detroit, Mich., for the re-examination of a detained alien.

Detail for the Board:

Senior Surgeon H. W. Austin, Chairman.
Assistant Surgeon J. H. Linson, Member.
Acting Assistant Surgeon K. L. Weber,
Recorder. May 11, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.



BROWN, C. L.,
From Letterman Gen. Hosp., San Francisco, Cal.
To Attending Surgeon's Office, Soldiers' Home, Washington, D. C.

BERNARD, P. A.,
From 258 W. 74th St., New York, N. Y.
To G. P. O. Box 45, or 662 West End Ave., N. Y., N. Y.

BEHRE, JOHN R., Serg. 1st Cl.,
From Division Hospital, Manila, P. I.
To Department Hospital, Manila, P. I.

COUSSANS, BETTIE PRINCE,
From 5125 Morgan St., St. Louis, Mo.
To Sherman Hospital, Sherman, Texas.

DIETZ, H. W.,
From Augur Barracks, Jolo, P. I.
To Field Hosp. No. 4, Ft. Wm. McKinley, Rizal, P. I.

DAHL, FRED,
From 148 Parker St., Newark, N. J.
To 52 Shepard Ave., East Orange, N. J.

FEIN, MARY AUGUSTINE,
From 1114 Thayer Ave., Little Rock, Ark.
To Little Rock, Ark.

GEDDES, MRS. L. M.,
From 393 Cambridge St., Allston, Boston, Mass.
To 1377a Commonwealth Ave., Allston, Boston, Mass.

GENOCHIO, EDW. P.,
From care Medical College, Ft. Worth, Tex.
To 1709 Jackson Blvd., Apt. K, Chicago, Ill.

HOEY, CHAS. E.,
From 11 Frederick St., S. Framingham, Mass.
To 459 Dudley St., Roxbury, Mass.

HOLT, FRANK,
From Post Hosp., Torrey Barracks, P. I.
To Camp John Hay, P. I.

LEE, J. V.,
From 829 Davis St., Evanston, Ill.
To N. E. cor. Main St. and Chicago Ave. Evanston, Ill.

MALLARD, A. E.,
From 32 Adams Ave., N., Detroit, Mich.
To 287 Woodward Ave., Detroit, Mich.

OSBORNE, WM., JR.,
From Danforth, Mo.
To Presque Isle, Me., P. O. Box 304.

PARKER, G. R.,
From 227 Plainfield St., Providence, R. I.
To 22 Pocasset Ave., Providence, R. I.

PAUL, GEO.,
From Ft. Mills, Corregidor, P. I.
To 226 Superior St., Salem, Ore.

PIERSON, ROMAINE,
From 108 Fulton St., New York, N. Y.
To 81-83 Fulton St., New York, N. Y.

WALL, O. A.,
From 4332 Virginia Ave., St. Louis, Mo.
To 4106 W. Pine St., St. Louis, Mo.

WHITNEY, DAVID,
From 4342 Campbell St., Kansas City, Mo.
To 714 Wyandotte St., Kansas City, Mo.

THE OLD AND THE NEW.

Because something recently introduced may prove highly useful, we must not jump to the conclusion that it should supersede everything long similarly used with great success. Though the trend of modern progress is ever forward, we are often forced to realize that some of our best recent achievements do not equal some of the triumphs of an earlier period. Notably is that true in the field of art, though illustrations are not lacking elsewhere. The ablest sculptors of our day have not equaled the sublime creations of their illustrious colleagues among the ancient Greeks and the Italians of the sixteenth century. No painter of our time has given us anything quite comparable with the masterpieces of Raphael and Correggio, of Titian and Rembrandt, Jacob Ruysdael, Holbein, Velasquez, and many others. Though the modern piano has utterly eclipsed the old-time spinet and harpsichord, and though, in technique and tone, the world has not seen the equal of such men as Liszt and Rubenstein, Paderewski and Mark Hamburg, no living composer has written anything which classes with the great works of Beethoven, of Mozart, Schumann and Chopin, while in the field of the musical drama the world is still waiting for the worthy successor of Wagner; and while the piano and its great exponents have scored such signal triumphs, no contemporary violin maker has equaled a Stradivarius or an Amati, and no wizard of the bow, now before the public, will claim to be the rival of Paganini. The modern express train and the giant ocean liner are immeasurably ahead of the stage coach of our ancestors and the galley of the ancients. The high powered automobile has utterly outstripped the horse, and can easily distance the stoutest thoroughbred, yet there are no indications that the noble animal will be permitted to become extinct or to revert to the type of his diminutive prehistoric ancestor; and though by reason of certain very narrow and ill-advised legislation, notably in our Empire State, the thoroughbred has suffered a sad diminution in value, in England and some other countries where broader and more enlightened ideas and cleaner politics have prevailed he is held in universal admiration, and the sport of kings still flourishes as of yore.

The foregoing random illustrations should remind us that, while we do well to remain alert and watchful for substantial improvements, we should hold on with a firm and unrelaxing grasp to everything which long experience has proved to be good.—*R. Ottolengui, M. D. S., LL. D., D. D. S., in Lehn & Fink's Dentist's Diary.*

THE ADVANTAGE OF DISCOUNTING BILLS.

It is the part of good business policy to make every effort to discount bills. Money can be used in no better way. From 2 to 10 percent is offered on ten-day discounts on drug, merchandise, cigar, gas and other bills. This is well worth picking up. It is almost like finding money. Almost anything else may be properly neglected to conserve the money for discounting bills. Aside from the money saved, it gives you a standing with the wholesalers and jobbers that nothing else will. Such standing is a valuable asset in the business world, and one that every business man should strive to gain. It means larger opportunities and will be a strong help in times of financial trouble.—*W. S. Adkins in The National Druggist.*

INDEPENDENCE NUMBER

Let our object be, our country, our whole country, and nothing but our country.

—Webster.



Volume III

JULY, 1914

No. 7

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HARMONY.

IN every co-operative undertaking, whether it be great or whether it be small, the most essential thing to its success is Harmony; the co-operation of all its forces in harmonious relation one with the other. And *per contra* the influence which is most disastrous and which most effectually results in non-success, in any undertaking, from that of the marriage-relation to that of the greatest co-operative undertakings, is dissonance, or lack of Harmony.

Those who are placed at the forefront of any undertaking, especially those to whom are entrusted the vital interests of any great body of men, cannot too deeply allow this thought to sink well into their minds, and to highly resolve that, so far as in them lies, they will endeavor to agree with their fellows and to subordinate all other desires, all other interests, to the central idea of Service to those who have honored them with their trust and confidence. *Noblesse oblige* should be their constant thought; that the high rank to which they have been elevated entails upon them the obligation to subordinate selfish and narrow interest to the good of those who have trusted them; who have deemed them wise and able to lead them out of the wilderness, into the smooth and peaceful plains of prosperity and peace.

It is somewhat regrettable that in the Symposium on the Harrison Bill, which appeared in the June issue of the JOURNAL, a note of dissonance should be apparent, and that a lack of concord among the members of the Drug Trades Conference should seemingly be noted.

The American Pharmaceutical Association, in formulating the plan for this conference, was actuated by the one high and noble purpose;—that of Service to the Drug Trade of the country, by opposing a bulwark of defense against the absurd and freakish legislation proposed, most of which, through ignorance of

conditions on the part of those proposing it, threatened to harass and annoy the honest and well-meaning members of the profession, while accomplishing but little of good result to the people.

There was no selfish thought in that effort. It was simply a wise attempt to unite all interests for mutual protection, and its wisdom has been proven by the results already achieved. Is it not possible for the members of this conference to place the greater interests of our profession above that of everything else, and to make that the bed-rock, the sole motive of all their acts? Or is it impossible for some men to forget their own selfish interests for a time and to act in a large and liberal way; in a way comprehensive of the general good?

Some one has written, "In essentials, Unity; in non-essentials, Harmony; in all things, Charity." Let this be the rule for the conduct of the business of the Conference, and the results achieved by it will be enhanced a thousand-fold. If we might be allowed to drop into slang, as Silas Wegg dropped into poetry, we might advise the members of the Conference to "Get together," and, forgetful of self, think only that the well-being and the destiny of a noble profession is in their keeping, and that its dignity and its welfare is in their care. "'Tis nae feesh yere buyin, it be men's lives," as the old fish-wife told the chaffering Laird, and it is not the interest of self or of the moment, that should guide the action of the members of the Drug Trade Conference, but the weighty thought that upon their wise action depends the welfare, the happiness, the destiny of the thousands of druggists, and of their wives and children, of this broad land.

The responsibility rests upon the members of that Conference to see that these interests are conserved and fostered, and it is greatly to be hoped that they will rise above all slighter considerations, and use their magnificent opportunity in a manner that will not only redound to their credit and honor, but also for the general welfare of the whole profession, which needs brave, strong, unselfish leadership, to guide its members in these troubled days.



A FEW NOTES OF INTEREST ABOUT THE CONVENTION CITY.

Detroit was an outpost of the *Coueurs de Bois*, those famous wood-rangers, hunters and trappers of Canada; those outlaws against whom Louis the Grand, of France, launched those edicts intended to prevent their leaving the homes in which he was determined they should abide; to follow their own bent as free rangers of the forest; as men free from those laws which made them serfs and slaves of the nobles under the reign of the *Grand Monarque*, who thought all his subjects were born to minister to his pleasure. Pontchartrain was one of those nobles to whom *les droit des seigneurs* was a God-given right. I have wondered if the name Detroit had relation to these edicts of Louis, which were intended,—as were those he fulminated against the Protestant Huguenots,—to force them to do his will or to destroy them;—the French verb "*Détruit*" being the past participle of "*Détruire*," which means, "*to destroy*." I cannot find any other derivation for its name stated anywhere, but perhaps I am far from the fact.

The Jesuit Father, Cadillac, is considered to be the founder of the city. In

June, 1701, he went there with about 100 men and built a fort, but before his time in 1686, Fort St. Joseph had been built, which showed that trade had already found it an attractive place before his arrival. Fort Gratiot now stands on the site of the old Fort St. Joseph.

Around this fort of Cadillac thronged the savage tribes of Ottawas and Foxes, the Wyandots and Crees, the Sacs and Senecas, the Delawares and Shawanees. Pontiac, the famous chief of the Ottawas, lived on a small island at the entrance



The P. D. Co.'s Stmr. Pleasure.

of Lake St. Clair. Every step a visitor takes here, is reminiscent of the trying experiences of our fore-fathers with the Indians; the latter, to be sure, often wronged. Here the readers of Parkman's "Conspiracy of Pontiac" will tread on familiar ground. Here civilization met barbarism; drove the aborigines from their homes and hunting-grounds to make this a beautiful city; one of the jewels of the Republic. To one interested in the early days of our land,—and what loyal citizen is not,—a visit to this district should prove most interesting and

instructive. England's flag floated over Fort Pontchartrain during our War for Independence and again, during the war of 1812, when it was captured by the British, but the peace of 1813 brought it once more to be American territory.

To-day, the most charming summer-city of America is making ready to receive the members of the A. Ph. A. to their hearts and homes. Charming Belle Isle, Grosse Pointe and the attractive Bois Blanc, (Bob-Lo) Flats are putting on their best array, and there is no member of the association, or a druggist in all America, but will receive a bountiful return for his attendance upon the Convention. "Get out and get under!" "Get out" of your narrow environment, your limited circle, and "get under" the movement to lift Pharmacy out of the sordid slough of commercialism, into its true heritage, that of noble and an honored profession.

ENTERTAINMENTS.

Monday:—Grand Ball, Hotel Pontchartrain. Evening.

Tuesday:—Nelson Baker's Excursion for ladies. Afternoon. Boat-ride and dinner at "Bob-Lo" Park.

Wednesday:—F. F. Ingram & Co. and the F. A. Thompson Co.'s Theatre-Party for ladies. Evening.

F. Stearn's Co. Social "Smoker" for gentlemen. Evening.

Thursday:—Parke, Davis & Co.'s Steamer-excursion up the river and through Lake St. Clair. For Everybody.

Friday Afternoon:—Automobile-trip, through the beautiful suburbs of Detroit. The Lake-side Drive. Belle Isle.

Saturday:—Farewells.



THE attempt of the Board of Pharmacy in Massachusetts to determine its powers over the establishment of chain-stores, in that Commonwealth is greatly to be commended.

Because the Court has decided that the contention of the Board,—that the Riker-Jaynes Company was not a corporation entitled to conduct the drug business because the majority of its stock-holders were not registered pharmacists,—was wrong, does not make that contention a less true or a less just one. If a syndicate of men who were not lawyers should form a corporation and attempt by the employment of lawyers to do business in that Commonwealth under their own corporate title, it is safe to say that the Honorable Justices would bar them from any appearance before the Court under their corporate title, even though their employes had been admitted to the bar, and it is difficult to see wherein the case differs from this one, where the members of this corporation are not registered pharmacists of the State of Massachusetts, and yet seek to make appearance before the public as such.

"And ne'er shall the sons of Columbia be slaves,

While the earth bears a plant or the sea rolls its waves."

—Robert Treat Paine.

PORT COCKBURN TRIP.

The rates for this most delightful excursion have been made at a figure which should tempt all the members attending the convention to take advantage of this opportunity to see this most delightful pleasure resort of the country.

The itinerary with rates is as follows: From Detroit to Toronto, to Bala, (the gateway to the Muskoka Lakes), a delightful water trip through the entire Muskoka Lakes to Port Cockburn, a short interesting stage ride to Maple Lake, a still shorter rail trip to Rose Point, a yacht trip to Parry Sound, thence a delightful water trip through the celebrated 30,000 Islands of the Georgian Bay to Penetang, rail to Toronto to Detroit, one of the most popular trips through the Highlands of Ontario. The total cost of the trip is \$17.50 (exclusive of meals and berth), and the following shows approximate schedule. The trip may be broken at Toronto, Bala, Royal Muskoka Hotel, Port Cockburn, Parry Sound, etc., or any point desired. Limit of tickets Oct. 31st, 1914.

Daily						
Mon.	Lv.	Detroit	CPR	*12:50 AM	*Sleeper open at 9:00 PM	
Tues.	Ar.	Toronto	CPR	8:25 AM		
Tues.	Lv.	Toronto	CPR	9:45 AM	11:50 AM	
Tues.	Ar.	Bala	CPR	1:54 PM	3:40 PM	
Tues.	Lv.	Bala	MNCo.	3:50 PM	3:50 PM (Wed)	7:20 AM
Tues.	Ar.	Beaumaris	MNCo.	4:45 PM	4:45 PM	.....
Tues.	Ar.	Port Carling	MNCo.	5:35 PM	5:35 PM	9:10 AM
Tues.	Ar.	Royal Muskoka Hotel	MNCo.	6:50 PM	6:50 PM	10:15 AM
Tues.	Ar.	Minette	MNCo.	6:35 PM	6:35 PM	10:45 AM
Tues.	Ar.	Rosseau	MNCo.	8:00 AM	8:00 AM	11:30 AM
Tues.	Ar.	Port Sandfield	MNCo.	.....	.....	11:40 AM
Tues.	Ar.	Port Cockburn	MNCo.	9:00 PM	9:00 PM (Wed)	1:00 PM
Wed.	Lv.	Port Cockburn (Stage)	MNCo.	3:00 PM		
Wed.	Ar.	Maple Lake	MNCo.	4:30 PM		
Wed.	Lv.	Maple Lake	GTR	8:42 PM		
Wed.	Ar.	Rose Point	GTR	9:21 PM		
Wed.	Ar.	Parry Sound	GTR	9:30 PM		
Thurs.	Lv.	Parry Sound	NNCo.	6:40 AM		
Thurs.	Ar.	Penetang	NNCo.	12:01 Noon		
Thurs.	Lv.	Penetang	GTR	12:20 PM		
Thurs.	Ar.	Toronto	GTR	3:45 PM		
Thurs.	Lv.	Toronto	CPR	4:00 PM	7:35 PM	{ Remain in sleep- er until 8:00 AM
Fri.	Ar.	Detroit	CPR	11:30 PM	1:40 PM	

Lower berth fare between Detroit and Toronto \$1.50, Upper berth fare \$1.20, Drawing Room \$6.00. Parlor-car seat fare, Toronto to Bala \$0.50.

An interesting side trip from Parry Sound to Point Au Baril, Georgian Bay, which is fast becoming the most popular resorts in the Highlands of Ontario can be had for \$2.85 which covers rail transportation Parry Sound to Point Au Baril Station, thence boat to either the Ojibway, Bellevue or Skerryvore Hotels, which Hotels are situated on beautiful islands in (Point Au Baril), Georgian Bay District. Return same way.

Gauserie

IF WE KNEW.

If I knew you, and you knew me;
 If both of us could clearly see,
 And with an inner sight divine
 The meaning of your heart and mine,—
 I'm sure that we would differ less,
 And clasp our hands in friendliness;
 Our thoughts would pleasantly agree,
 If I knew you, and you knew me.

—Anon.

The Columbus Branch will soon be "Topping" all others.

Dr. James H. Beal, the Editor of the Journal, is soon to leave Scio for his camp in Canada, where he will find much-needed relief and rest by getting close to nature and breathing the ozone of the pine-clad hills of the primeval forests. Dr. Beal was present at the meeting of the North Carolina Association at its meeting at Hendersonville, on June 17-18-19, and delivered an address on the first day of the Convention.

It is reported that a hungry man once said, "That his stomach had been asking his mouth if his throat was cut for some time." Apropos of this *ana* the humble A. E. would inform the Honorable Treasurer that his correct address is

63 CLINTON BUILDING, COLUMBUS, OHIO,

and that, "*Bis dat qui cito dat.*"

Mrs. John G. Godding, the President of the Women's Section, was the guest of Anna G. Bagley, the Secretary of the Section, for a few days last month, on her return from the Federation of Women's Clubs at Chicago. Prof. and Mrs. Kaufman gave a dinner-party to Mrs. Godding, on the evening of her departure from Columbus, at their charming home in Maple Grove.

The Acting Editor is practicing writing with both hands, in order to use the fountain pens sent to him from the Boston Association of Retail Druggists, with a handsome leather manuscript-carrier, all from the same kindly friends.

Between the farewell kindness of Boston and the welcoming kindness of Columbus, the A. E. is wondering if he had not better heed the maxim of the Japanese, "When things are coming your way, look out!", but in the meantime he is sincerely grateful for the many kindnesses showered upon him, is happy in his work and is earnestly desirous of "grappling to his soul with hoops of steel" all his friends, by loyal, faithful service to the important interests, temporarily placed in his care.

The Editor has been requested to call the attention of the members to Article 2, Section X, of the By-Laws, which refers to the reading of papers before the Sec-

tions, and prints the Article for the information of those desiring to present papers:

Article II. Any person desiring to submit a paper to the Association shall present to the Chairman of the particular Section to which it refers, at least ten days prior to the meeting, an abstract of said paper, indicative of its contents, and consisting of not less than fifty nor more than two hundred words.

This abstract shall be printed as a part of the program. The paper itself must be submitted to the officers of the Section previous to the first session. Not more than ten minutes shall be allowed for the presentation of any paper, unless by unanimous consent of the Section. This does not apply to the Scientific Section, which handles its papers in accord with the By-Laws of said Scientific Section.

All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by the consent of the Committee on Publication.

RATES AND ROUTES FOR ATTENDING THE A. PH. A. CONVENTION TO BE HELD IN DETROIT, AUGUST 24TH TO 29TH, INCLUSIVE.

PRELIMINARY ANNOUNCEMENT.

Office of Chairman Committee on Transportation, 166 Chambers St., New York.

New York and New England: All rail to Detroit. Arrangements have been made with the Walter H. Woods Co., 262 Washington St., Boston, Mass., for an 18-day tour by New York Central Lines to Detroit, and return by way of Toronto, Lake Ontario, Thousand Islands, St. Lawrence River, Quebec and Montreal, thence through Central Vermont or the D. & H. Co. lines to Boston and New York.

The price of above tour, including railroad fares, Pullman, meals, rooms at Hotel Pontchartrain while in Detroit, with bath (2 in room); railroad and steamer fares with meals on St. Lawrence River trip, five days' room and board at Murray Isle Hotel at Thousand Islands, rooms and meals at other hotels and cars enroute, except meals while in Detroit,—

New York and return, 18 days, \$123. Basing on 10 or more people.

Boston and return, 18 days, \$124. Basing on 15 or more people.

Rate from Detroit, 11 days from date of departure to arrival in New York or Boston, \$85. Descriptive circulars of this tour will be sent on application.

Train will leave South Station, Boston, August 22d, at 4.45 p. m., connecting in Albany, N. Y., at 9.40 p. m., with party from New York leaving the Grand Central Station at 6 p. m. This train will arrive in Detroit on Sunday, August 23d, at 1.30 p. m.

Rail and Lake Route, New York: Philadelphia, Baltimore and Washington to *Detroit*, by Lehigh Valley Railroad and connections to Niagara Falls and Buffalo, thence by steamer of the Delaware and Cleveland Navigation Co. to Detroit.

August 22d—Leave Washington by 3 p. m. train, B. & O. R. R. Leave Baltimore, 3.58 p. m. train, B. & O. R. R. Leave Philadelphia, 6.30 p. m. train, P. & R. R. R., which will meet the 6 p. m. train on Lehigh Valley from New York at South Bethlehem at 8.50 p. m., arriving Niagara Falls 7.10 a. m., Sunday, August 23d; leave Niagara Falls on day coach 4.22 p. m. same day, arrive Buffalo, 5.25 p. m. Leave Buffalo on D. & C. Co. steamer at 6 p. m., arriving in Detroit Monday, August 24th, 7.30 a. m.

Single fares, Washington to Detroit.....	\$14.63—parties of ten	\$12.45
Single fares, Baltimore to Detroit.....	\$13.63—parties of ten	\$11.70
Single fares, Philadelphia to Detroit.....	\$13.10—parties of ten	\$11.75
Single fares, New York to Detroit.....	\$12.00—parties of ten	\$10.95

A charge of 50 cents for transfer of baggage from train to boat in Buffalo.

From Cincinnati: Chicago, Hamilton & Dayton route is recommended; single fare to

Detroit \$5.25; no reduction for parties. Railroad can be taken to Toledo and thence by White Star Steamer to Detroit at same fare; Pullman and staterooms extra.

From Cleveland: Where Tourist rates to Detroit are to be had it is best to purchase them. From points not having Tourist rates, purchase fare to Cleveland.

Cleveland to Detroit, via D. & C. Boat Line—leaves 11.45 p. m., Eastern time.

Fare—one way, \$2.00.

Fare—round trip, \$3.50.

Fare—round trip, parties of ten, \$3.00.

State rooms, \$2.50—accommodate three persons.

Those wishing to take a day ride on the lake, leave Cleveland at 8.30 a. m., Eastern time, arrive at Put-in-Bay at 12.45, leave Put-in-Bay, 3.30, arrive in Detroit, 8.00 p. m.

This historic island is well worth seeing, also the beautiful new monument, in honor of Commodore Perry's victory, which is about completed.

Transfer of boat is made at Put-in-Bay. This is no hardship as boat for Detroit is at same dock.

Fare—one way, \$1.50. Round trip, \$2.50.

On return trip from Detroit stop at Cedar Point, "Coney Island of the West," great place for conventions, well worth your while to visit. Take boat for Cleveland about 4.30 p. m. same day.

If further information is required, write

LEWIS C. HOPP, 1104 Euclid Ave., Cleveland, Ohio.

From Atlanta: Members from Southeast are advised to route via Louisville and Nashville, Atlanta to Cincinnati, C. H. & D. to Toledo, Pere Marquette, Toledo to Detroit, or by White Star Steamer, Toledo to Detroit, as they may prefer. L. & N. train schedules are as follows:

Leave Atlanta 7.12 a. m., arrive in Detroit 7.45 a. m. following day.

Leave Atlanta 5.10 p. m., arrive in Detroit 4.45 p. m. following day.

One way rate Atlanta to Detroit, \$18.50; parties of ten, \$15.20, or round trip summer tourist tickets can be purchased for \$30, limited to October 31st return.

From New Orleans: Illinois Central to Chicago, Michigan Central to Detroit. Tickets on sale daily, good to return until October 31st. Fare, single, \$43.00 in parties of ten or more, \$22.00;—sleeper extra. For direct information, address Edward Roddy, 144 St. Charles St., New Orleans.

From St. Louis: The St. Louis party for the Detroit meeting of the A. Ph. A., August 24th, will make use of the Wabash. The summer rate for the round trip from St. Louis to Detroit is \$16.00. Tickets are good for thirty days from date of sale. Tickets will be honored going direct and returning via Chicago or going via Chicago and returning direct, or going and returning via Chicago. For an additional \$5.00 tickets will be honored for the boat trip via Mackinac Island and Chicago. The fare for Pullman sleeper, lower berth, is \$2.50 each way, direct between St. Louis and Detroit.

Special excursions are sometimes given between St. Louis and Detroit, and it is possible that in this way a much lower rate will be available for the Detroit meeting. Further information can be obtained by applying to H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Pacific Coast Points: Round trip tickets to Chicago will be sold only on August 17th, 18th, 20th and 21st for \$72.50, good for return until October 31st, with stop over privileges. Tickets sold for one line good for return over any other line, but if members from San Francisco elect to travel by way of Portland over the Shasta route, an extra charge of \$17.50 each way will be made.

From Chicago to Detroit the regular rate prevails, which is \$5.50 each way, or \$11 round trip, or members may on the dates above mentioned purchase excursion tickets from Pacific points to New York and return for \$108.50, securing stop over at Detroit for Convention and other stop overs if desired.

Further details regarding rates and routes may be obtained from the nearest member of the Committee on Transportation, whose addresses follow:

COMMITTEE ON TRANSPORTATION.

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Respectfully submitted,

THOMAS F. MAIN, Chairman.

St. Paul and Minneapolis:—

One way, \$13.55.

Round trip, \$27.00.

The Great Western and the Milwaukee railroads will furnish a special car for parties of twelve or more.

For further information, write

E. FLOYD ALLEN,
1538 Nicollet St., Minneapolis.

Nashville, Tenn., and other Southern points:—

Memphis, \$29.15, via either Chicago or Cincinnati.

Chattanooga, \$24.55, via Cincinnati only.

Knoxville, \$22.25, via Cincinnati only.

Nashville, \$22.75, via either Chicago or Cincinnati.

Louisville, \$15.25, via Cincinnati only.

Frankfort, \$15.25, via Cincinnati only.

Lexington, \$14.70, via Cincinnati only.

These tickets are on sale daily up to and including September 30th, good returning October 31st and permit of liberal stop-over privileges.

For further information, apply to

DR. J. O. BURGE, or GEORGE E. HENRY,
District Passenger Agent, Nashville, Tenn.

The world will little note or long remember what we say here, but it never can forget what they did here. The brave men, living or dead, who struggled here have consecrated it far above our power to add or to detract.

It is for us, the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us; that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion; that we here highly resolve that these dead shall not have died in vain; that this Nation, under God, shall have a new birth of freedom; and that government of the people, by the people and for the people, shall not perish from the earth.—*Lincoln at Gettysburg.*

Book Reviews

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES—(Eighth Decennial Revision), and on the National Formulary, (Third Edition), for the Calendar Year Ending December 31, 1912. By Murray Galt Motter and Martin I. Wilbert, Washington Government Printing Office, 1914.

This volume is one, which, however valuable in other ways, is not, at all, true to its name, "A Digest of Comments on the U. S. P. and N. F.", because it contains so much matter foreign to its title that it seems but a cloak,—for a book, which really is a schedule of miscellaneous articles which have appeared in the press, without regard as to whether the subject referred to, was included in either of the volumes mentioned in its title. For instance, on page 76,—to open the book at random,—are found the following references:—

"Progress in Gas Analysis during 1911.

"Review of Progress in Stoichiometry.

"A Report on the Progress of Pharmaceutical Chemistry, etc.

"A Review of the Progress in Pharmaceutical Chemistry.

"Progress in Pharmaceutical Chemistry during 1911.

"A Note on Sampling.

"The Various Analytical Researches on Ions.

"The Influence of the Solvents on the Rapidity of Reaction.

"Pharmacists and Physicians Have Been Entirely Too Lax in Demanding the Purest and Best Drugs in Combating Disease.

"Many manufacturers and physicians have not much use for 'adulterated,' they prefer the word 'technical,' which means the same and is not so harsh.

"There is more adulteration, and certainly more misbranding, among drugs to-day than there is to be found among food products.

"A brief discussion of the general topic of drug adulteration, for which the cure suggested is education and standardization."

It is difficult to understand how any of these references can be included in a book bearing the title "A Digest of Comments on the U. S. P. and N. F.", for none of them refer in any way to either volume, or to its preparations, and the same is true throughout the whole manual, page after page containing nothing referring to either book.

"The Digest of Comments" on the U. S. P. and N. F.", as originally planned, was one which should include comments, favorable or unfavorable, concerning the contents, make-up, processes, formulas, manipulations, etc., of these two important books, and a treatise, if worked out along those lines, would prove of immense advantage to the profession, but such comments, if they are contained in the volume in question, are so overlaid and covered up by extraneous matter that their value is entirely destroyed.

It is much to be desired that "A Digest of Comments," true to its name, should be prepared and kept up-to-date, as a help to all interested in the two volumes, and, at the same time, we trust we may be pardoned for suggesting that further issues of the pamphlet under discussion should be published under a title more descriptive of its contents.

Scientific Section

Papers Presented at the Sixty-First Annual Convention

A NEW UTERUS-CONTRACTING METHOD OF TESTING ERGOT,— WITH COMPARISON WITH THE BLOOD-PRESSURE METHOD.

• PAUL S. PITTENGER, PHAR. D., AND CHAS. E. VANDERKLEED, PHAR. D.

It is well known that non-striated muscular tissue exhibits automatic (spontaneous) rhythmic contractions. It is also well known that certain drugs have the power of stimulating and thereby increasing these normal muscular movements. Various methods of standardizing ergot have been devised and employed by competent pharmacologists utilizing these facts. In most cases, however, the muscle was suspended in oxygenated Ringer's solution, contained in a Harvard muscle warmer with a capacity of about 40 cc. and in practically all cases the Harvard light muscle lever was employed for recording the contractions.

The non-concordant results obtained by other workers with isolated uteri have been ascribed to the interference of spontaneous contractions and the increasing irritability of the muscle tissue under the continued influence of the drug. These two factors form the principal objections to uterine methods. Pharmacologists have therefore endeavored to overcome these objections by selecting the uteri of animals manifesting the *least degree of normal movements*,—preferably those of the cat. To illustrate, Edmunds and Hale, in reporting their observations upon the non-pregnant uteri of cats, state in Bullétin 76, Hygienic Lab. U. S. Pub. Health and Marine Hospital Service: "It is true that the uteri of young cats which may be perfectly quiet in the earlier stages of an experiment after some time may begin to contract spontaneously and increase the difficulty of making comparisons of the effects from successive injections of the drug." In such cases, the authors state, "it may be necessary to employ as a standard the smallest amount which will clearly influence these movements, as, for example, by delay in the relaxation."

The uteri best adapted to our method, on the contrary, are those which manifest a *high* degree of normal spontaneous movements, preferably those of a non-pregnant guinea-pig, weighing between 275 and 325 gms. Instead of employing a Harvard light muscle lever we attach the free end of the uterus by means of a silk thread to one side of an escapement wheel, to the other side of which is suspended a counterpoise bucket for holding shot. By adding the proper amount of shot to this bucket the operator is enabled to weight the uterus down and thus reduce the amplitude of these movements so they can be controlled. Thus the marked spontaneous contractions can be reduced until the uterus is just able to contract under the increased load, or in other words, shot is added until the maximum amount of work that the uterus is normally capable of performing

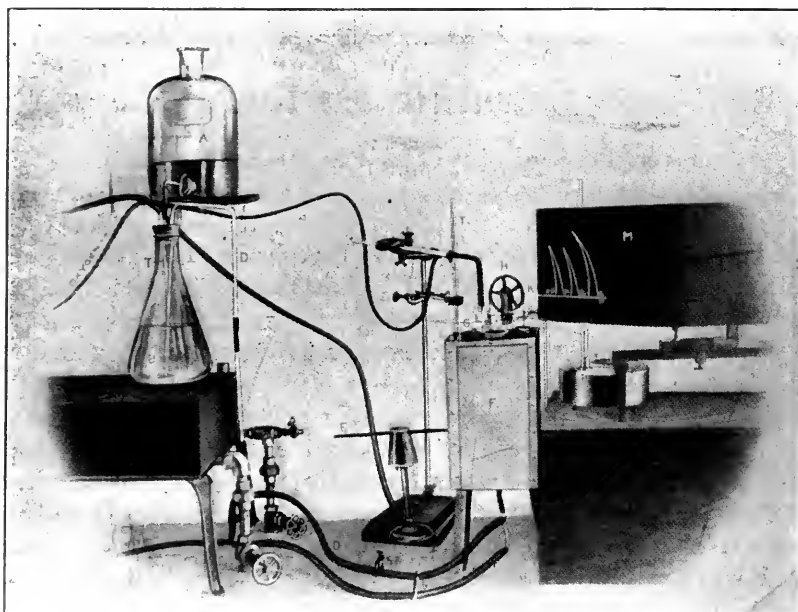


FIGURE 1.—Arrangement of the apparatus employed.

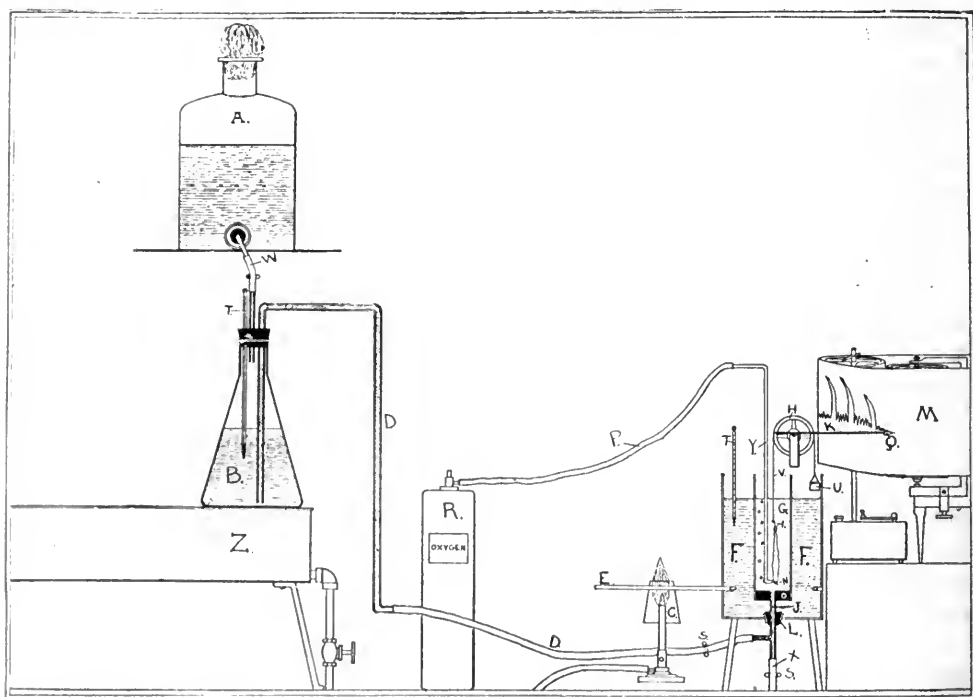


FIGURE 2 is a graphic drawing of the apparatus and will serve to illustrate the following detailed outline of the method which we employ.

is counterbalanced. Any increase in the amplitude of the contraction after the addition of a given drug can now be produced only by that drug.

As is to be expected, the addition of weights necessitates the employment of larger doses of the drug in order to produce marked contractions but, on the other hand, the resultant contractions are more nearly parallel to the doses given. (See Figure 4).

The uterus is suspended in about 250 cc. of Ringer's solution contained in a cylindrical glass vessel (G), the lower end of which is plugged with a rubber stopper (O) having a central bore. Through the latter passes one arm of a wide glass "T" tube (J) which ends flush with the upper surface of the stopper, so that the cylindrical vessel may be completely emptied. This tube passes through a second rubber stopper (L) which fills an opening in the bottom of an outer metallic vessel (F) which forms a constant temperature water jacket.

The temperature of the water in the jacket is kept constant by means of a metallic rod (E) which penetrates the wall of the jacket, passes through the water, and is soldered to the opposite side of the jacket. The portion of the rod external to the jacket is heated by a protected Bunsen burner (C) which slides on the rod. The temperature is regulated by sliding this burner backward and forward until that point is reached where the amount of heat transmitted by the rod to the water inside is sufficient to keep the thermometer (T) suspended in the water at the proper degree (38° to 39° C.)

One of the other arms of the "T" tube is connected by a rubber junction (X) armed with spring clamps (S) to a waste pipe by which the cylindrical glass vessel may be emptied.

The remaining arm is connected by a syphon tube (D) to a flask (B) which holds a small amount of Ringer's solution for refilling the cylindrical vessel. This flask is kept at a temperature between 40° and 45° C. by means of a steam bath (Z). The main supply of Ringer's solution is contained in a large aspirator bottle (A) connected with the small flask by a rubber tube (W), the object being to avoid exposing the reserved solution to prolonged heat. Heat causes Ringer's solution to gradually decompose and lose CO_2 .

The Ringer's solution in the small flask should be reduced to 39° C. immediately before admitting it to the cylindrical vessel by allowing sufficient cold solution to run into it from the aspirator bottle.

Into the cylindrical vessel containing the Ringer's solution dips a narrow glass tube (Y). This tube is turned at right angles about half an inch from its lower end. Into this is sealed a platinum pin (N) for attaching the *lower end of the isolated uterus*. The upper end of this tube is connected by means of rubber tubing (P) to an oxygen reservoir (R). A constant stream of oxygen is allowed to bubble through a small vent at the lower end of the tube, thus preserving the muscular irritability of the uterus and at the same time stirring the Ringer's solution.

The other end of the uterus is fastened to a small platinum hook (I) connected to a silk thread (V) which passes over an escapement wheel (H) and is attached to a pin on the opposite side of the wheel. A counterpoise bucket for holding shot (U) is attached to the opposite side of the wheel. To this wheel is soldered an stylet of aluminum (K); the axle of the wheel serving as

a fulcrum. To the end of this stylet a pen point is fixed (Q) for recording the contractions of the uterus on the revolving drum of the kymograph.

Method of Procedure.—The animal is bled by quickly severing the carotid artery with a sharp-pointed scissors. The spinal column is then severed with a strong scissors. One horn of the uterus is then quickly excised together with the ovary which is left attached by means of the fold of broad ligament in which the Fallopian tube runs. This horn is then quickly transferred to the oxygenated Ringer's solution in the cylindrical vessel and attached to the two platinum pins above referred to (the ovary is fastened to the hook suspended from the escapement wheel and the lower end of the horn is fastened to the pin at the lower end of the oxygen tube). The manipulation and exposure followed by the immersion in the warm solution will almost invariably produce a high degree of tonus, which, however, gradually diminishes until the uterus returns to its normal condition. If at this point the uterus does not exhibit *strong* rhythmic contractions it should be discarded and replaced by a new one. The weights are now added by dropping shot into the bucket *until the uterus can make only small rhythmic contractions*.

Conditions are now suitable for determining the activity of the drug to be tested or standardized. The samples to be tested are first freed from alcohol by evaporation on a water bath and then made up to their original volume with water.

A small dose (0.3-0.5 cc.) of the standard preparation is now pipetted into the Ringer's solution in which the uterus is suspended. If all conditions are ideal the uterus which was recording small rhythmic contractions will now forcibly contract and record its contractions by a long sweeping curve. After the curve reaches its maximum and commences to decline (which may require from 5 to 15 minutes) the medicated Ringer's solution is quickly run off and replaced by fresh solution, previously adjusted to the proper temperature. The momentary exposure to the air while changing the solution generally causes the uterus to contract rather forcibly, thus markedly increasing the amplitude of the curve produced by the action of the drug. It is necessary, therefore, in changing solutions to hold the escapement wheel for a few seconds or until the uterus is again covered with the saline solution. This will prevent the record from being interrupted by contractions not produced by the drug. The curve now quickly returns to normal and the uterus continues to record its small rhythmic contractions.

Should the uterus chance to be a *very sensitive* one, a dose of 0.5 cc. of the standard preparation may produce a contraction so strong that it will carry the writing pen off the smoked chart. In such cases it is necessary to reduce the dose. If, however, the uterus still continues to give such marked contractions, shot should be added until the contraction can be controlled. On the other hand, should a dose of 0.5 cc. not produce contraction, the dose should be increased to 1 or 1½ cc. If, however, doses of 1.5 cc. do not call out contractions, shot should be removed until a marked contraction is produced by these doses.

After thus adjusting the apparatus two successive doses of equal amounts of the standard solution should be given. If the resultant contractions are equal the uterus is giving concordant results and is ready for assay purposes. In

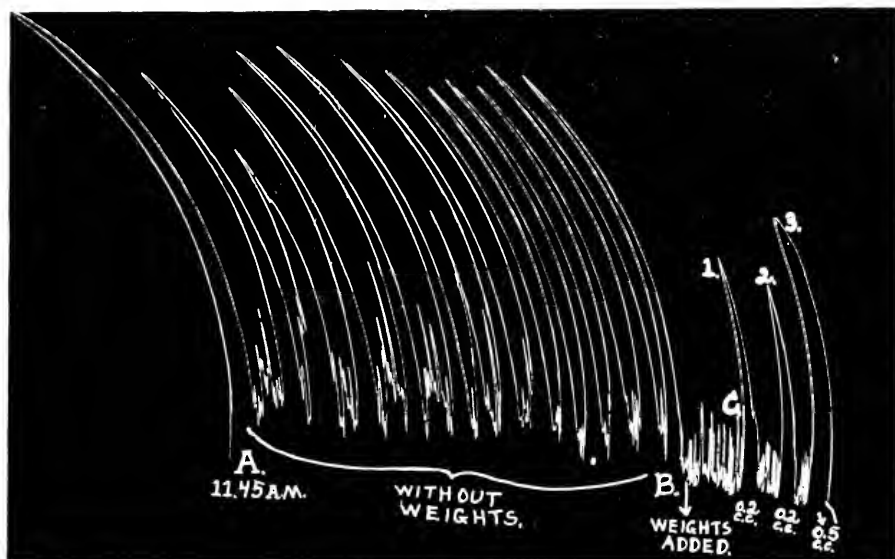


FIGURE 3.—Demonstrates first, the normally acting uterus (A to B); second, the action when weighted down by shot, (B to C); and third, the action of ergot on the uterus when loaded and working against resistance (1, 2 and 3).

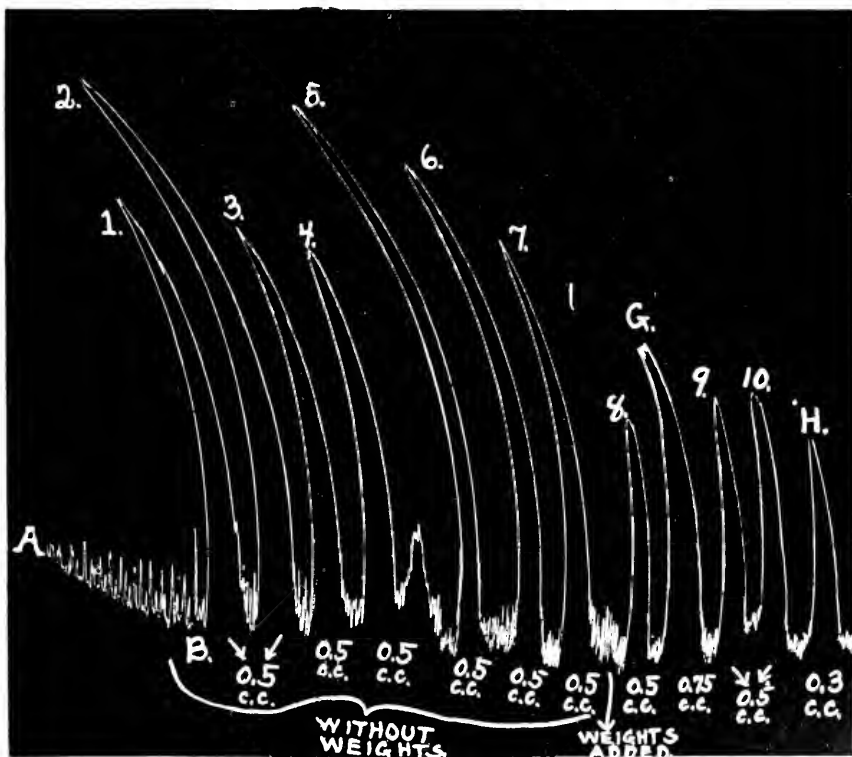


FIGURE 4.—Demonstrates first, the normally acting uterus (A to B); second the *non-concordant* results produced by repeated doses of the same amount of fluid extract ergot (1, 2, 3, 4, 5, 6 and 7); third, the *concordant* results obtained after the uterine contractions are controlled by weights (8, 9 and 10). The curves G and H indicate the quantitative results obtained by a larger and a smaller dose.

order to determine the relative activity of an unknown preparation it is now merely necessary to give progressively increasing or decreasing doses of the unknown preparation until that amount is found which will produce contractions of an equal amplitude as those produced by the standard preparation.

Description of Charts.—The terms “no weights” and “weights added” used in this paper refer to the shot used in inhibiting the normal contraction of the uterus, not to the counterpoise employed to keep the uterus suspended in the Ringer’s solution.

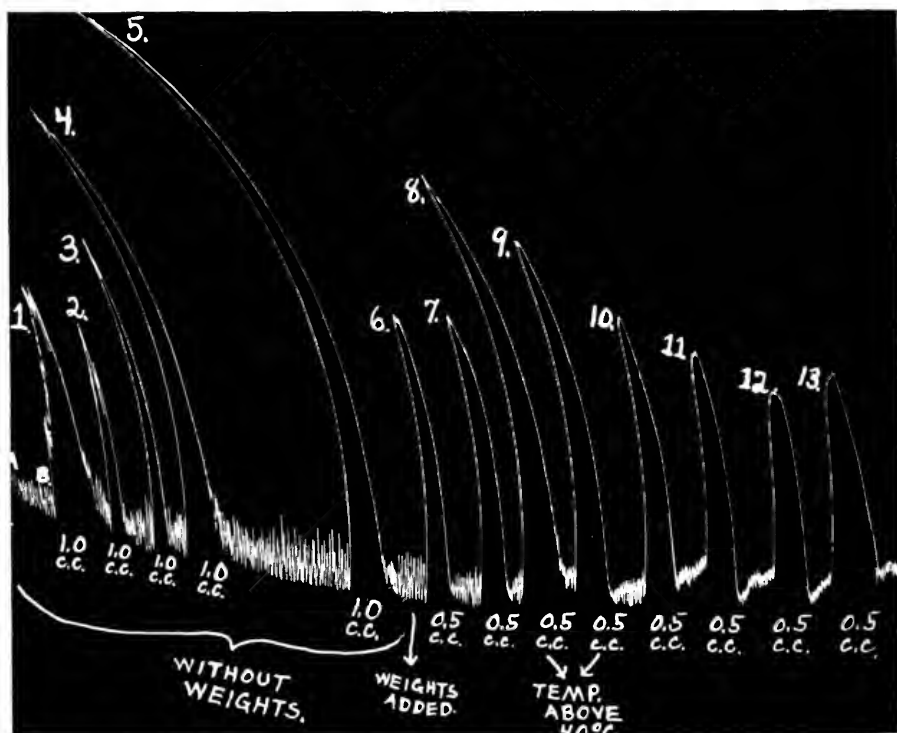


FIGURE 5.—This illustration is similar to Figure No. 2. A to B show normal contractions; 1, 2, 3, 4, and 5, show non-concordant results obtained without weights; 6, 7, 10, 11, 12, and 13, show concordant results obtained after weights were added. The curves 8 and 9 indicate contractions produced under increased stimulation due to a rise in the temperature of the Ringer’s solution, and show the necessity for maintaining an even temperature during the experiment.

During our experiment we were greatly impressed by the differences in the uteri as to power and muscular structure, and their mutual relation. Some specimens were greatly deficient in muscular substance and acted feebly. Other specimens showed greater muscular development and contracted strongly. Some of the specimens proved absolutely inert and would not respond at all. After more extended experience, however, we found that the normal activity practically runs parallel to the amount of muscular tissue present; the “stringy” uteri are all deficient in normal activity and in response to stimuli, while the thick, more muscular uteri are practically all active and sensitive. This knowledge enables us to save considerable amounts of time as it renders it pos-

sible for us to distinguish between active and inactive uteri before connecting them with the apparatus.

Having at one time a series of unsatisfactory results which extended over a period of one week, we were at a loss as to the cause of this sudden change in the efficiency of the test. After careful investigation, however, we found that our stock of Ringer's solution was unsterile and showed bacterial growths. New solution was made and placed in sterile containers, after which our results were again concordant. This emphasizes the necessity for keeping both the solution and syphon tubes in a sterile condition.

Due to the marked difference in the sensitiveness of the various uteri, it is

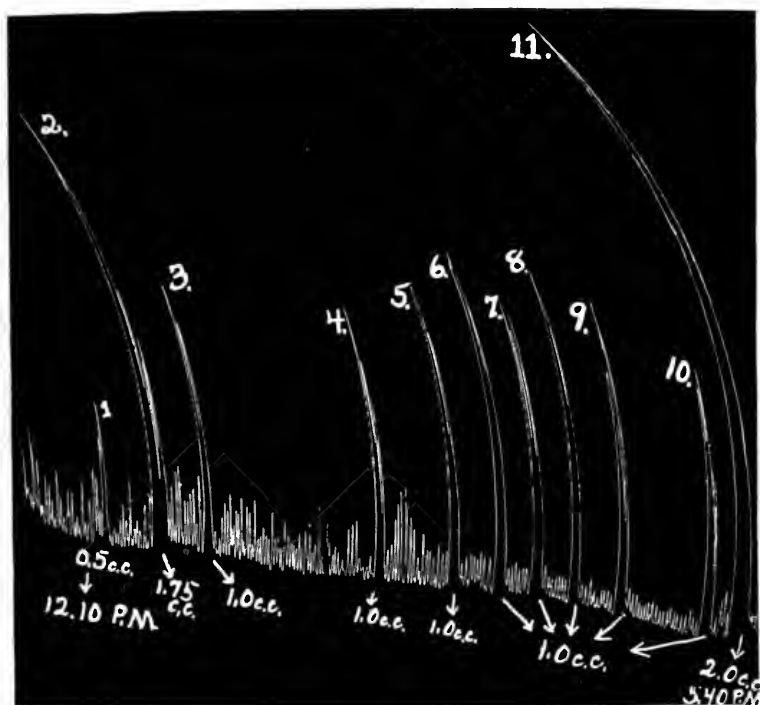


FIGURE 6.—This chart clearly demonstrates the concordant results from repeated doses of an equal amount of fluidextract ergot, 3, 4, 5, 6, 7, 8, 9, and 10; 1, 2, and 11, indicate the quantitative results obtained by varying the doses and demonstrate the accuracy of the test.

necessary to employ a standard preparation with which to compare the unknown preparations. These comparisons must, of course, always be made on the same uterus.

As a standard we employ a fluidextract or ergot of such strength that when injected intravenously into a series of three or more dogs, it produces an average rise in blood pressure of 30 mm. of mercury. After preparing a standard preparation of the above strength it is placed into 4 cc. vacuum ampoules to prevent deterioration. These can then be opened and used as required.

The marked sensitiveness of this method, together with the concordant results obtained by the same, led us to believe that by its use we could perhaps ascertain whether or not the uterine and circulatory actions of ergot run

parallel to one another. This is an important factor, since the blood pressure method is rather extensively used for standardization purposes, its employment being supported by statements that the characteristic effect of ergot is a stimulation of all unstriated muscle tissue of the body, and that the changes in the circulation, in the intestines and in the uterus are but a part of one general action. The employment of this method has been further supported by the fact that all of the substances which have been suggested by various writers as the active principles of ergot have produced stimulation of the blood-vessels as well as of the uterus. So far as we are able to learn, however, no experimental results have ever been published to show whether or not these two actions run parallel.

We are, therefore, now testing every sample of ergot submitted for assay by both the uterine and blood pressure method. By this means we will be able after a sufficient number of samples have been tested to compare the results obtained and thus determine whether or not a parallelism does exist between these two actions. If on completion of our experiments the results show that all the samples which assayed high by the blood pressure method also assayed high by the uterine method we will know that these actions do run parallel. If, on the other hand, some samples run high by one method and low by the other, we will know that such a parallelism does not exist.

Up to the present time we have made comparisons with seven samples with the following results:

Preparation.	Comparative strength by B. P. method.	Comparative strength by uterine method.
No. 1 F. E.....	166%	170%
No. 2 Cornutol	100%	90%
No. 3 F. E.....	153%	148%
No. 4 F. E. 5 mo. old.....	51%	100%
No. 5 F. E.....	224%	230%
No. 6 F. E.....	210%	198%
No. 7 F. E.....	118%	105%

The above table would indicate that a parallelism does exist between the action of ergot upon the circulatory system and the action upon the uterus. We will, however, be unable to arrive at a definite conclusion until more data has been compiled.

We will, therefore, continue our investigations along these lines for another year.

RESEARCH LABORATORY OF H. K. MULFORD COMPANY, July 28, 1913.

THE PROPOSED LIST OF USEFUL REMEDIES.*

M. I. WILBERT, WASHINGTON, D. C.

For more than a decade men who are genuinely interested in the development of pharmacy as a recognized and necessary branch of medicine, have viewed with alarm the ever-growing accumulation of disparaging evidence, on the part of national and state food, dairy and drug officials, and have urged upon the fellow-

*Read before the Scientific Section at the Nashville Meeting.

members of their craft a more active propaganda to secure for true pharmacy the recognition and respect that is properly due it for services rendered. These seers, dreamers and reformers have, however, up to the present time, railed in vain and some indeed have passed on to their final accounting without even the flicker of a promise that pharmacy,—the pharmacy which they loved so well and for which they sacrificed their all,—would ever again resume the comparative position of honor accorded it in the earlier days of medicine.

Unfortunately, too, it must be admitted that pharmacy in European countries,—to which we have in the past looked, with something akin to awe, for inspiration and support,—appears to be undergoing a degenerative commercialization, and in Germany, particularly, many of the followers of the craft have undertaken to vie with larger manufacturers in the production of proprietary remedies of little or no value. To such an extent has this commercialization of German pharmacy and pharmaceutical chemistry been developed, that members of the medical profession of that country have felt compelled to institute a Commission or Committee on New Remedies, with objects similar to those of the Council on Pharmacy and Chemistry of the American Medical Association. This Commission, though working along somewhat different lines from those laid down by the Council on Pharmacy and Chemistry in our own country, is destined to bring about a decided change in the methods of marketing proprietary remedies in Germany, and the objections already recorded in medical and pharmaceutical journals, evidence the fact that the work is opportune and that it is meeting with the approval of medical men.

It will generally be admitted that the fundamental object of pharmacy is to maintain the purity and efficiency of the medicines used for the treatment of disease. If this truism be accepted as law, then any person or any collection of persons not in accord with it, as the essential principle of pharmaceutic practice, must, of necessity, be considered as being out of harmony with the interests of true pharmacy, and unfriendly to the real object of our vocation. That there is considerable difference of opinion in regard to the maintenance of the accepted efficiency of materia medica products by the votaries of pharmacy, is evidenced by the fact that many pharmacists, or so-called pharmacists, aver that it is their duty to supply the medicaments asked for, without making any serious effort to differentiate between good and indifferent remedies or between efficient and inefficient methods of administering them. This purely servile attitude has prevailed altogether too long in American pharmacy and was branded as one of its essential shortcomings by the institution of the Council on Pharmacy and Chemistry of the American Medical Association some eight years ago.

Despite the fact that the American Pharmaceutical Association, as an association, has never taken an active interest in the work of the Council on Pharmacy and Chemistry, individual members of this Association have, from the very origin of the Council, taken a prominent part in its evolution and development. In the course of time, the work of the Council on Pharmacy and Chemistry has developed, and in place of involving, as formerly, principally questions of pharmacy or pharmaceutical chemistry, the problems under consideration to-day frequently involve questions of bacteriology, pharmacology and practical therapeutics, and the *personnel* of the Council has of course materially changed. De-

spite this fact, however, even at the present time fully one-half of the members of the Council on Pharmacy and Chemistry of the American Medical Association are also members of the American Pharmaceutical Association.

The origin and object of the Council have been discussed at length in the pages of the Journal of the American Pharmaceutical Association (v. 1, p. 39), and those of our members who are interested, will find a recent *resume* of its activities by Torald Sollmann, in the Journal of the American Medical Association, (July 15, 1903, v. 61, p. 5-7).

The main object of the Council on Pharmacy and Chemistry has well been defined as the general reformation of what is debased and debasing in the present status of drug therapy, and in the course of their work, the members have become convinced that a very fair proportion of the physicians of the country are desirous of securing authoritative information regarding the present status of all remedies, and are quite willing to accept reasonable opinions regarding the value or uselessness of official, as well as of non-official medicaments. To establish an authoritative compend of widely used drugs, the Council has endeavored to compile a list of really useful remedies. Such a list, it was thought, would be of great practical value as a factor in advancing drug therapy along scientific lines, as well as in combating the evils of nostrums of all kinds. It was also thought that such a list would be of use as a basis for instruction in materia medica subjects in medical schools, and as a reasonable limitation for examinations in materia medica subjects, by state medical examining boards.

With the very limited amount of time that can be devoted to materia medica, in the present-day curriculum of medical schools, it is evident that it would be practically impossible to teach all that is known of the five thousand or more drugs and preparations comprised in the several pharmacopœias of the world, to say nothing of giving even the most superficial survey to the countless hundreds of articles mentioned in dispensatories and other books of reference. Thorough instruction regarding the properties, uses and limitations of a reasonable number of widely used medicaments, it was argued, would serve to give to the prospective practitioner of medicine a reliable foundation in materia medica subjects, on which he would be able to develop a practical and safe materia medica for himself.

A list of useful remedies, to serve the purposes outlined above, should include all articles regarding which a prospective graduate from a medical school, or a reasonably well informed medical practitioner, might be expected to have a fair amount of information. With the constant, and at times rapid, changes in our knowledge regarding the possible action and uses of drugs, this list must, of necessity, be more or less ephemeral, and be modified, from time to time, so as to include only the articles that are being actively used and discussed in all sections of the country, if not in all parts of the world.

A tentative list of important medicaments was compiled in 1908, under the direction of the Council on Medical Education of the American Medical Association, by the Sub-committee on Pharmacology, Toxicology and Therapeutics. This list was later submitted to the National Federation of State Medical Examining and Licensing Boards, who endorsed the principle involved and appointed a special committee to compile a list adapted to the needs of state medical

examining boards. From this latter list, the Council on Pharmacy and Chemistry, through the Sub-committee on Useful Remedies, compiled a preliminary list of widely used articles, and this list was then sent to teachers of pharmacology and therapeutics in medical schools and colleges, to deans of medical schools and colleges, to the secretaries and some of the members of state medical examining boards, and to a number of medical practitioners who were thought to be interested in the subject. The replies received from these several sources were compiled, and the revised list was subsequently submitted for discussion and additional comment, through the pages of the Journal of the American Medical Association.

So far as practicable, in the present knowledge of the usefulness of medicines in therapy, an effort has been made to include in the list of useful remedies, only such drugs as are generally acknowledged to have superior medicinal value, or which, because of their supposed value, are still in general use in all parts of the United States. This principle does not, of course, exclude drugs regarding which pharmacologists have decided opinions as to their worthlessness, but it does limit the inclusion of such drugs to a reasonable number, and it may properly be expected that, in the near future, reliable clinical observations will definitely prove the value or uselessness of the limited number of drugs of this kind.

How successful the Council has been to compile a really international list of useful remedies, is evidenced by a comparative review of the present list with the articles included in the several well known pharmacopœias of the world. The total number of titles and headings in the present list can be classed as follows:

Drugs or chemicals.....	231
Preparations	173
Class definitions	43
Cross references	13

Of the 231 titles of drugs or chemicals, all but one, salvarsan, N. N. R., are included in one or more of the now existing pharmacopœias and, of the remaining number, again, all but one, phenolphthalein, are included in two or more of the now official pharmacopœias. The recognition accorded the several articles in 16 national pharmacopœias is approximately as follows:

95 are included in all 16 pharmacopœias.
80 are included in from 10 to 15 pharmacopœias.
27 are included in from 5 to 9 pharmacopœias.
25 are included in from 2 to 4 pharmacopœias.
1 is included in but one pharmacopœia.
1 is not official at the present time.

The object of bringing this matter to the attention of the members of the Scientific Section of the American Pharmaceutical Association, is to point out that much, if not all, of the dissatisfaction with established medicaments, may be due to the fact that, as they reach the patient, they are not strictly in accordance with the requirements of the Pharmacopœia.

This rather bold, bald statement may be questioned by some, but when it is remembered that, for a decade or more, incontrovertible evidence to this effect has been accumulating, and is readily available, it would appear that the

rational course for pharmacists to pursue would be to assist in correcting existing evils and to insist that all readily controlled drugs be sold or dispensed only in full compliance with established standards.

It will generally be admitted that, under present-day conditions, it is impracticable, adequately, to control, by chemical or other means, all of the many drugs and medicines dispensed on physicians' prescriptions. With the establishment of a reasonably limited list of drugs and preparations, however, it would be possible for the pharmacist to comply with the requirements of established standards and to satisfactorily control the identity and purity of the medicaments so listed. Such a limited list of substances would also facilitate systematic study of the deterioration or changes of drugs and preparations and the methods best suited for preventing them. How little we really know of the chemical behavior of even the best known drugs and preparations has again been emphasized by Neuberg and Shewket (*Biochem. Ztschr.*, p. 495-501), who, in a report of studies on changes in medicaments caused by light, call attention to the possible photochemical action of iron, and point out that solutions of otherwise indifferent materials may be decomposed by light, in the presence of salts of iron, into physiologically active substances. The possibilities suggested by this report alone, offer material for study for many years to come, and this study, if concentrated on a reasonably small number of drugs and preparations, would yield practical results of value to the medical practitioner of the future.

In conclusion, I will venture the assertion that the active coöperation of the various branches of pharmacy, in protecting a reliable materia medica, will tend to strengthen the faith and reliance of medical practitioners in really useful remedies, will assist in eliminating perfunctory drugging with useless mixtures, and will lead to a rational, scientific study of the action of drugs on the healthy and on diseased organisms, and thus serve to place drug therapy on a reasonable and secure foundation for all time to come.

DISCUSSION.

Wm. Mansfield, of New York, said that he thought the use of vegetable drugs in the last fifty years had been increasing gradually in this country, and all over the world. He was in touch with a great many people interested in these things, and was sure that there was a movement going on to bring back vegetable drugs. He believed that, while this list was helpful, it was really not a restricted list, but a prepared list, which included standards of purity, tests of identity, for every drug and preparation used in medicine. He thought the person in a small country place, who bought a few pounds of drugs, was as much entitled to receive pure drugs as the man manufacturing thousands of pounds. The interests of such men should be taken into consideration, as well as the results of the comparatively few men in the laboratory.

In response to a question by Mr. Murray, Mr. Wilbert said there was a larger book in process of publication now. He believed this was to be obtained, at the present time, from the offices of the *Journal of the American Medical Association*.

Continuing, Mr. Wilbert said that the paper would serve to record an effort to get at the things most used at the present time and to secure reasonable uniformity.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

THE TABLET INDUSTRY—ITS EVOLUTION AND PRESENT STATUS.

Continued from Page 848, June issue.

L. F. KEBLER, PH. C., M. D.

BASES.

These are cane sugar, milk sugar, ammonium chlorid, citric acid, sodium carbonate, and sodium chlorid. When an excipient is used to increase the weight of granulation or the size of a tablet or to facilitate the solubility of an active agent, it is termed a base. Milk sugar, for example, is commonly mixed with certain triturations in sufficient quantities to produce tablets of a given size. Sodium carbonate is a commonly used base in the manufacture of calomel triturates. Milk sugar is now universally employed for the manufacture of molded tablets, not solely for its action as a base, but because of its adhesiveness and the property it possesses of producing tablet of a porous nature, a property of great service in preparing tincture triturates. Mixtures of cane and milk sugars can often be employed to advantage. Ammonium chlorid, sodium chlorid, and citric acid not only add bulk, but facilitate the solubility of corrosive sublimate.

DISINTEGRATORS.

Starch and gelatine are used for this purpose. At one time a mixture of bicarbonate and citric or tartaric acid was employed. The most commonly used disintegrator at present, however, is starch. Its value lies in the property it possesses, when dry, of absorbing moisture and expanding, thus disintegrating the tablet. Such tablets when properly made should fall into powder almost immediately on immersion in water. The amount of starch used varies from 5 to 20 per cent, depending upon the nature of the ingredients. Even after starch was quite generally employed as a disintegrating agent, much criticism on the score of "insolubility" was still forthcoming. The first observation on "insolubility" recorded after Killgore's application for a patent will be found in Arnold's remarks.⁴⁶ This observation is referred to by Dieterich.⁴⁷ It should be noted, however, that there is a possibility that the knowledge of the properties of starch as a disintegrator had not at that time found its way into Germany. In 1899, J. E. Groff,⁴⁸ twelve years after Killgore's discovery, refers to the finding of undisintegrated quinine tablets in the excrement of patients. Joseph R. Wood,⁴⁹ in 1904, refers to the uncomplimentary term "brickbats," then applied to tablets, largely on the ground of their "insolubility." Such tablets are stated

⁴⁶ Corr.=Bl. f. Schweiz. Aerzte, 1890, 20: 94.

⁴⁷ Pharm. Ztg., 1890, 35: 400.

⁴⁸ Am. Drug., 1899, 34: 196.

⁴⁹ Am. Drug., 1904, 44: 105.

to be distinctly unsafe in typhoid fever. C. S. N. Hallberg,⁵⁰ in 1901, made an investigation of the time required to disintegrate tablets in artificial gastric and intestinal juices, with unfavorable results in a number of cases. Some believe that these unsatisfactory tablets were due to inexperience, lack of care, or too much adhesive, but after twenty years' experience some non-disintegrating tablets are still encountered, and the question is being studied. For example, Lowry⁵¹ proposed the use of starch paste, instead of starch, to cause more ready disintegration. The discussion of the paper clearly shows that all of the difficulties in regard to disintegration have not yet been solved. In 1909, H. Dichgans⁵² recorded some results where tablets had not disintegrated at the end of twenty-four hours, and Seel and Freiderich,⁵³ in 1911, reported on tablets which would not disintegrate in water.

Some are of the opinion that the kind of starch used is of the utmost importance; others think that cornstarch is as well adapted for the purpose as potato starch. Very few observations on this point have been published, the most comprehensive being those of Blaschnek,⁵⁴ in 1909. His investigation included potato, wheat, corn, rice, and marantha starches. The results clearly show a distinct advantage for marantha and potato starches. These two, according to his observations, seem to run nearly parallel. The point made by this investigator is that the starch must be nearly anhydrous if the best results are desired. The criticism on this point by some is, that if the starch is too dry the tablet has a tendency to disintegrate spontaneously, due to the moisture absorbed from the atmosphere. Blaschnek, however, claims that this criticism is not well founded, though his observation in this direction is not borne out by many other observers. Gelatine acts like starch, but the results are generally unsatisfactory, and it is, consequently, very little used at present. The mixture of a bicarbonate and an acid when immersed in water reacts and gives off carbon dioxide, thus mechanically breaking up the tablet. This method, as far as the writer knows, is not practiced now. Powdered agar-agar and Irish moss have been advocated as disintegrators, but so far they have not been used to any extent.

ABSORBENTS.

These include milk sugar, starch, magnesium carbonate, and powdered licorice root. The purpose of these agents is to absorb moisture or medicated liquids. For example, starch is frequently mixed with extracts, not only to facilitate drying, but also to act as a disintegrator when the material is in tablet form. Milk sugar constitutes the base of most of the hypodermic tablets, is an excellent absorbent, and produces porous tablets. Tablets are medicated homeopathically by simply adding the medication in liquid form and allowing the liquid to evaporate. Magnesium carbonate and powdered licorice root are not so well adapted for absorbing moisture as starch.

LUBRICANTS.

In the compression of drugs difficulty is generally experienced because the material adheres to the punches and dies. Agents used to minimize this diffi-

⁵⁰ Merck's Rept., 1901, 10: 211, 245.

⁵¹ Proc. Maryland Pharm. Asso., 1905, 26, 78; Abstr. Proc. Am. Pharm. Asso., 1906, 54: 663.

⁵² Pharm. Ztg., 1909, 54: 850.

⁵³ Med. Klinik, 1911, 7: 887, 927.

⁵⁴ Pharm. Post, 1909, 42: 169; Abstr. in Pharm. Ztg., 1909, 54: 178.

culty are called lubricants. A few granular compounds, like sodium bromid, potassium iodid, chloral hydrate and hexamethylamin, do not need lubrication. Dunton included lubricants and certain methods of application in his patent of 1875.⁵⁵ The principles announced then still hold to a large extent. A few new lubricants have been added. Those in use at present are talcum, liquid petrolatum (white oil), theobroma oil, boric acid, starch and stearic acid.

Purified talcum is the most common and abundantly used lubricant. It is used both alone and in conjunction with "white oil." The amount varies from one to five percent, based on the weight of the granulation, but the writer has found as much as 30 percent in the finished product. The addition is usually made to the granulation and is never employed in soluble tablets. Talcum is generally added for the purpose of overcoming "picking."

Liquid petrolatum ("white oil") of suitable quality is very generally used, both alone and in conjunction with talcum. It tends to prevent "sticking." About one drachm to each pound is ample. It should be used either not at all in the manufacture of soluble tablets, or as sparingly as possible, because it has a tendency to retard solution and produce milkiness. Dunton advocated the use of paraffin dissolved in a volatile solvent, over twenty-five years ago. The distribution of "white oil," cacao butter, and petrolatum by means of a volatile solvent is not productive of the best results. Experience has shown that the solution penetrates the granules and thus deposits a large part of the lubricant where it is of little or no service; furthermore, it is expensive and not without danger. Talcum and oil are frequently used together to prevent "picking" and "sticking." In analysis the presence of these lubricants should be kept in mind.

Boric acid is the only permissible lubricant for soluble tablets. When rapid solution is required the acid must be applied in an impalpable form. The amount used should never exceed 5 percent except in cases where it is one of the medicaments itself.

Theobroma oil (cacao butter), either alone or in solution, was brought forward in Dunton's patent in 1875, before mentioned. White and Rodwell are frequently given credit for its introduction into the tablet business, but this honor clearly belongs to Dunton.

Starch is not usually classed as a lubricant, although its value and usefulness for this purpose are well recognized.

Stearic acid has been advocated and used, but is not employed to any extent at present in making medicinal tablets. It is used to some extent in compressed confectionery.

FILLERS.

The term "filler" is applied to substances like terra alba, fuller's earth, kaolin, and other inorganic bodies serving the purpose of a base. They are usually considered inert and therefore harmless, but their introduction into the system must be looked upon as decidedly undesirable. Their use in confectionery is forbidden by law, and if they are undesirable for this purpose, why should they be introduced into the stomachs of the sick? There is no excuse for the practice.

Thus, it is clearly shown that the number of ingredients employed in the manufacture of tablets is legion, and all are agreed that it is absolutely necessary for

⁵⁵ U. S. Pat. 168240, dated Sept. 28, 1875.

every manufacturer to possess a great deal of knowledge as to their quality and purity, which can be gained only by proper chemical and pharmaceutical supervision.

CHEMICAL CONTROL.

The industry involves a multiplicity of details which must be carefully observed if this form of medication is to be prepared with the uniform composition usually claimed. It is necessary to know the character, purity and composition of the initial ingredients to be used. If this information is lacking it is practically impossible to even approximate in advance of analysis the amount of an active agent or agents in the finished product. The quality of medicinal chemicals available on the market is, on the whole, very satisfactory, but it would be unwise to take for granted that all of these drugs are as represented. Again, a chemical may deteriorate by being kept for an undue length of time or under improper conditions. There may be loss of water of crystallization on account of faulty containers or storage. Greater variation is liable to occur in tablets in which plant extractives are employed. These extractives are often made under the same roof as the tablets, and the possibility of taking chances under these conditions is sometimes greater than when they are purchased outside. On the contrary the quality of a home-made product is well known to the maker, and if it is carefully supervised the chances for deficiencies are diminished. The potent agents in plant products may vary to a great extent. Time is also believed to be an important factor, but this has not been definitely determined in many cases.

The use of different menstrua in extracting plant drugs causes great variation in the finished product. By using different solvents the yield may be doubled, in some cases, without correspondingly increased activity. In fact, the activity is frequently decreased in proportion to the increase of the extractive. The tablets in which such variable drugs are used cannot very well be uniform. The writer realizes that it is practically impossible to place every feature under chemical and pharmaceutical control, but in reality such a course is the only safe one.

SUPPLY AND STORE ROOM.

This is one of the most important units of the business, and should be in charge of a capable, well-trained and experienced man who should check up not only the quality and uniformity, but also the correct compounding of formulæ. In the case of habit-forming agents and expensive remedies he should be designated as the one responsible for their actual introduction. These drugs, particularly the former, may be surreptitiously spirited away, at least in part. Not a single ounce of material should leave this room without an order properly signed, stating the quantity and purpose for which it is to be used. Every formula should constitute an order by itself. It will serve as a useful record and tend to minimize errors. Laxness here has been found to lead to numerous difficulties, as will be shown later. The room should contain several compartments suited for the storage of the various drugs.

TRITURATING, POWDERING, AND MIXING.

Trituration is the process of reducing a substance to a fine or impalpable powder by grinding or rubbing. The substance to be triturated may be simple or mixed. If the several ingredients are triturated separately it will ultimately

be necessary to mix them, and it is believed that a powdering together of the active agents with a part at least of the excipient to be used often produces the best results. The mortar and pestle is the simplest trituratory, and the wedge-wood variety is the most generally satisfactory. This trituratory was formerly used almost exclusively. Fairly satisfactory results can be obtained, provided sufficient time and energy are spent. It is, however, applicable only to small batches. Apparatus has been devised for mechanically operating the mortar and pestle. Perfect triturations by this method are, however, few. The small ball mill produces better and more satisfactory results in every way.

Ball and pebble mills. These mills consist of revolving hollow cylinders of iron, steel, porcelain, and, in some cases, the metallic mills are porcelain lined. The trituration is accomplished by balls, usually of the same material, but sometimes hard, flint pebbles are employed. At times the pebbles are eroded, so that the powdered material is correspondingly contaminated. The material, with the balls, is introduced into the cylinder, the cylinder closed and rotated until the drug is of the required degree of fineness. This form of apparatus is very satisfactory for triturating hygroscopic, irritating and poisonous drugs. Porcelain or porcelain-lined mills are most satisfactory, although somewhat more expensive. Iron mills can be used only for powdering material possessing a large amount of color. Porcelain-lined ball mills vary in capacity from a few ounces to fifty pounds. A pot mill is simply a modified form of the ball mill.

Chasers may be considered as modified forms of mortars and pestles. They consist of heavy rollers rotating on a flat surface, or in a trough. These rollers are either of stone or iron. The action is slow but positive and satisfactory. They are suitable for powdering or mixing almost anything. Even white goods can be powdered in them if care is exercised. There is always some elevation encircling the rollers, to retain the material within a certain area. The entire machinery is usually enclosed in a separate chamber to avoid contamination either from the outside or by the spread of powder through a room in the course of powdering. If it is desired to prepare a special, high-grade powder, the rollers are encircled with cylinders of various heights. The higher these cylinders the finer the powder. The principle is that the rollers, in revolving, not only powder the material but also mechanically raise the finer powder in the form of dust, which falls over the side of the cylinder where it collects and can be removed. This form of apparatus is excellently suited for the preparation of high-grade, uniformly fine, soft powders. The method is, however, one of the most expensive, and is employed only for special products.

High-speed mills. For powdering large quantities, high-speed mills are essential. Very satisfactory mills are at present available. The details of construction differ, but the principle of powdering is the same. It lies in the fact that the drug is brought into contact with the beaters at a high rate of speed, varying from 2,500 to 3,000 revolutions a minute. The powder is usually kept in contact with these beaters until it is sufficiently fine to be ejected. From this it can readily be seen that the powdering is done by impact. The material is struck with repeated powerful blows and thus shattered into powder. The fineness is controlled by the rate of speed and by mechanical devices. Various in-

gredients may be simultaneously powdered, and thus mixed, but, as a rule, the several ingredients are powdered separately.

Mass mixers. This form of apparatus is suitable for the mixing of material containing more or less moisture. For example, it is of service in mixing solid extracts with powder, and it may be possible, by this form of apparatus, to mix together a product containing considerable moisture with dry material, so that it may be granulated.

Powder mixers. Various forms are available. The essential features of all are a semi-cylindrical trough, covered with a box-shaped lid, and a metallic spiral for mixing. Sometimes a sieve is placed at the bottom of one end, to guard against the introduction of material too large to pass through the sieve introduced. When two powders of materials of different specific gravity are to be mixed, great care must be taken because of the tendency of the heavier and the lighter powder to separate into layers, thus resulting in mixtures of variable composition. If the milk sugar or other vehicle is included in the mixing operation, the mixture is ready for making molded tablets, but if intended for compression the powder requires granulation.

GRANULATION AND MIXING.

Granulation is essential to the manufacture of satisfactory compressed tablets. It consists in thoroughly mixing the powders with suitable liquids and forcing the slightly dampened mass through a sieve of proper size. The granules thus formed are dried, after which the lubricant, or additional lubricant, is added if necessary, and the granules are again sifted. Certain chemicals come in granular form, or they may be readily granulated by milling and sifting. Before granulation it is important that the powder be reduced to the greatest possible degree of fineness, and that there be perfect mixture. Blaschnek⁵⁶ claims that granulation is not necessary. With this view, however, very few agree. No method has yet been devised nor any machine constructed by means of which it is possible to satisfactorily compress fine powders without undue pressure, except in the form of molded tablets. By means of granulation a friable mass is produced, whereas, if powder be compressed, the resulting tablet is hard and difficult to disintegrate, except in the case of soluble chemicals. Even an excess of fine powder mixed with the granulation often interferes with the satisfactory compression of the tablet, and is frequently responsible for undue variation in both weight and composition.

AGENTS OF A VOLATILE OR UNSTABLE NATURE.

One of the most difficult tasks of the tablet-maker is to incorporate in tablet form medicinal agents of a volatile or unstable nature. Among these are ammonium carbonate, camphor, nitroglycerin, salol, the valerianates and essential oils. One method in vogue is to mix all of the ingredients, granulate, and dry the granulation at room temperature as rapidly as possible, thus avoiding loss. In some instances, the manufacturer mixes a larger amount of the volatile drug with the granulation than is actually called for, thus allowing for some dissipation, yet preparing a finished product containing the requisite quantity of the drug. Another method consists in dissolving the volatile drugs in alcohol or

⁵⁶Pharm. Post, 1909, 42: 170.

some other volatile solvent and mixing the resulting solution with the granulation just previous to compression. This, of course, also requires a certain length of time for the elimination of the solvent. In addition there is great difficulty in uniform distribution by this procedure. For example, it would be very difficult to uniformly distribute throughout the granulation camphor dissolved in alcohol. The probabilities are that a larger proportion of the camphor would be mixed with one part of the granulation than with another part. Even should the distribution in the granulation be fairly uniform, a large amount of volatilization might still occur before the material was compressed. Neither of these procedures gives satisfactory results until the finished article is chemically adjusted.

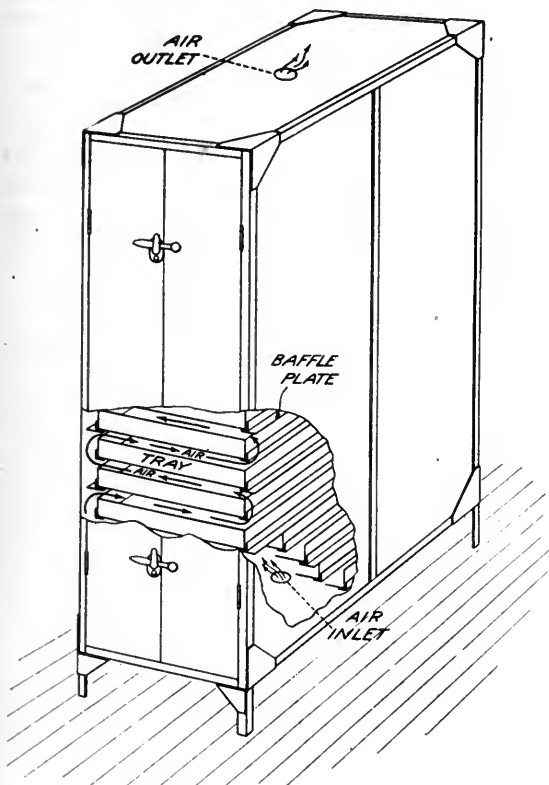


FIG. 19—Design of dryer made by Ralph R. Patch.

business is unprofitable, he manufactures such tablets on request because he desires to hold the patronage of medical men. It is argued that if one manufacturer will not fill prescriptions calling for these commodities, another manufacturer will do so, with the resulting loss of business in other lines. The medical profession should recognize these inherent difficulties and discontinue requests for such goods. If medical men persist in their requests the manufacturer himself will be compelled in self-defense to place upon the packages of such goods labels apprising the purchaser of the situation. They are unable to guarantee the goods to be strictly in accord with the prescription on account of the volatile nature of certain of the ingredients, even though the correct quantities were used at the outset.

Another point to be considered in this connection is the fact that even after the tablets are compressed in suitable form and contain the proper amount of such active agents, there is a probability of loss by volatilization, dissociation or sublimation, resulting in a product differing in composition from the declaration appearing upon the label. In cases of this kind it is best to discontinue the manufacture of such tablets. Dealers are unable to guarantee these products for any length of time, even when the tablets are right at the outset. The claim is frequently made that this line of business is not only unsatisfactory but unprofitable, and the hope is often expressed that medical men might be induced to cease ordering goods of this character in tablet form. One manufacturer claims that even though the

DRYERS.

One of the cardinal principles in the successful manufacture of tablets is a thorough drying of the material. Dunton emphasized this feature many years ago. The dampened granules must be dried. Some drugs, both simple and

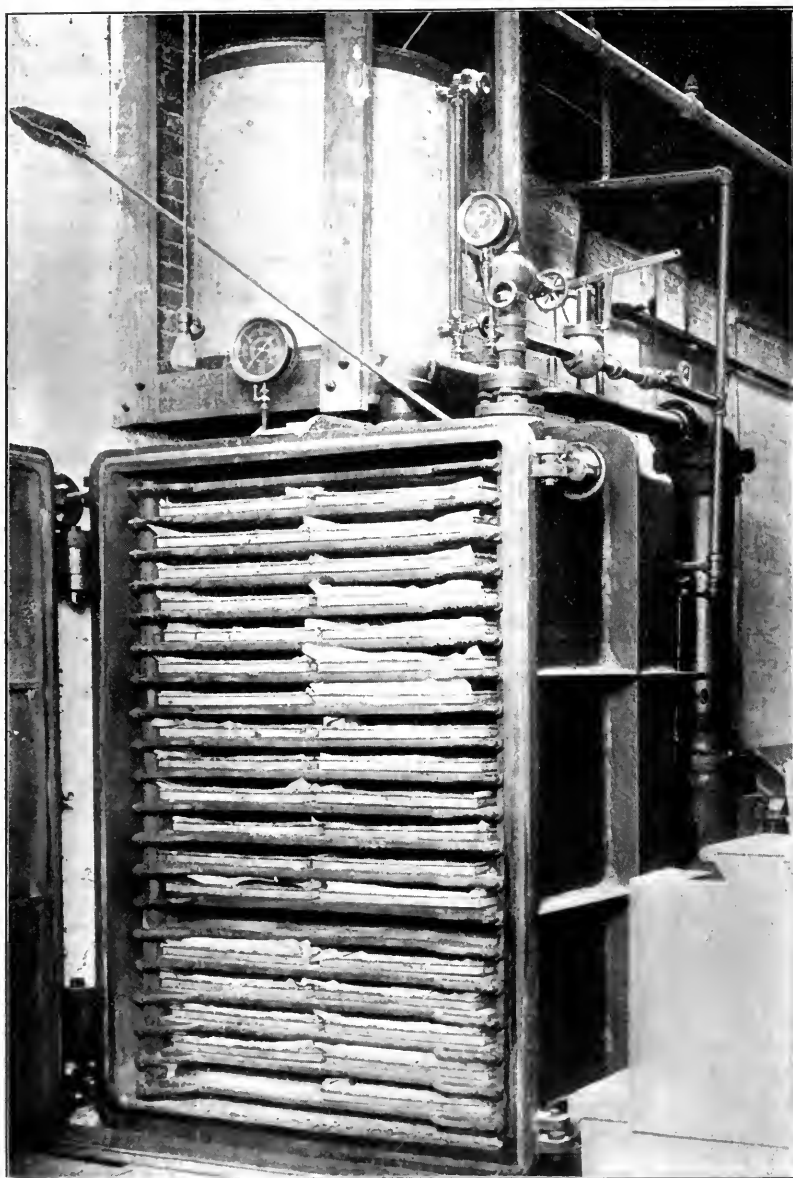


FIG. 20—Vacuum dryer.

mixed, may be sufficiently dried, under favorable conditions, in the open air, but the weather cannot be depended upon and a reliable drier must be used. It should be of the best possible construction and arranged to provide a continuous current of fresh air, at a uniform temperature, which should be under absolute control. This feature has apparently received very little attention in

the past, and is undoubtedly the cause of many shortcomings, particularly in the case of goods of a volatile or deteriorative nature. Such drugs should be dried at the lowest possible temperature. Dryers are usually heated by means of steam pipes coming from the boiler. Check valves are seldom introduced to control the heat. Observations made on some of the dryers show that the temperature varies from that of the room to 100°C. , 108°C. , 110°C. , 115°C. and even to 120°C. The air of some of these rooms is absolutely stagnant. Ventilation and change of air are dependent almost entirely upon the opening and closing of doors, a bad practice for which there is no excuse. The dryer should be so constructed as to introduce the air at the bottom, pass it over the successive trays, and finally emit it at the top. In case the granules are dried on cloth trays, such an arrangement is unnecessary. During the past decade, drying in a vacuum has been greatly improved. In a number of factories, discarded vacuum dryers have been observed, and the management stated that they were not successful. On the other hand, other manufacturers are using vacuum dryers with great success, and hold that their use is of eminent service in the proper drying of granules for compression. The writer has seen in very successful operation one of these vacuum dryers which had displaced a battery of the old form of dryers.

By means of this apparatus it is possible to conduct the drying at any ordinary temperature.

After a granulation is satisfactorily dried it is again sifted, and the lubricant, or additional lubricant, added. Flavoring agents, such as methyl salicylate, oil of peppermint, and oil of cinnamon, are also usually added at this stage, and the material is then ready for compression.

COMPRESSION OF TABLETS.

One of the prominent claims made for tablets is "uniform dosage and medication." No part of the entire process in the manufacture of tablets requires more care to produce accuracy than compression, and no feature has received greater attention. The machines now on the market are the outgrowth of many experiments to overcome the serious defects of the earlier machine. Devices of an uncertain character have given way to mechanisms of positive action. The simplest form of apparatus is the hand punch and die, useful in prescription work and in cases where only a limited number of tablets are required, but it is of little use at present. A number

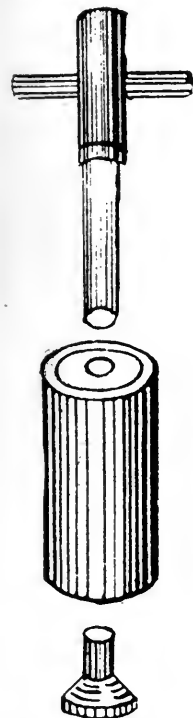


FIG. 21—Hand tablet compressor.
(V. L. Kebler)

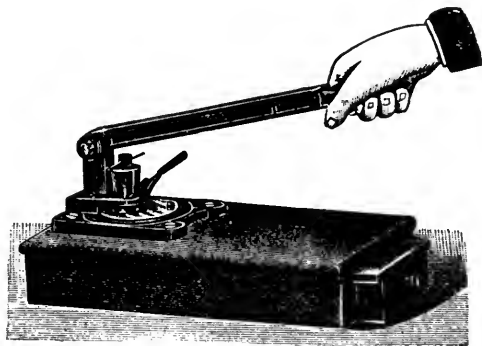


FIG. 22—Hand tablet press. (Ph. Ztg., 1902.)

of hand presses are now serving the same purpose, but their usefulness also is very restricted. The automatic power machines are universally

employed where any number of tablets are required. Of the two types of power machines, the rotary and the vertical punch, both single and multiple, many are advocated. Some do not have a good word for the rotary; others cannot praise it too enthusiastically. The modern rotary will undoubtedly turn out the greatest number of tablets in a given time, although the output of the multiple vertical, of eighteen to twenty punches, is very large. An eighty punch vertical machine has

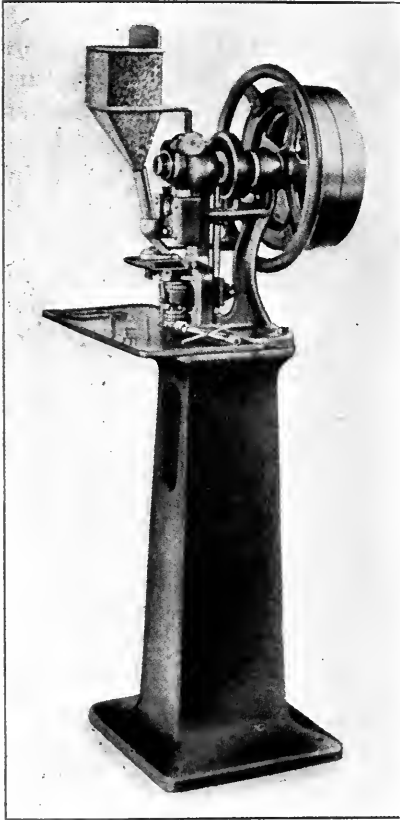


FIG. 23—Single punch vertical tablet machine (Stokes and Company).

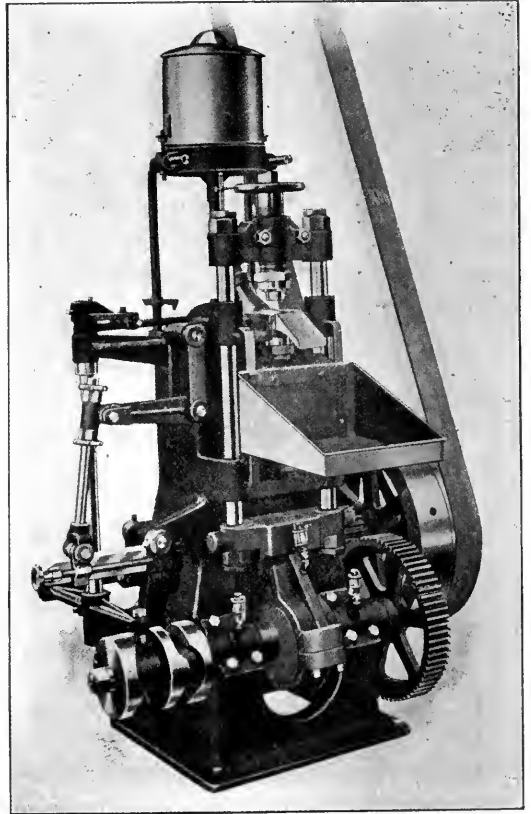


FIG. 24—Richards multiple punch vertical tablet machine.

recently been constructed. The first desideratum is a uniform tablet, and it is believed by many that the single punch machine has something in its favor in this direction, because there is less adjustment and alignment of punches and dies. The next essential is to prepare a tablet of such weight that the number actually produced from a given amount of granulation agrees very closely with the theoretical calculation. For example, if a formula calls for 500,000 tablets, the operator must determine the size necessary to produce approximately the theoretical number, including waste and loss. An experienced worker is able to do this very quickly.

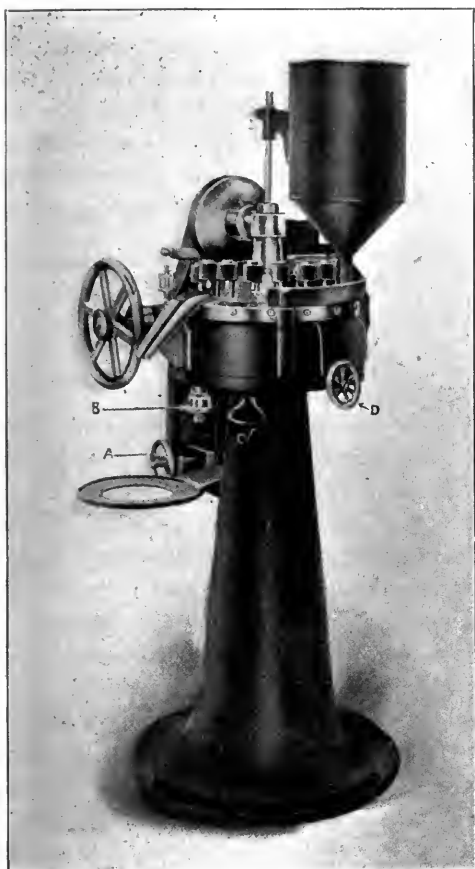


FIG. 25—No. 2 rotary tablet machine (Colton Company).

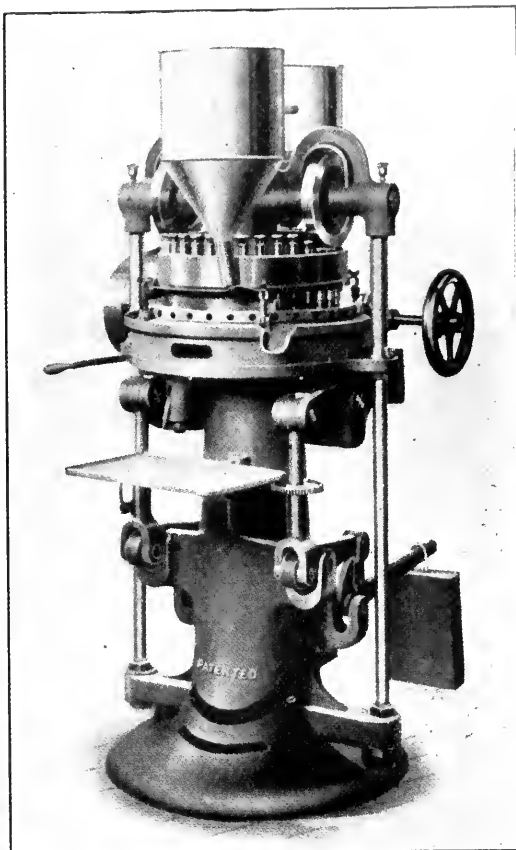


FIG. 26—Clark rotary tablet machine (Stokes Machine Company).

VARIATION IN WEIGHT OF MEDICINAL TABLETS.

A natural query at this point is, "How closely do the theoretical and practical yields agree?" On this operators are usually too enthusiastic. When the question, "How near, in practice, do you come to the calculated?" is put to them, the almost invariable reply is, "Two percent." Some admit that the variation may run as high as 3 percent, but not one has ever admitted that the variation might run as high as 5 percent, either above or below the number calculated. The writer has been shown formula after formula where the theoretical and actual yields are identical. Only a little thought will convince any one that such a feat is a rare exception. Data of this character must be taken with a grain of salt. It is very common not to take account

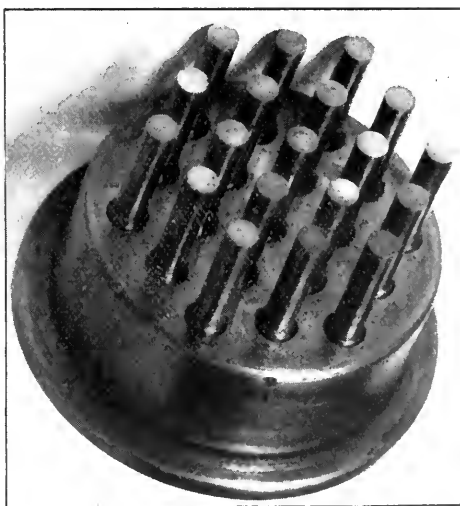


FIG. 27—Bottom punch (Fraser).

of waste and dust. To provide for these it is usually necessary to start with a larger amount of material than is required by calculation. After studying the entire question carefully and interviewing many manufacturers it is believed that a variation of 5 percent above and 5 percent below the theoretical is ample and can be readily complied with. Definite data on this point are scanty and difficult to secure. Working cards do not give them. The following are a few observations specially made by request, which represent regular runs:

Theoretical yield. No. tablets.	Actual yield. No. tablets.	Waste. Percent.	Gain or loss. Percent.
210,000	217,000	1.8	+5.10
420,000	432,000	1.3	+4.10
14,000	14,250	3.5	+5.3
29,166	28,594	1.0	-2.06

Some defects contributing to variable tablets are: (1) *Improper feeding*, due to the fact that the granulation is too fine, too coarse, too damp, or contains an excess of powder, and *excessive speed of machinery*, allowing insufficient time to uniformly fill the die or dies. (2) *Worn machinery, punches or dies*. Worn machinery may produce thick tablets one moment and thin ones the next. Worn punches and dies are the cause of "picking" (adhering to the punch), "sticking" (sticking to the die) and "whiskered" tablets, that is, tablets with elevated peripheral edges which are broken off in sifting, tending to leave ragged sides. (3) *Loosening of adjustments*. (4) *Careless weighing of the finished tablets*. The usual practice is to weigh ten tablets at intervals while a lot is being run. A common prescription balance is generally employed for the purpose. A wire gauge is also used to control the thickness of the tablets, and thus indirectly control their weight. At first it was believed that this practice was an inaccurate one, but an examination of tablets from factories where the method is in vogue showed them to be as uniform as where weighing only is practiced. It should be said, however, that where a wire gauge is used, weighing also is resorted to, but not as frequently as when weighing alone is relied upon to determine uniformity.

So far as it has been possible to determine, all tablet manufacturers and chemists believe that a total variation in weight per tablet of 10 percent, 5 percent above and 5 percent below an average, is very liberal for the larger tablets, and that if a greater variation were permitted it would encourage carelessness. That there will be some variation is conceded by all, and the variation will be greater for the smaller tablets. Manufacturers have not studied the question, at least not one of those interviewed was in a position to give any information on the point. A careful search of the literature shows that comparatively little work along this line has been done by analysts. Only one article containing data on variation in weight of individual tablets by analysts in the United States was found. Four contributions embodying information on the subject by chemists of foreign countries appear in print. The earliest was by E. J. Parry and P. A. Estcourt.⁵⁷ These investigators worked on tablets of single constituents. Their results, converted into the metric system and percentage, will be found in Table I.

⁵⁷Pharm. J., 1894, 24: 592-3.

TABLE I.—*Variation in the Weight of Medicinal Tablets.*

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
	<i>Grams.</i>	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>	<i>Percent.</i>	<i>Percent.</i>
Ammonium chlorid, 3 grains.....	0.2093	0.1989	0.2054	1.9	3.1	5.0
do .....	.2048	.1698	.1886	8.6	10.0	18.6
do .....	.2048	.1912	.1963	4.3	2.5	6.8
Ammonium chlorid, 5 grains.....	.3953	.3408	.3784	4.5	9.9	14.4
do .....	.3110	.2981	.3046	2.1	2.1	4.2
Antipyrin, 5 grains.....	.2948	.2611	.2780	6.0	6.1	12.1
do .....	.4044	.3875	.3933	2.8	1.5	4.3
do .....	.3434	.3110	.3311	3.7	6.0	9.7
do .....	.3363	.2948	.3168	6.1	6.9	13.0
Quinin sulphate, 3 grains.....	.2274	.2158	.2203	3.2	2.0	5.2
Quinin sulphate, 2 grains.....	.4212	.3629	.3927	7.3	7.6	14.9
Quinin sulphate, 5 grains.....	.3655	.3434	.3564	2.5	3.6	6.1
Quinin sulphate, 2 grains.....	.2916	.2592	.2754	5.9	5.9	11.8
Saccharin, $\frac{1}{2}$ grain.....	.0842	.0629	.0739	13.9	14.9	28.8
do .....	.0628	.0467	.0564	11.3	17.2	28.5
do .....	.0537	.0499	.0518	3.6	3.6	7.2
do .....	.0842	.0661	.0784	7.4	15.7	23.1
do .....	.0667	.0609	.0641	4.1	4.9	9.0
Sulphonal, 5 grains.....	.318	.305	.311	2.2	2.0	4.2
do .....	.382	.324	.361	5.8	10.2	16.0
do .....	.3466	.3259	.3357	3.3	2.9	6.2
do .....	.4490	.4011	.4192	7.1	4.3	11.4

The five different kinds of tablets examined show that 50 percent exceed a 10 percent total variation, 40.9 percent a 12 percent variation, and 22.72 percent a 15 percent variation. It will undoubtedly be claimed, and with justice, that these observations were made nearly a score of years ago, and every one will admit that there have been some material improvements during that time. In order that comparison may be readily made, the observations recorded by O. Liebreich, W. A. Puckner and A. H. Clark, G. Frerichs, and Eugen Seel and Albert Friederich are unified, summarized, put on a percentage basis and given in Table 2.

TABLE II.—*Variations in the Weight of Medicinal Tablets.*

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
	<i>Grams.</i>	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>	<i>Percent.</i>	<i>Percent.</i>
Potassium iodid ¹	0.5116	0.4754	0.4901	4.4	3.0	7.4
Arsenious acid ¹.....	.0521	.0496	.0504	3.4	1.6	5.0
Copper sulphate ¹.....	.0560	.0490	.0516	8.5	5.0	13.5
Bismuth, opium and phenol ².....	.4053	.3400	.3833	5.7	11.3	17.0
do .....	.4837	.4569	.4752	1.8	3.8	5.6
do .....	.5747	.4993	.5328	7.9	6.3	14.2
do .....	.5800	.5245	.5518	5.1	4.9	10.0
do .....	.3951	.3742	.3852	2.6	2.8	5.4
do .....	.4213	.3544	.3937	7.0	10.0	17.0
do .....	.5221	.3690	.4457	17.1	17.2	34.3
do .....	.3428	.2432	.3232	6.1	23.2	29.3
do .....	.3646	.3417	.3552	3.4	3.1	6.5
do .....	.3670	.3487	.3609	1.7	3.3	5.0
Pyrenol ³.....	.571	.432	.529	7.9	18.3	26.2
do ³.....	.577	.483	.544	6.1	11.2	17.3
do ⁴.....	.79	.46	.58	36.2	20.7	56.9
Pyrazolphenyldimethylsalicylate ⁴.....	.55	.48	.53	3.8	9.4	13.2
do .....	.6	.6	.6	0.0	0.0	0.0
do .....	.55	.55	.55	0.0	0.0	0.0
Salipyrin ⁴	1.18	1.05	1.12	5.4	6.2	11.6

¹Liebreich, O., Ther. Monatshefte, 1898, 12: 476.²Puckner, W. A., and Clark, A. H., J. Am. Med. Asso., 1908, 51: 330.³Frerichs, G., Apoth. Ztg., 1908, 23: 521, 522.⁴Seel, Eugen and Friederich, Albert, Med. Klin., 1911, 7: 888, 927, 928.

In 1898 when tabloids (a trade name for tablets) were introduced into the German army, O. Liebreich had the examinations recorded in Table 2 made. The results are fairly satisfactory. The examination of Puckner and Clark was mainly directed to the determination of the amount of phenol present in the tablets examined. The question of variation in weight was simply incidental. The results show that 54.54 percent exceed a 10 percent variation. The same degree of variation exists on a 12 percent basis, and 45.45 percent exceed a 15 percent variation; apparently not much of an improvement in fourteen years. Someone may say, "This phenol mixture is not suitable for making tablets, and if medical men write prescriptions for such compounds to be put up in compressed form, they ought to be prepared to get almost any kind of a variable article." Volatile substances like phenol should not be compressed into tablets. In arriving at a general conclusion as to the variability in the weight of tablets, volatile-bearing articles should not be included. They are in a class by themselves.

G. Frerichs inferred from the label "0.5 gram" on packages of "pyrenol" tablets that they contained nothing but 0.5 gram of pyrenol. In fact, there is little doubt, he believes, that every physician and apothecary labors under the same impression, particularly in view of the fact that the manufacturer made this claim. With these conditions obtaining he determined to make an examination of the tablets on the market, and incidentally weighed individually about thirty-two tablets. The results show a wide variation.

The observations made by Seel and Friederich on the variability of tablets were made in connection with a study of the causes of inferiority of some medications in tablet form. Their data show that tablets of acetylsalicylic acid and of pyrenol vary excessively, while tablets of two other chemicals are fairly satisfactory.

It is clearly evident that sufficient observations along this line have not been made to justify any general conclusions. The range studied must be greater in every direction. Medication in tablet form varies from a single ingredient to half a dozen or more. They contain both stable and unstable drugs, and volatile agents are also improperly put up in tablet form at times. In order to obtain extended data as to variability of weight, a large number of assorted tablets taken, first from the machines in operation, second, from trade packages as found in the market, and, third, from samples submitted by manufacturers, were weighed. The goods examined represent not only many manufacturers, both large and small, but also a liberal assortment. Twenty-five tablets were weighed in each case. The results obtained are given in Table 3.

TABLE III.—Variations in the Weight of Medicinal Tablets.¹

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
1.—Compressed tablets made on single punch machine:	<i>Grams.</i>	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>	<i>Percent.</i>	<i>Percent.</i>
Absorbent dyspeptic.....	0.728	0.647	0.694	4.9	6.8	11.7
Acetanilid.....	1.452	1.392	1.427	1.8	1.8	3.6
Acetanilid and soda comp. with quinin...	.447	.420	.434	3.0	3.2	6.2
Acetanilid and quinin.....	.385	.330	.358	7.5	7.8	15.3
Acetphenetidin.....	.2065	.1765	.1874	10.2	5.8	16.0
Aloin comp. with cascara.....	.0708	.0619	.0654	8.2	5.4	13.6
Ammonium chlorid, 5 grains.....	.334	.313	.3245	2.9	3.5	6.4
do.....	.345	.317	.337	2.4	6.0	8.4
Antiseptic pastilles.....	1.080	1.054	1.068	1.1	1.3	2.4
Antiseptic, Wilson's blue.....	1.074	1.009	1.047	2.6	3.6	6.2
Aphrodisiac.....	.305	.290	.298	2.3	2.7	5.0
Aspirin.....	.383	.343	.363	5.5	5.5	11.0
Calomel, .1 grain.....	.0724	.0632	.0670	8.0	5.7	13.7
Calomel, .25 grain.....	.1412	.1250	.1337	5.6	6.5	12.1
Calomel and rhubarb comp.....	.135	.103	.126	7.1	18.2	25.3
Cascara cathartic.....	.0728	.0583	.0662	10.0	11.9	21.9
Celery headache.....	.424	.404	.415	2.2	2.6	4.8
Charcoal.....	.777	.710	.759	2.4	6.4	8.8
Chalk mixture.....	.735	.705	.727	1.1	3.0	4.1
Chlorodyne.....	.295	.280	.286	3.2	2.1	5.3
Cold.....	.280	.230	.265	5.7	13.2	18.9
Corrosive sublimate.....	.999	.870	.903	10.6	3.6	14.2
do.....	1.001	.809	.965	3.7	16.2	19.9
Cough.....	.158	.148	.155	1.9	4.5	6.4
Cystitis No. 2.....	.498	.447	.460	8.3	2.8	11.1
Digitalin.....	.0178	.0157	.0166	7.2	5.4	12.6
Expectorant and anodyne.....	.1315	.1237	.1275	3.1	3.0	6.1
Grip.....	.542	.512	.526	3.0	2.6	5.6
Hexamethylenamin, 5 grains.....	.341	.310	.331	3.0	6.3	9.3
Laxative.....	1.571	1.466	1.514	3.7	3.2	6.9
Migraine.....	.2303	.2035	.2182	5.6	6.7	12.3
Migraine improved.....	.430	.375	.406	5.9	7.6	13.5
Migraine No. 3.....	.450	.340	.387	16.3	12.2	28.5
do.....	.418	.352	.386	8.3	8.8	17.1
do.....	.398	.383	.391	1.8	2.0	3.8
Milk.....	1.905	1.784	1.857	2.6	3.9	6.5
Pepsin.....	.1684	.1486	.1588	6.0	6.4	12.4
Phenolphthalein, 2 grains.....	.1691	.1568	.1630	3.7	3.8	7.5
Potassium chlorate.....	.3403	.3230	.3331	2.1	3.0	5.1
Quinin sulphate.....	.1943	.1636	.1776	9.4	7.9	17.3
Quinin sulphate, 2 grains.....	.1712	.1546	.1636	4.6	5.5	10.1
Rheumatic No. 4.....	.666	.614	.646	2.1	4.9	7.0
Salol, 5 grains.....	.408	.392	.399	2.3	1.7	4.0
Santonin compound.....	.0404	.0343	.0376	7.5	8.8	16.3
Seller.....	.756	.732	.744	1.6	1.6	3.2
Sodium bicarb., 5 grains.....	.367	.335	.357	2.8	6.1	8.9
Sodium bromid, 5 grains.....	.341	.317	.330	3.3	3.9	7.2
Sodium salicylate, 5 grains.....	.471	.448	.458	2.8	2.2	5.0
Strych. sulph., 1/60 grain.....	.1020	.0938	.0980	4.1	4.3	8.4
Strych. sulph., 1/30 grain.....	.1232	.1088	.1173	5.0	7.2	12.2
Terpine hydrate comp.....	.580	.500	.561	3.4	10.9	14.3
Tonic.....	.394	.360	.376	4.7	4.3	9.0
Worm.....	2.225	2.145	2.194	1.4	2.2	3.6
Zinc phenolsulphonate.....	.348	.327	.340	2.3	3.8	6.1
2.—Compressed tablets made on multiple punch machine:						
Acetanilid, 4 grains.....	.329	.282	.305	7.9	7.5	15.4
Acetanilid, 5 grains.....	.402	.375	.3855	4.3	2.8	7.1
do.....	.414	.364	.385	7.5	5.4	12.9
Acetanilid.....	.270	.245	.257	5.1	4.7	9.8
Acetanilid and caffeine comp.....	.352	.311	.334	5.4	6.9	12.3
do.....	.958	.836	.862	11.1	3.0	14.1
Alkaline and antiseptic.....	1.031	.968	.996	3.5	2.8	6.3
Aloin, belladonna, strychn. and ipecac....	.0292	.0246	.0270	8.1	8.9	17.0
Aloin, belladonna and strychnin.....	.0269	.0227	.0238	13.0	4.6	17.6
Ammonium chlorid.....	.687	.586	.642	7.0	8.7	15.7
Ammonium salicylate and acetanilid comp.	.501	.437	.470	6.6	7.0	13.6
Antiseptic No. 1, blue.....	1.016	.974	.998	1.8	2.4	4.2
Antiseptic No. 1, white.....	.986	.926	.957	3.0	3.2	6.2
Asafoetida, 5 grains.....	.571	.533	.551	3.6	3.3	6.9
Bismuth sub-gallate.....	.432	.355	.403	7.2	12.0	19.2
Bismuth subnitrate, 2 grains.....	.2343	.1883	.2022	15.8	6.8	22.6
Bronchial improved.....	1.680	1.553	1.626	3.3	4.5	7.8
Brown mixture and ammonium chlorid....	1.327	1.190	1.294	2.5	8.0	10.5
Calomel, $\frac{1}{4}$ grain.....	.0186	.0142	.0164	13.4	13.4	26.8

¹Weighings made by E. H. Grant, assistant chemist.

TABLE III.—(Continued.)

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
	Grams.	Grams.	Grams.	Percent.	Percent.	Percent.
Calomel and sodium bicarb.....	.2091	.1932	.2016	3.7	4.2	7.9
Calomel and soda.....	.253	.231	.245	3.3	5.7	9.0
Cascara comp. No. 3.....	.1895	.1649	.1754	8.0	5.9	13.9
Charcoal, 10 grains.....	.960	.918	.936	2.6	1.9	4.5
Corrective.....	.0986	.0909	.0939	5.0	3.2	8.2
Corrosive sublimate, citric acid, No. 2, blue	.710	.517	.624	13.8	17.1	30.9
Creosote, chocolate coated.....	.389	.342	.367	6.0	6.8	12.8
Cystitis No. 2.....	.382	.368	.375	1.8	1.8	3.6
Dover powder, 2 grains.....	.148	.134	.142	4.2	5.7	9.9
Dover powder, 2.5 grains.....	.1006	.0921	.0963	4.5	4.3	8.8
Dover powder, 3 grains.....	.217	.200	.209	3.8	4.3	8.1
Hexamethylenamin.....	.376	.292	.328	14.6	10.9	25.5
do.....	.337	.309	.326	3.4	5.2	8.6
Iron and mercury comp.....	.0912	.0853	.0886	2.9	3.7	6.6
Lime water.....	.350	.300	.324	8.0	7.4	15.4
Mercury with chalk.....	.1450	.1346	.1400	3.6	3.8	7.4
Migraine No. 1.....	.288	.257	.274	5.1	6.2	11.3
Migraine No. 3, 5 grains.....	.404	.368	.390	3.6	5.6	9.2
do.....	.400	.373	.390	2.6	4.4	7.0
Phenolphthalein.....	.2090	.1862	.1992	4.9	6.5	11.4
Potassium iodid, 5 grains.....	.340	.305	.320	6.2	4.7	10.9
Quinin bisulph., 2 grains.....	.1792	.1649	.1722	4.1	4.2	8.3
Quinin sulph., 2 grains.....	.1674	.1387	.1535	9.0	9.7	18.7
Quinin sulph., 2 grains, chocolate coated.	.308	.262	.283	8.8	7.4	16.2
Salol, 2.5 grains.....	.2245	.2090	.2159	4.0	3.2	7.2
Salol, 5 grains.....	.413	.348	.388	6.5	10.3	16.8
Sodium bicarb., 5 grains.....	.352	.309	.331	6.4	6.6	13.0
Sodium bicarb., 10 grains.....	.666	.624	.651	2.3	4.1	6.4
Sodium bromide, 5 grains.....	.333	.301	.319	4.4	5.6	10.0
Sodium bromide, 10 grains.....	.686	.621	.650	5.5	4.5	10.0
Sodium salicyl., 5 grains.....	.435	.393	.419	3.8	6.2	10.0
Stomachic sedative.....	.351	.311	.327	7.3	4.9	12.2
Strychnin sulphate.....	.0376	.0300	.0346	8.7	13.3	22.0
Triple bromids No. 1.....	.540	.453	.488	10.6	7.2	17.8
3.—Compressed tablets made on rotary machines:						
Acetanilid comp. No. 2.....	.408	.371	.390	4.6	4.9	9.5
Acetanilid and soda comp.....	.408	.355	.378	8.0	6.0	14.0
do.....	.418	.387	.403	3.7	4.0	7.7
Alkaline antiseptic, nasal.....	1.014	.951	.972	4.3	2.2	6.5
Antidyspeptic, No. 2.....	.222	.204	.214	3.7	4.7	8.4
Aspirin.....	.442	.315	.413	7.0	23.7	30.7
Bismuth subnitrate, 5 grains.....	.404	.358	.381	6.0	6.0	12.0
Blaud and strychn. comp.....	.347	.317	.328	5.8	3.3	9.1
Bronchial.....	1.523	1.435	1.496	1.8	4.0	5.8
Calomel.....	.0267	.0241	.0252	5.9	4.4	10.3
Cascara sagrada ext., 5 grains.....	.337	.307	.318	6.0	3.5	9.5
do.....	.338	.297	.316	7.0	6.0	13.0
Charcoal.....	1.168	1.125	1.138	2.6	1.2	3.8
Damia comp.....	.335	.281	.310	8.1	9.3	17.4
Digestive aromatic.....	.365	.331	.344	6.1	3.8	9.9
do.....	.497	.363	.423	17.5	14.2	31.7
Dyspepsia.....	1.228	1.137	1.165	5.4	2.4	7.8
Hexamethylenamin, 5 grains.....	.325	.305	.314	3.5	2.9	6.4
do.....	.361	.325	.338	6.8	3.8	10.6
Lactated pepsin, 5 grains.....	.330	.310	.321	2.8	3.4	6.2
Manganese dioxid, 2 grains.....	.1735	.1459	.1622	6.9	10.0	16.9
Migraine.....	.2725	.2503	.2579	5.7	2.9	8.6
Migraine No. 2.....	.264	.249	.255	3.5	2.3	5.8
Papain comp.....	.333	.308	.319	4.4	3.4	7.8
Phenacetin, 5 grains.....	.427	.384	.406	5.2	5.4	10.6
Phenacetin and caffeine No. 2.....	.360	.343	.354	1.7	3.1	4.8
Phenolphthalein.....	.323	.291	.306	5.5	5.0	10.5
Quinine sulphate.....	.1780	.1550	.1633	9.0	5.1	14.1
Quinine sulphate, 2 grains.....	.1598	.1411	.1511	5.8	6.6	12.4
Salol, 5 grains.....	.427	.400	.413	3.4	3.1	6.5
Sedative, white, sugar coated.....	.581	.515	.548	5.0	6.0	12.0
Soda mint, white.....	.295	.272	.282	4.6	3.5	8.1
Soda mint.....	.350	.310	.334	4.8	7.2	12.0
Sod. salicylate, 5 grains.....	.504	.435	.484	4.1	10.1	14.2
do.....	.441	.375	.406	8.6	7.6	16.2
Strontium salicylate, 5 grains.....	.419	.382	.397	5.5	3.8	9.3
Sulphur and cream tartar.....	1.290	1.230	1.256	2.7	2.0	4.7
Terpine hydrate and heroin, No. 2.....	.1863	.1686	.1771	5.2	4.8	10.0
Throat, mentholated.....	.578	.493	.534	8.2	7.7	15.9

TABLE III.—(Continued.)

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
	Grams.	Grams.	Grams.	Percent.	Percent.	Percent.
4.—Triturates and hypodermics made on single punch machines:						
Bismuth and cerium oxalate.....	.168	.163	.165	1.8	1.2	3.0
Calomel, .1 grain.....	.0514	.0458	.0486	5.7	5.7	11.4
Calomel and Dover powders.....	.107	.094	.101	5.9	6.9	12.8
Codein.....	.103	.097	.099	4.0	2.0	6.0
Codein sulph., .25 grain.....	.1019	.0970	.0994	2.5	2.4	4.9
Hepatic.....	.1016	.0859	.0925	9.8	7.1	16.9
Iron, arsenic and strychnine.....	.1404	.1310	.1365	2.9	4.0	6.9
Nuxvomica ext., 5 grain.....	.0993	.0932	.0967	2.7	3.6	6.3
Rhubarb comp., U.S.P. mass, .5 grain.....	.0852	.0783	.0815	4.5	3.9	8.4
Strychnine sulph., 1/30 grain.....	.0956	.0895	.0924	3.4	3.1	6.5
Strychnine sulph.....	.1028	.0953	.0990	3.8	3.7	7.5
5.—Compressed triturates and hypodermic tablets made on multiple punch machines:						
Acid, arsenious, 1/20 grain.....	.0200	.0170	.0185	8.1	8.1	16.2
Aloin, belladonna, strychnine and ipecac.....	.0695	.0569	.0636	9.3	10.5	19.8
Aloin, belladonna, strychnine and ipecac, No. 1.....	.0957	.0801	.0893	7.2	10.3	17.5
Calomel, .1 grain.....	.0832	.0715	.0750	17.6	4.7	22.3
do.....	.0722	.0648	.0673	7.3	3.7	11.0
Cascara sagrada, powder ext.....	.0700	.0646	.0663	5.6	2.6	8.2
Morphine sulph., 1/4 grain.....	.0892	.0780	.0828	7.7	5.8	13.5
do.....	.0707	.0640	.0671	5.4	4.6	10.0
Strychnine sulph., 1/30 grain.....	.0525	.0450	.0492	6.7	8.5	15.2
6.—Triturates and hypodermic tablets made on rotary machine:						
Calomel and soda, No. 5.....	.2013	.1340	.1709	17.8	21.6	38.4
Cocaine hydrochlorid, 1/4 grain.....	.0127	.0098	.0116	9.5	15.5	25.0
Corrective, infant.....	.1881	.1390	.1535	22.6	9.4	32.0
Morphine sulphate, 1/4 grain.....	.0177	.0151	.0164	8.0	8.0	16.0
Morphine sulphate.....	.0945	.0848	.0902	4.8	5.9	10.7
Rhinitis, 1/4 strength.....	.1478	.1286	.1366	8.2	5.8	14.0
Sodium salicylate, 1 grain.....	.1518	.1234	.1359	11.7	9.2	20.9
Strychnine sulph., 1/60 grain.....	.0123	.0090	.0110	11.8	18.8	30.0
do.....	.1005	.0868	.0950	5.6	8.6	14.2
7.—Molded tablets:						
Aconitine, 1/200 grain.....	.0959	.0742	.0816	17.5	9.1	26.6
Aloin and podophyllin.....	.0896	.0753	.0839	6.8	10.3	17.1
Antiseptic, Bernay's.....	.1900	.1552	.1755	8.2	11.6	19.8
Arecoline hydrobromid, 1/4 grain.....	.1884	.1582	.1747	7.8	9.4	17.2
Arsenic iodid, 1/60 grain.....	.1155	.1002	.1093	5.7	8.3	14.0
Arsenious acid, 1/4 grain.....	.1194	.1078	.1119	6.7	3.7	10.4
Barium chlorid, 5 grains.....	.341	.303	.326	4.6	7.0	11.6
Caffeine, 1 grain.....	.1307	.1150	.1241	5.3	7.2	12.5
Calomel, 1/10 grain.....	.0740	.0657	.0703	5.2	6.5	11.7
Cardiac R. "V".....	.378	.276	.332	13.9	16.9	30.8
Charcoal, 1 grain.....	.0749	.0695	.0716	4.6	2.9	7.5
Cocaine hydrochlorid, 1/4 grain.....	.0733	.0624	.0685	7.0	8.9	15.9
Cocaine hydrochlorid, 1/4 grain.....	.0370	.0314	.0337	9.8	6.8	16.6
Cocaine hydrochlorid, 1/4 grain.....	.0299	.0270	.0290	3.1	6.9	10.0
Codeine sulphate, 1 grain.....	.0792	.0716	.0763	3.8	6.1	9.9
Copper arsenite, 1/100 grain.....	.0751	.0679	.0718	4.6	5.4	10.0
Corrosive sublimate.....	.800	.665	.738	8.4	9.9	18.3
do.....	.216	.182	.200	8.0	9.0	17.0
do.....	.806	.722	.757	6.5	4.6	11.1
do.....	.186	.160	.172	8.1	7.0	15.1
do.....	.180	.152	.167	7.8	8.9	16.7
do.....	.211	.185	.198	6.6	6.6	13.2
do.....	1.123	1.000	1.082	3.8	7.6	11.4
do.....	1.050	.980	1.012	3.8	3.2	7.0
do.....	1.065	1.000	1.023	4.1	2.3	6.4
do.....	1.092	1.003	1.060	3.0	5.4	8.4
do.....	1.097	.996	1.059	3.6	5.9	9.5
do.....	.228	.200	.212	7.5	5.7	13.2
do.....	.928	.803	.897	3.4	10.4	13.8
do.....	.785	.602	.694	13.1	13.2	26.3
do.....	.183	.165	.178	2.8	7.3	10.1
Fever.....	.0597	.0531	.0558	7.0	4.8	11.8
Heart tonic, improved.....	.0762	.0654	.0725	5.1	9.8	14.9
Heroin, 1/20 grain.....	.0818	.0692	.0760	7.6	9.0	16.6
Heroin hydrochlorid, 1/24 grain.....	.0295	.0253	.0279	5.7	9.4	15.1
Ipecac powder, 1/4 grain.....	.0853	.0714	.0791	7.8	9.7	17.5
Mercuric iodid, yellow, 1/100 grain.....	.0773	.0688	.0725	6.6	5.1	11.7
Morphine and atropine.....	.0311	.0264	.0291	6.8	9.3	16.1
Morphine and atropine, No. 3.....	.1324	.0287	.0306	5.9	6.2	12.1
Morphine sulphate, 1/4 grain.....	.0313	.0275	.0296	5.7	7.0	12.7

TABLE III.—(Continued.)

Name of tablet.	Weight of 1 tablet.			Maximum variation.		
	Maximum.	Minimum.	Average.	Above Average.	Below Average.	Total.
	Grams.	Grams.	Grams.	Percent.	Percent.	Percent.
Morphin sulphate, $\frac{1}{4}$ grain.....	.0307	.0263	.0291	5.5	9.6	15.1
do .....	.0690	.0597	.0648	6.5	7.9	14.4
do .....	.0310	.0282	.0295	5.1	4.4	9.5
do .....	.0287	.0222	.0245	17.1	9.4	26.5
Nitroglycerin, 1/100 grain.....	.0334	.0298	.0313	6.7	4.8	11.5
do .....	.0340	.0283	.0308	10.4	8.1	18.5
Nux vomica, 1/1000 grain.....	.0775	.0711	.0747	3.7	4.8	8.5
Quinin & urea hydrochlorid, 3 grains....	.379	.329	.357	6.2	7.8	14.0
Quinin arsenite, 1/1000 grain.....	.0733	.0674	.0711	3.1	5.2	8.3
Salol, 1 grain.....	.0842	.0680	.0747	12.7	9.0	21.7
Sanguinarin nitrate, 1/1000 grain.....	.0766	.0691	.0727	5.3	5.0	10.3
Strych. phosphate, 1/30 grain.....	.0795	.0651	.0742	7.1	12.2	19.3
Strych. sulph., 1/150 grain.....	.0793	.0714	.0763	3.9	6.4	10.3
Strychnin sulphate, 1/60 grain.....	.0325	.0297	.0311	4.5	4.5	9.0
do .....	.0351	.0313	.0328	7.0	4.6	11.6
Strychnin sulphate, 1/50 grain.....	.0331	.0297	.0310	6.8	4.2	11.0
Strychnin sulphate, 1 grain.....	.0853	.0667	.0768	11.1	13.1	24.2

The following summary shows the number of kinds of tablets examined, the kind of apparatus on which they were made, and the percentage of tablets having a total (above and below average) variation of more than 10, 12, 15 and 20 percent, respectively:

No. of kinds.	Variety.	Kind of apparatus.	Maximum variation of more than			
			10 percent.	12 percent.	15 percent.	20 percent.
			Percent.	Percent.	Percent.	Percent.
54	Compressed	Single punch.....	44	37	19	5.6
53	do	Multiple punch...	51	43	28	9.4
38	do	Rotary	45	28	15	5.3
11	T. T. ¹ & H. T. ²	Single punch.....	27	18	9	0.0
9	do	Multiple punch...	78	67	67	11.1
9	do	Rotary	100	89	67	55.6
57	Molded	Mold	79	56	37	10.5

The number of tablets exceeding a 10 percent variation is very high. Simple tablets do not seem to fare any better than compound ones. One type of machine yields about as good results as another for the regular compressed tablets. On the whole, the single punch appears to have a little the advantage. The rotary fares badly for the compressed tablet triturates and for the hypodermic tablets. The variation in the smaller tablets is greater than in the larger, as would naturally be expected.

Of the total number of tablets, 57 percent exceed a maximum total variation of 10 percent, 44 percent a maximum of 12 percent, 28 percent a maximum of 15 percent, and 9.1 percent a maximum of 20 percent. There is little excuse for tablets exceeding a total 20 percent limit. A 10 percent variation was generally believed to be ample, but the figures do not accord with this limitation. A 12 percent variation would not relieve the situation materially, while a 15 percent variation still leaves 28 percent exceeding this limit. The large manufacturers' goods vary in weight as much as those of the small ones. It is believed that a 15 percent variation, $7\frac{1}{2}$ percent above and $7\frac{1}{2}$ percent below the average weight,

¹T. T.=Tablet triturates.²H. T.=Hypodermic tablets.

is very liberal and possibly excessive; yet, with this latitude, an unduly large number are found wanting. It would seem that greater care must be exercised in the manufacture of this form of medication if its time-honored claim for uniformity of weight and dosage is to be maintained.

A review of the figures in the tables shows that in a large proportion of cases the variation is about as much above as below the average. If, therefore, a number of tablets are taken for analysis, as is commonly the case, it should be found that they average the proper amount of medicament. Consequently if a patient is given a number of tablets daily he will receive the intended per diem dose. This is not ideal or scientific medication. Before accepting the conclusion even on this basis, however, let us examine the premises. It is estimated that the average tablet contains the declared amount of medication. Fortunately, the correctness of this assumption can be established by a chemical analysis in a large number of cases.

CHEMICAL ANALYSIS.

Available information on the chemical analysis of tablets is meagre. Comparatively few analyses are recorded in the literature. All chemists conversant with this industry, however, hold that a 10 percent variation above or below the amount claimed to be present is ample for the vast majority of tablets and that only in exceptional cases should this variation reach 15 percent. Tablets containing volatile agents are not considered in this general conclusion.

The earliest chemical analysis of tablets with results recorded was made by Parry and Estcourt, in 1894. Four years later O. Liebreich had some analyses made of tablets. The results obtained by these workers are shown in Table 4.

TABLE IV.—*Results of the Analyses of Tablets by Parry and Estcourt.*

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Ammonium chlorid ³	3.	3.08	+2.7
do.....	3.	2.66	-11.3
do.....	3.	3.03	+1.0
do.....	5.	5.79	+16.8
do.....	5.	4.70	-6.
Antipyrin.....	5.	4.29	-14.2
do.....	5.	4.86	-2.8
do.....	5.	4.31	-13.8
do.....	5.	3.80	-24.
Quinin sulphate.....	3.	3.06	+2.
do.....	2.	2.02	+1.
do.....	5.	4.41	-11.8
do.....	2.	2.06	+3.
Saccharin.....	.5	.66	+32.
do.....	.5	.54	+8.
do.....	.5	.51	+2.
do.....	.5	.61	+22.
do.....	.5	.44	-12.
Sulphonol.....	5.	4.80	-4.
do.....	5.	4.95	-1.
do.....	5.	4.74	-5.2
do.....	5.	5.30	+6.

³Parry, E. J., and Estcourt, P. A., *Pharm. J.*, 1894, 24: 592-3.

TABLE V.—*Results of the Analyses of Tablets by Liebreich.**

Product.	Amount declared.	Amount found.	Variation.
	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>
Potassium iodid.....	0.5	0.4864	—2.7
do .....	.5	.4789	—4.2
do .....	.5	.4843	—3.1
do .....	.5	.4751	—5.0
do .....	.5	.5070	+1.4
do .....	.5	.4789	—4.2
do .....	.5	.5113	+2.3
do .....	.5	.4934	—1.3
do .....	.5	.4966	—0.7
do .....	.5	.4924	—1.5
do .....	.5	.4836	—3.3
do .....	.5	.4859	—2.8
Arsenious acid.....	.005	.004976	—5
do .....	.005	.004917	—1.6
do .....	.005	.004917	—1.6
do .....	.005	.004976	—0.5
do .....	.005	.005046	+0.9
do .....	.005	.005174	+3.5
Copper sulphate.....	.05	.0560	+12.
do .....	.05	.0504	+0.8
do .....	.05	.0490	—2.0
do .....	.05	.0521	+4.2
do .....	.05	.0501	+0.2
do .....	.05	.0519	+3.8
Morphin hydrochlorid.....	.01	.00998	—0.2
do .....	.01	.00988	—1.2
do .....	.01	.00975	—2.5
do .....	.01	.00961	—3.9
do .....	.01	.00948	—5.2
do .....	.003	.00303	+1.0
do .....	.003	.00290	—3.3
do .....	.003	.00291	—3.0
do .....	.003	.00290	—3.3
do .....	.003	.00289	—3.7
Strychnin nitrate.....	.001	.00093	—7.0
do .....	.001	.00099	—1.0
do .....	.001	.00095	—5.0
do .....	.001	.00094	—6.0
do .....	.001	.00095	—5.0
Mercuric chlorid.....	.01	.0099	—1.0
do .....	.01	.0099	—1.0
do .....	.01	.0098	—2.0
do .....	.01	.0099	—1.0
do .....	.01	.0097	—3.0
do .....	.01	.0102	+2.0
do .....	.01	.0099	—1.0
do .....	.01	.0100	0.0
do .....	.01	.0098	—2.0
do .....	.01	.00996	—0.4
do .....	.01	.0098	—2.0

*Liebreich, O., Ther. Monatshefte, 1898, 12: 476-7.

A summary on a percentage basis of these results shows the following:

	Variation greater than			
	10 Percent	12 Percent	15 Percent	20 Percent
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Parry and Estcourt.....	41.	27.	4.5	4.5
Liebreich	0.0	0.0	0.0	0.0

These results clearly indicate that the tablets examined by Parry and Estcourt vary unduly in many respects. The fact that these observations were made nearly twenty years ago should be taken into consideration. The analytical data obtained by Liebreich show that the tablets examined by him were very satisfactory. In not a single instance was there a variation of as much as 10 percent from the amount declared. This is an excellent showing, particularly in view of the fact that the tablets were made and analyzed fifteen years ago. All will concede that improvements in machinery and in manipulation, as well as along other lines, have been made since then.

TABLE VI.—*Results of the Analyses of Tablets by Pouchet.*⁶

Product.	Amount declared.	Amount found.	Variation.
	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>
Aconitine	0.00025	0.00031	+24.
Quinine hydrobromid.....	.030	.0292	—2.7
Sodium and caffen salicylate:			
Caffen .....	.0164	.014	—14.6

Although the results recorded by this observer are meager, they are included in order to make the data on this subject as complete as possible.

In 1899 J. E. Groff published an article entitled, "Examination of Tablet Triturates as Found in the Markets."¹ This worker examined tablets of calomel, mercuric iodid, morphin, and corrosive sublimate, as well as samples, of 1/60 grain strychnin sulphate. The strychnin sulphate, mercuric iodid, and corrosive sublimate tablets were found to be as represented, as were also the 1/10, 1/8, 1/4 and 1/2 grain morphin sulphate tablets. In one case doubt is expressed as to 1/8 grain morphin sulphate tablets. All of the calomel tablets contained either an excess or an insufficient amount of the drug. A careful reading of this article gives the impression that the methods used in making the determination and the form in which the results are expressed are unsatisfactory and vague.

The next systematic work was done nearly ten years later, when G. Frerichs² examined a number of pyrenol tablets. The results recorded by him show that the tablets he examined were, to say the least, of a very unsatisfactory character. In every instance the amount of chemical found was much less than the amount

⁶Pouchet, Gabriel, *Ann. de Pharm. Louvain*, 1898; 4: 375; *Abstr. Apoth. Ztg.*, 1899; 14: 179.

¹*Amer. Drug.*, 1899, 34: 196.

²Frerichs, G., *Apoth. Ztg.*, 1908, 23: 521-2.

declared. Nearly 88 percent exceeded a maximum 20 percent variation, as the following results will clearly show:

TABLE VII.—*Results of the Analyses of Tablets by Frerichs.*³

Product.	Amount declared.	Amount found.	Variation.
	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>
Pyrenol	0.5	0.319	—36.2
do .....	.5	.348	—30.4
do .....	.5	.337	—32.6
do .....	.5	.296	—40.8
do .....	.5	.308	—38.4
do .....	.5	.440	—12.0
do .....	.5	.408	—18.4
do .....	.5	.294	—41.2
do .....	.5	.322	—35.6
do .....	.5	.385	—23.0
do .....	.5	.382	—23.6
do .....	.5	.363	—27.4
do .....	.5	.223	—55.4
do .....	.5	.385	—23.0
do .....	.5	.383	—23.4
do .....	.5	.376	—24.8
do .....	.5	.308	—38.4
do .....	.5	.296	—40.8
do .....	.5	.445	—11.0
do .....	.5	.294	—41.2
do .....	.5	.348	—30.4
do .....	.5	.342	—31.6
do .....	.5	.292	—41.6
do .....	.5	.367	—26.6
do .....	.5	.327	—34.6
do .....	.5	.326	—34.8
do .....	.5	.338	—32.4
do .....	.5	.375	—25.0
do .....	.5	.314	—37.2
do .....	.5	.445	—11.0
do .....	.5	.341	—31.8
do .....	.5	.379	—24.2

P. Bruère, in his book published in 1908,⁴ gives some data dealing with the composition of tablets, but they are not of such a character as to serve any material purpose in the present investigations.

(To be continued)

OUR FLAG.

"Its stripes of red, eternal-dyed with heartstreams of all lands;
 Its white, the snow-capped hills which round our free land bands;
 Its blue, the ocean-waves that beat 'round Freedom's circled shore;
 Its stars, the print of angel's feet, that shine forever more."

—Riley.

³Frerichs, G., *Apoth. Ztg.*, 1908, 23: 521-2.

⁴Sur l'utilisation en pharmacie et en chimie analytique des comprimés de substances médicamenteuses et chimiques, Paris, 1908.

Section on Pharmacopœias and Formularies

Papers Presented at the Sixty-First Annual Convention

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 THE BEST CO-OPERATION.

It is possibly an old-fashioned and out-of-date theory, but until I learn of stronger reasons against it than any I have yet heard, I shall hold to the faith that the best co-operation, and that which will serve the drug trade as a whole, is that wherein the manufacturer, the jobber and the retailer, while co-operating within their respective classes for their own profit, shall also co-operate, honestly and heartily, with each other for the welfare of all.—J. H. Beal.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

PHYSICIANS AND PRESCRIPTION WRITING.

R. H. NEEDHAM.

In discussing this question, I shall confine my remarks to the prescriptions found in drug stores, not those models selected from text-books. I will not consider those orders for medicines which originated years ago, were used as formulas, and since, with a little elaboration and alteration, have attained the dignity of prescriptions.

Considering a prescription as an order for drugs or medicines to be compounded and dispensed, and the order to have been written by one who understands the practice of medicine, we would have in mind an order conforming in most its details, to a model prescription. I regret that such prescriptions are the exception, though, as time goes on, the number of more uniform and perfect prescriptions shows an encouraging increase.

The errors I shall criticise are the ones most commonly made, viewed from a pharmacist's standpoint. There are many others viewed from the therapist's standpoint that justly deserve criticism, though it might not be considered within my province to present the same.

Many prescriptions are offered to the dispenser which bear no heading or name, to give the pharmacist a clew as to sex, age or for which one of the family the medicine is intended. We understand that false ethics have rather decreed that those suffering from venereal diseases should not have their ailments advertised to the world, by placing their names upon prescriptions, but I wish to state that the druggists merit just as much confidence, in this respect, as the physicians. Dispensary experience has taught me to insist upon the name and the age of the patient being given, for, if quite young or very old, we absolutely need the latter, particularly, in checking dosage.

The next point I wish to take up is the inscription. In school and in the best text-books we are taught, that a model prescription should contain,—a base, an adjuvant, a corrective and a vehicle or diluent, though a prescription *may consist* of but one ingredient. In teaching this subject to students I try to impress the importance of keeping in mind this model, and deviations from it can readily be made. We regret that so many of the prescriptions to-day, show absolutely no earmarks of the prescriber having ever been taught in such a manner. Too many prescriptions show a tendency on the part of the prescriber to "shot-gun" the disease, not by ordering twelve or more ingredients for the prescription, but to provide several drugs for emergencies which might arise during the prognosis

of the disease. The drugs prescribed frequently show a lack of knowledge as to their action in normal or pathological conditions, whether secondary or primary in their action.

As one old physician expressed it, he preferred to always shoot with a rifle and to get what he shot at, therefore he gave calomel in 4 to 10 grain doses with soda only. After all, our old doctor was not far wrong and he usually obtained results.

I submit to you an example which will illustrate another point I wish to make,—the question of solubility. A prescription is frequently written, by a number of physicians, calling for sodium bi-carbonate, sodium benzoate and benzoic acid, in aqueous solution. Sometimes hexamethylaniline replaces the sodium salt. When complaint was made of the incomplete solution of the chemicals and the explanation was offered that the sodium benzoate and the benzoic acid were not in order, retort was made that the case demanded them so they were prescribed. The prescriber might think that "shot" was required, yet complete solution could not be effected unless there was chemical re-action. Another instance brought to my attention was the prescribing of creostal with acacia and cinnamon water to make an emulsion. In whatever manner this prescription was prepared, it would turn pink upon standing, although the druggist could have avoided the color-trouble by gently warming the creostal before emulsifying, or by adding a little expressed oil of almonds. The physician refused to allow the patient to take the medicine, even after seeing it compounded. I might add that the physician was well-educated, and an instructor in the practice of medicine in a medical college. The pink color lost the druggist that physician's business, and similar color changes often make trouble owing to the ignorance of the prescriber. I would suggest that a "sticker" or small label, be placed upon such preparations as are liable to color-changes; these stating that any color-change occurring in the preparation will not alter its medical effects.

The days of "shot-gun" prescriptions are not over, as many are written which contain two or more proprietaries, these, in turn, having from three to six ingredients giving a total of ten or more drugs and some of them making most unsightly preparations.

The so-called Latin of our prescriptions cannot be called Latin, as the tendency is to abbreviate everything that can be Latinized, and when the Latin name is not at hand the English name is given. I fear this habit is due first, to a lack of knowledge of medical Latin, and secondly to indolence and carelessness. There is little or no excuse for scratching and blotting figures and signs. It has always been the belief, that if the practitioner could not read a prescription after it was "cold," that there is always one who can read it, the poor long-suffering druggist. To receive a well-written, Latinized prescription, is a source of inspiration and delight to any pharmacist, and he would be a knave indeed who would not send out the prescription with as much care and elegance as the order was written.

What are the remedies to be applied to correct some of these ills? After close observation of these particular evils, I unhesitatingly answer, *better and more thoro education both for the druggist and physician*. There is too great a difference between them in this respect, so much so that the physician with his more

complete education, looks down upon the druggist, with less education and his commercial business, as one who should not pretend to proffer advice nor be consulted on matters of prescription-writing or compounding. There are some great faults existing in our system of medical education and I shall attempt to point out one or two. In the schools to-day, prescription-reading is taught to pharmacy students, while prescription-writing is taught to "medics." The former is apt to hold to his instruction, for his mind is not diverted during his course in school. The "medic" is so extremely anxious to prescribe that he rapidly skims over the fundamentals of prescription-writing, beholding a vision of office-days, when he shall write prescriptions by the dozen. When he reaches his third and fourth year's work, he has completely forgotten the fundamentals, but has acquired a host of formulas. I regret to state that the instructors pay little attention whatever to set rules for formulating prescriptions, but write with dash and rapidity, abbreviating everything possible. There is a lack of exactness and precision, little or no attention paid to those small details which go to establish the fundamentals of prescription-writing. After all this, what opportunity has the druggist to gain the physician's confidence, that he may discuss a prescription with him, as to incompatibility, etc.?

I trust that the education of the future druggist will be so complete along this line, that he will have a more complete knowledge of pharmacology and therapeutics. Then, perhaps, it will be with all as with a physician friend, who writes or telephones his prescription "*secunden artum*" (!) for the subscription. When asked why he wrote thus, he replies that he has full confidence in his man, and believed that such a pharmacist could dispense a better prescription in every way, if given the due measure of liberty and confidence he deserved. It would appear then that if we can succeed in attracting the notice of medical instructors and direct their attention to this flaw in medical education, we would be in a position to expect better-written prescriptions. Give our pharmacists a more complete education that they may feel free to bring to the attention of practitioners the necessity of a better knowledge of the fundamentals of prescription-writing. Such a state of affairs would certainly be conducive to better and more friendly relations between druggist and doctor and we predict that the prescription-business will be increased proportionately.

DISCUSSION.

Doctor Fantus said he was sure he had profited by this paper, and voiced the same wish as the author of the paper, that more of the practicing physicians would get the advantage of proceedings of this kind. He pleaded for charity for the doctor, who wrote his prescriptions very often under the most trying circumstances—circumstances that tested the nerves of the strongest; when he had, perhaps, half a dozen crying men, women and children around him, with the patient in the most desperate condition. Under such circumstances, the physician was not likely to recall all the things that should go into a prescription, such as the writing of the patient's name, etc. He did not mean that the physician should not do these things as precisely, and with as much precaution, as the druggist should fill the prescription; he only meant to refer to the difficulties surrounding the physician at times. He, sometimes, said to his students that prescriptions should be a good deal like a bank-check, and that the same care should be exercised in writing them; in fact, that greater care should be taken. There was no question but that the highest degree of precaution should be used, in order that medicines might be administered scientifically, and be made more pleasant and efficient. He

wondered, sometimes, whether something might not be gained by making an investigation regarding the qualifications of applicants to practice medicine in prescription-writing, as an end to bettering the deplorable conditions that sometimes existed. If in order, he said he would like to move that a committee be appointed to make such investigation, and ascertain the extent to which prescription-writing was taught in the medical colleges of the country, and the extent to which medical examining-boards inquired into the thoroughness with which candidates had been prepared for prescription-writing.

This motion was seconded by Mr. Needham.

Mr. Fennell said he hoped this motion would not prevail, as he thought the pharmaceutical profession had its hands full in investigating the colleges and other teaching institutions of pharmacy of the country, and seeing that *they* did the proper thing, without invading the domain of the medical profession. He did not think it was within the province of this association of pharmacists to thus undertake an investigation of the medical profession.

Mr. Nitardy suggested that Doctor Fantus, who had so ably put this proposition before the Association, might, as a member of the medical profession, be appointed a committee of one on this subject. It could then be made with fairly good grace, and he could report to this Section at some future time, say, next year. Then the members would be in a position to act, provided the suggestion met the approval of Doctor Fantus, after thorough consideration.

Doctor Carter said that, as a practicing physician, he desired to support the recommendation made by Doctor Fantus. No one appreciated the inability of the average physician to write the prescription properly, more than the physician himself. He had been brought in contact with both juniors and seniors in this work, and realized this as one of the greatest weaknesses of the medical profession. He had been helped more by the daily assistance of pharmacists, who filled his prescriptions, than in any other way, and he thought a great work could be done by pharmacists in training the younger physicians in this respect. This was a particularly good field for labor with young physicians beginning the practice of their profession. It would do away with the prescribing of proprietary and special formulas, which was being constantly forced upon the younger physicians. As a practitioner of medicine, he said he would be glad to support the motion made by Doctor Fantus.

Mr. Mayo said that he, too, would like to support the motion made by Doctor Fantus. A physician was not a god, nor even a demi-god; he was a mortal man. He made errors, and the pharmacist made errors. This was entirely an impersonal thing, and he thought it was wholly within the province of the pharmacists of the country to ascertain why it was that they received prescriptions which were such a discredit to the medical profession. They would be doing the medical profession a great service if they could point out these defects in their medical curriculum.

Mr. Gordon wanted to know, if this committee was appointed and made report at the next meeting, what it was proposed to do with that report. Mr. Mayo sententiously replied, "We sha'n't suppress it. The disposition of that report will lie with the body to which it is made."

Mr. Alpers said that medical schools had devoted a great deal of attention to this work of prescription-writing in late years, and he believed that the young medical men of the day were competent to write prescriptions. There were a great many physicians in the country who were deficient in this respect—who had not been taught to write prescriptions when they went to school. All pharmacists knew this, and the physicians knew it, too. It was to be regretted that it was so. He personally knew it to be a fact that physicians sometimes hesitated to write prescriptions, because they were in doubt about the proper names of things, and they would go home and fix up the prescription themselves. The desired end could only be brought about by gradual improvement in both pharmaceutical and medical colleges. If the pharmacist complained that the physician did not understand Latin, he was liable to have the physician come back and say: "How many of you understand Latin?" It was necessary for both the medical and pharmaceutical colleges to first look into the entrance requirements. The science of chemistry and other allied sciences was international, and should have a nomenclature to be understood by all nations. The only language fitted for such work was the Latin language. Every physician, therefore, should be familiar with the Latin language.

before he undertook the study of medicine, and the same thing applied to the pharmacist. He could see no objection to having knowledge as to whether a medical college in New York or California taught prescription-writing, but he could see no benefit to be derived from such an investigation, beyond the securing of a lot of statistics for publication, and, personally, he did not agree with this tendency. He believed the physician and pharmacist should be, from a scientific and professional standpoint, intimate friends in every respect. He had found it better policy not to allow a continuous enmity between the two professions. A great many physicians were willing to write prescriptions and trust to the pharmacists, who had the proper education, to correct their Latin. Very often the physician did not know the exact degree of solubility of certain articles, but he said "make a solution," and left it to the pharmacist, and it would be bad taste for the pharmacist to conclude from that, that the physician was a fool.

CALOMEL SUSPENSION.*

F. W. NITARDY.

The object of this paper is not, as you may assume from the title, to explain how to produce a calomel-suspension, even though this will be done incidentally, but it is written to relate an experience which may apply to other substances precipitated from solution, and may, in that capacity, prove of interest or value.

Some years ago, a "beauty doctor" came to me with the request to duplicate for her a certain liquid face powder. I had seen the analysis of this preparation published, and I had confirmed same by my own analysis. Its composition was calomel and water.

I found that the calomel on the market was too coarse to be used for this purpose, so I determined to make a finely divided calomel by precipitating same from a dilute solution. I had no difficulty in obtaining calomel of the desired fineness or even finer, but found that when this was mixed with water, the precipitate would invariably coalesce into a curd, and then rapidly settle out. I tried to overcome this tendency in various ways but failed.

The "beauty doctor" was not satisfied with this preparation and as she left the city soon afterwards, I paid no further attention to the mixture, a sample of which still remained in our laboratory.

Some weeks later, I thought I would add some mucilage of Acacia to the mixture and see how much of a mucilaginous substance would be necessary to prevent this curdling of the precipitate. So, I added 5 percent, by volume, of mucilage acacia, and shook the mixture well. I found this was sufficient to bring about the desired result, possibly more than sufficient. To determine this, I allowed the mixture to stand until the calomel had settled out, decanted a portion of the supernatant liquid and replaced it with water. It still remained in the desired condition, so I repeated the operation and kept on repeating it, until all the mucilage had been washed out of the precipitate, which no longer coalesced in curds when suspended in water. In this condition it remained suspended in the water.

To illustrate this clearly to you, I have brought a sample of the suspension, half of which has been treated as above outlined.

*Section of Practical Pharmacy and Dispensing, A. Ph. A., Nashville, Aug., 1913.

As was stated in the beginning, this paper was written to illustrate the change in the behavior of a precipitate under this treatment, for I doubt if a preparation like this calomel-suspension would have any practical value for pharmaceutical purposes, unless it be as a liquid face powder.

DISCUSSION.

Mr. Dunning said that he thought probably the explanation of the effect that Mr. Nitardy had procured was, that the mixture is somewhat of a colloidal nature, and he thought possibly he would have gotten the same results if he had used some other colloid. Gelatin perhaps might do. It might be that the bichloride might interfere in case of gelatin. However, if some suitable colloid could be found and dissolved in water in which the precipitate is to be formed, it would probably require only a trace and good results might be obtained. The calomel would be thrown out in very fine state of sub-division, and would remain in that state, and then the precipitate could be washed with a very weak solution of colloid.

Mr. Raubenheimer stated that a very surprising affect could be had by adding a small amount of gum arabic or mucilage to both of these solutions, mixing them together, and it would produce a very clear solution, with no precipitate.

Mr. Dunning's reply to this suggestion was, that it was quite possible, instead of being able to get a precipitate, one might not be gotten by following his suggestion. While a precipitate may be formed, it might have the characteristics of a solution, and this trouble, he thought, would probably be overcome by using a minute quantity of colloid, but this could only be determined by experiment.

Mr. Nitardy said that he would like to state that the fineness of precipitate in both bottles was exactly the same. This could be proven by examining the precipitates under a high-powered microscope. There was a particular tendency, which might be called molecular cohesion, which caused them to come together. After they had cohered, they settled out more readily. He recognized that there might be other ways of accomplishing these same results.

Doctor Fantus said that, just as a suggestion, he was wondering whether it might not be possible for it to be a question of electrical change, resulting in a coalescence of the particles of calomel.

Mr. Wilbert thought this was another illustration of "How little we pharmacists know." They thought they knew a lot, until they came to look into a solution or a mixture, such as those which had been seen here, and then realized it was all based upon presumption, and not upon knowledge.

Mr. Dunning said that the reason that pharmacists knew so little about conditions of this kind was, that no one knew much about colloid-solutions and colloidal-conditions, and he was positive that whatever might be the actual conditions here, it was of a colloidal-nature, or had to do with the colloids.

Mr. Windolph said the author of the paper had said that he did not know that it would matter much, since the suspension of calomel was probably useless for any other purpose, than as a liquid face-powder. He thought if there could be produced a preparation of calomel, that would hold the chemical in suspension, a valuable addition would be had to *materia medica*. The most important objection to an ointment in some of these skin lesions, was the fact that grease prevents the elimination of certain matters which should be removed; and a wash which had no greasy substance in it, and which would distribute the calomel properly, he was quite sure would find a place in many cases of eczema and such diseases.

Mr. Nitardy thanked Mr. Windolph for the suggestion made. He said that, for fear some of the members might have noticed a difference between the two bottles exhibited, aside from those he had stated, he wished to mention one thing he had forgotten, viz: In one of the preparations he had used orange-flower water, whereas in the other he had used plain water. That was done to see if the calomel would discolor in rose-water or orange-water.

A GOOD FINISH FOR PRESCRIPTION AND LABORATORY TABLE TOPS.*

F. W. NITARDY.

The prescription case or laboratory table top cannot be satisfactorily finished by the usual methods. Too many things that affect or destroy the average finish, are likely to be spilled upon them and sooner or later the top becomes unsightly. Some fixture-manufacturers furnish these tops without any finish whatever, but these offer no particular advantage as they soon become stained and no amount of scrubbing will keep them sightly.

While serving my apprenticeship in a country town in southern Minnesota, the firm invested in new fixtures and the prescription-case came with an unfinished top. My preceptor, Mr. John B. Christgau, applied a chemical which proved very satisfactory. It did not discolor nor was it in any way affected by acids, alkalis, or alcoholic liquids, etc., that might be spilled on it, and it looked as good after 10 years service as it did when first finished.

I have used this finish extensively since and found it equally satisfactory, but as I have not seen it used by others, nor its formula in print, I feel that it might bear publication, in view of its very serviceable and practical character. It may be used on new or on old finished surfaces, providing in the latter case, the wood is freed from the old finish by varnish-remover or other means.

To apply the finish proceed as follows:

Thoroughly clean the wood by scrubbing with soap and water. Allow it to dry.

Prepare a saturated solution of potassium chlorate, heat to boiling, and apply to the wood while hot, so that it will penetrate the fibre. When dry, apply a second coat, in the same manner. Now prepare a 20% solution of copper sulphate and apply boiling-hot, after the former has dried, allowing the wood to become well saturated and taking up any surplus liquid remaining after 10 to 15 minutes, so that no appreciable crystalization takes place on top of the wood.

When this is dry, apply a solution made by dissolving 90 parts by volume of aniline oil in 60 parts by volume of hydrochloric acid, diluted to 500 parts with water, and allow that to well penetrate the wood. Let this coat dry about six hours or over night, then apply a heavy coat of hot, raw, linseed oil. Allow to stand six hours or over night and scrub well with soap and water until all surplus color has been removed, that is until the water stays clean, now allow to dry and rub down well with linseed oil, applying several coats (a day or two apart) if necessary to completely fill the pores of the wood.

This gives a deep-black finish, with a slight gloss, which can be kept in perfect condition by an occasional scrubbing with soap and water and a subsequent rub-down with linseed oil.

The finish will not affect wood covered with oil, wax, varnish, or other substances, that do not permit the penetration of aqueous solutions, but will to a cer-

*Section of Practical Pharmacy and Dispensing, A. Ph. A., Nashville, Aug., 1913.

tain extent stain a light colored finish, especially white enamel, so care should be used in its application lest one might discolor adjoining woodwork.

DISCUSSION.

Mr. Raubenheimer expressed the opinion that this was a good thing, and he knew of one of the teachers in his school who used this process.

Mr. Becker called attention to the fact that a similar formula was published a few years ago by Bausch and Lomb, in the Journal of Applied Microscopy and Laboratory Methods, the title of the paper being "An Acid-Proof Table-Top," by Pierre A. Fish, New York State Veterinary College, Vol. VI, No. 3, March, 1903, pages 2211 and 2212.

Mr. Dunning said if the discussion of glass counters was in order he would like to say that in his establishment they had not had the most satisfactory experience with them. They were a most excellent medium for breaking glass things, as they had no elasticity. They had remodeled their main store, and put in solid mahogany, unvarnished counter-tops.

Mr. Wilbert suggested that if the pharmacist would take an ordinary pine board and saturate it with paraffin he would find it would make a fine table-top.

LIQUOR MAGNESII CITRATIS.

J. LEE BROWN, PH. G.

So much has been written about Solution of Magnesium Citrate that one would think the last word had been said on the subject, yet its preparation still continues to be a source of trouble to many pharmacists. A great many formulæ and modifications of the U. S. P. process have been proposed, so I take the liberty of presenting a method that has proven entirely satisfactory in my experience for many years, and that has made "citrate" one of our best sellers. I use the U. S. P. formula with a few modifications as follows:—

Magnesium Carbonate U. S. P.	180 gm.
Citric Acid	396 gm.
Syrup	720 cc.
Spirit of Lemon	10 cc.
Potassium Bicarb.	12—2.5 gm. Tablets
Water to make 12 bottles of solution.	

Place the magnesium carbonate in an aluminum vessel of about 4 L. capacity which contains about 2 L. of water. Now add the citric acid. Let stand till effervescence ceases and complete solution results. Place the vessel containing the solution, on an open flame and raise to the boiling point and allow to boil a few moments. Add the spirit of lemon and filter while hot through a well-wetted white filter, contained in an aluminum funnel. When the solution has all passed, wash the filter by passing about a pint of boiling water through it. Now add the syrup and divide the liquid accurately between twelve patent-stoppered citrate bottles. Fill the bottles nearly full with water, drop in each a 2.5 gm. tablet of potassium bicarbonate and stopper immediately. I have found it unnecessary to use distilled water, as the water in my locality is almost entirely free from any mineral contamination or organic impurities. The whole process can be completed in a short time, with very little attention. Filtering at

the boiling temperature, is completed in about ten minutes, while filtering cold, according to the U. S. P. method, requires two hours at least, and a perfectly clear and bright filtrate would not result as with my method. I have kept this solution, made as above, in the store at ordinary temperature for two weeks, perfectly clear and free from the slightest precipitation. I do not favor the proposition to use magnesium oxide, instead of the carbonate, as the oxide is so prone to change in ordinary keeping, absorbing CO_2 and changing to the carbonate. Solutions made from it would vary considerably in magnesium-content.

DISCUSSION.

Mr. Hynson exhibited a sample bottle of magnesium citrate as put up by his firm, and passed it around among the members. He said he used a green bottle for this purpose. For years, he said, he had tried to change the color of the wrapping-paper used in his store, but had never been able to do so, as he had never been able to impress upon his employes that anything but white was the proper color. A few years ago he had bought in the district around Baltimore, twelve bottles of magnesium citrate, expecting to find magnesium sulphate in them; but every one was correct as to contents, while each was bad as regarded pharmacy. Many druggists used their soda-water lemon syrup, but hardly one of the samples contained enough carbon dioxide to preserve the preparation and to make it pleasant. One of his customers had informed him upon a certain occasion that he had bought solution of magnesium citrate, and the bottles had turpentine in them—but this was several years ago.

Mr. Perry said he, at one time, had made citrate of magnesia in fairly good quantities, and always according to the process of the pharmacopœia. He had always sterilized the water and container. One day one of his men had suggested the idea of making a window exhibition, and this was done, with the result that his sales of citrate of magnesia increased 150 percent. He had several stores, and he "passed it around" to all of his stores.

In reply to a question by Mr. Nitardy as to whether he was accustomed to take the bottles back after the patient had used the contents, Mr. Hynson replied that he did not, as a rule, though this rule had an exception where he knew the party, and knew he had bought the citrate of magnesia from his store.

The Chairman stated that he had presented a paper on this subject at the Boston meeting, in 1911.

Mr. Becker said he would like to say, in connection with concentrated solution of magnesia, that he had found three times the U. S. P. strength to be a very convenient way of dispensing citrate of magnesia. He also found that it kept very well.

Before a man can reach the state of "knowing" he must train his mind to the best thought in his profession or business. The Present is always an improvement upon the Past. Unless you keep step with the present, you are certain to find yourself an incompetent laggard in the future. The men at the top "know" the exact forward movement in their chosen vocations. They can never find out enough about their work. To know and apply your knowledge is to succeed. To know that we know what we know, and that we do not know what we do not know, is true knowledge.—*The Pacific Druggist*.

Contributed and Selected

A NOTE ON THE VALUE OF PRESERVATIVES IN SYRUP OF IRON IODID.*

GEORGE M. BERINGER, PH. M.

In the U. S. P. Eighth Revision, Diluted Hypophosphorous Acid, to the extent of 20 cc. to 1000 gm., is directed to be added to this Syrup as a preservative. Several of the foreign pharmacopœias direct the use of organic acids for the same purpose; the Austrian Pharmacopœia directing 0.1 percent of Citric Acid, the Swiss Pharmacopœia, 0.05 percent of Citric Acid, and the French Pharmacopœia, 0.1 percent Tartaric Acid. The German, the British, the Danish, the Swedish, and the Italian Pharmacopœias, do not direct any preservative, dependence being placed upon the use of sufficient sugar.

In order to test the relative value of these preservatives, six samples of Syrup of Iron Iodide, were prepared on October 15, 1913. In the preparation of all of these, the official process, manipulation and percentage of iron, salt and sugar were carefully followed. These samples were preserved in my laboratory, and not exposed to direct sunlight, for several months. On December 18th, their condition was observed and noted. Subsequently, these samples were deposited with Chairman Remington and preserved in his laboratory, with the other pharmacopœial samples, until a few days ago, when I obtained them for observation of the further changes that had taken place. In the tabulation below, the appearance on these two dates of each sample is noted:

No. 1.—Prepared by the U. S. P. formula, but without preservative.

On December 18th, this sample was slightly yellow. It is now of a pale green color, and appears to be in perfect condition.

No. 2.—U. S. P. VIII, formula without any variation. On December 18th, this sample was very pale, but perfectly clear. It was noted that the green color had gradually faded and the sample was much lighter in color than when first prepared. This is in accordance with the previous observations on this formula.

This sample is now of a light yellow color and there is evidence of some change in the sugar; the change that we have commonly considered as "caramelizing," which takes place in the presence of Hypophosphorous Acid.

No. 3.—Formula of the U. S. P., with the addition of 0.05 percent of Tartaric Acid. This sample, on December 18th, had assumed a distinct yellow color. It has now faded, until it is almost colorless.

No. 4.—Formula of the U. S. P., with 0.1 percent of Tartaric Acid. On December 18th, this sample had retained a light green color, about the same

*Read at the meeting of the New Jersey Pharmaceutical Association, Lake Hopatong, June 17, 1914

tint as when first prepared. It now shows no change and appears in perfect condition.

No. 5.—Formula of the U. S. P., with the addition of 0.05 percent of Citric Acid. On December 18th, this sample was of a very light green color, and preservation appears to have been perfect. It now shows no further change.

No. 6.—Formula of the U. S. P., with the addition of 0.1 percent of Citric Acid. On December 18th, this sample had retained its original pale green color and at this time preservation appears to have been perfect.

Conclusions:—If Syrup of Iron Iodide is carefully made, with the proper amount of sugar, no preservative whatever is needed. However, to overcome the careless manipulation on the part of some druggists, it has been deemed advisable to add a preservative. Hypophosphorous Acid has the advantage of a reducing value which is not possessed by the organic acids suggested for this purpose. It has, however, the disadvantage that, in the strength directed, it will act upon sugar in strong solutions and darken the syrup. This could be overcome by substituting Glycerin for a portion of the Sugar directed in the formula.

DONT'S IN PHARMACY.*

OTTO RAUBENHEIMER, PHAR. D.

From the experience, and quite especially from the mistakes and failures, of others we can always learn. This also holds good in Pharmacy and is my excuse for this paper.

These "Don'ts in Pharmacy" are taken at random from my lectures in the Department of Pharmacy of the University of New Jersey, and have been highly appreciated by my students. No doubt some of these "Don'ts" will be helpful, even to some members of a State Pharmaceutical Association.

In the opinion of the author it is quite as essential,—equally important,—to know how *not* to do it as it is to know how to do it. Let the following maxim be the motto of every pharmacist:

"Do it well and do it right!"

In the presentation of the present paper, the author has made an attempt to classify the "Don'ts" as follows:— General, Chemicals, Galenicals, Strength of Preparations, Dispensing, and the Prescription Department.

General.—First of all, don't hide your copies of the U. S. P., N. F., Dispensatories and other standard pharmaceutical works, but keep them in a prominent place so that you can readily consult them. A druggist who cannot lay his hands on the Pharmacopœia is like a minister who cannot find his Bible.

Don't get along without a pharmaceutical library, but collect and select the standard works on pharmacy, chemistry, materia medica, pharmacognosy, etc., which serve as reference books in the daily practice of the pharmacist. As a

*Read at the meeting of the New Jersey Pharmaceutical Association in Lake Hopatcong, June, 1914.

rule, the library, or the non-existent library, of the average druggist, is a disgrace to pharmacy.

Don't fail to subscribe for, and to diligently read, at least a few pharmaceutical journals, in order to keep posted on the progress of pharmacy.

Don't neglect to become a member and an active member of your local pharmaceutical society, your state pharmaceutical association and also such national organizations as the A. Ph. A. and N. A. R. D.

Don't take an apprentice and neglect to instruct him properly in pharmaceutical *technique* and practice.

Don't forget to send this apprentice to a good college of pharmacy, where he will receive a proper education in the theory and practice of pharmacy by competent teachers.

Crude Drugs.—Don't neglect to place occasionally a little chloroform on a pledget of cotton within the containers of such vegetable and animal drugs, as are prone to be infected with insects, such as Lovage Root, Raspberries, Huckleberries, Linseed, Burdock Root, Ergot, Cantharides, etc.

Don't dispense, or utilize for galenical preparations, the following, when more than one year old: Ergot, Aspidium.

Don't neglect to separate and to reject the seeds from Coloyanth, before using this drug in a preparation, because the seeds are inert and they contain fat or oil which are objectionable in pharmaceutical preparations.

Don't use the entire peel of Sweet Orange, but only the outer thin rind (the so-called "Flavedo"), which is rich in oil-cells and free from tannin or bitter principles.

Don't dispense the following drugs and preparations, except when properly aged, as directed by U. S. P. or N. F.:— Cascara (1 year), Frangula (1 year), Tincture of Ferric Chloride (3 months), Tinctura Ferri Chloridi Aetherea, N. F., (first after being decolorized and then placed in the dark to assume a golden yellow color).

Chemicals.—Don't use technical chemicals for medicinal purposes, as they do *not* comply with the U. S. P. standards and very frequently contain inert, in fact, poisonous substances.

Don't keep chemicals which readily absorb moisture in a damp place. Examples are too numerous to mention and include all hygroscopic and deliquescent chemicals. I might call attention to *one* in particular which is frequently kept in cellars and which consequently spoils, namely, Chlorinated Lime.

Don't expose certain chemicals to the action of direct lights. By such exposure Phenol and Resorcinol becomes pink or even red; Alkaloids are discolored; Iodides, especially Ammonium Iodid, liberate free Iodine; Silver Salts, Calomel and many other chemicals darken, owing to the formation of oxide; Santonin turns yellow; Naphthalene and Beta-naphthol become discolored; Sulphurous Acid is oxidized to Sulphuric Acid; Chlorine and Bromine Water form Hydrochloric or Hydrobromine Acid, respectively; Ferric Salts will be reduced to Ferrous Salts, and Mercuric Salts to Mercurous Salts; Compound Syrup of Hypophosphites become decolorized; and volatile oils become terebinthinate.

Among the other chemicals affected by light are Benzoic Acid and Benzoates,

Salicylic Acid and Salicylates, Hydriodic, Hydrobromic, Hydrocyanic, Nitrohydrochloric and Trichloroacetic Acids, Amyl Nitrite and others Nitrites, Chloroform, Bromoform and Iodoform, and many others.

Don't expose *Ferric* Salts and their preparations to the light, but keep them in dark amber-colored bottles.

Don't keep *Ferrous* Salts and their preparations in the dark, but expose them to the light, for instance, Syrup of Ferrous Iodide.

Don't expose the following to the action of the air, as they readily absorb CO_2 : Lead Acetate and Solution of Lead Sub-acetate; Ammonium Carbonate (forming Bi-carbonate); Calcium Oxide, Lime Water, and Magnesium Oxide, light or heavy.

Don't expose volatile chemicals, liquids or solids, as they will evaporate or lose strength.

Don't expose chemicals which effloresce to the action of dry air. In this list all crystallized salts are included.

Don't dispense the following chemical and pharmaceutical preparations, except when recently prepared: Diluted Nitro-hydrochloric Acid, Sulphurous Acid, Chlorine Water or Compound Solution of Chlorine, Creosote Water, Infusion of Digitalis, Solutions of Magnesium Citrate, of Ammonium Acetate, of Iron and Ammonium Acetate, of Potassium Citrate, of Sodium Citrate, Chalk Mixture and Compound Iron Mixture.

Don't neglect to have on hand the two (2) solutions, ready to be mixed, to form the Arsenical Antidote of the U. S. P. This should most certainly be done in every well-regulated pharmacy, as many a life might be saved, especially during the summer when poison fly paper is extensively used.

Galenicals.—Don't permit Medicated Waters to freeze, as it will destroy their aroma. This is especially true of imported Triple Orange Flower and Rose Water, which are frequently purchased in original 10 liter demijohns. It is for this reason that U. S. P. IX will include a caution notice *not* to allow Medicated waters to freeze.

Don't expose bottles of Hydrogen Peroxide to direct sunlight, as is frequently done in window-displays by druggists and other store keepers. No matter how attractive this window display may be, the H_2O_2 will gradually turn into H_2O , which can be obtained much cheaper from the hydrant or faucet.

Don't prepare Liquor Calcis by mixing together a pail of hydrant-water and a lump of ordinary mason's lime by means of a broom handle, but use the very explicit U. S. P. process, employing Calcium Oxide and Distilled Water.

Don't filter Lime Water, as filter paper will absorb, or more properly adsorb, part of the lime, and, also, because some of the calcium hydroxide will be converted into calcium carbonate by exposure to air. Lime Water should be syphoned or decanted as directed by Pharmacopœia.

Don't give away Lime Water, or any other cheap galenical preparation! Make these preparations according to U. S. P. or N. F., and charge for them!

Don't cheapen any medicines by giving them away!

Don't use Fluidextract of Belladonna *Leaves* in the preparation of Linimentum Belladonnæ, but use Fluidextract of Belladonna Root, which contains 0.4 percent

of mydriatic alkaloids, while the U. S. P. standard for Belladonna Leaves is only 0.3 percent and very likely the *unofficial* fluidextract contains the same percentage of alkaloids, if not less. I am informed by manufacturing chemists that they sell five gallons of *unofficial* Fluidextract of Belladonna *Leaves* to one pound of the official Fluidextract of Belladonna *Root*. This, very likely, accounts for the fact that a great many pharmacists in New York State had to pay a penalty for shortage in the alkaloidal-percentage of Belladonna Liniment.

Don't keep Sweet Spirit of Nitre in a quart shelf-bottle about one-quarter full, as is frequently done in ordinary drug stores, but *do* keep it, as correctly ordered by U. S. P., in small, dark, amber-colored vials in a cool place, remote from flame or fire. The author is in the habit of storing this product in four-ounce glass-stoppered amber bottles.

Don't use *gray* filter paper, as it contains impurities and frequently traces of iron. Use *white* filter paper which is a pure article, even if it costs a *few cents* extra *per 100 sheets*.

Don't use *powdered* Asafetida to make Emulsion or Milk of Asafetida, but employ *selected tears*, which are free from inert substances.

Don't forget that Elixir Iron, Quinine and Strychnine Phosphates contains the salts as *phosphates* and about 1/60 grain of Quinine Alkaloid to one fluidram, while Elixir Iron, Quinine and Strychnine, N. F., contains the Iron as Citro-chloride, the Quinine as Hydro-chloride, and the Strychnine as Sulphate, the latter in the proportion of 1/100 grain to one fluidram.

Don't employ *Precipitated* Chalk when *Prepared* Chalk is ordered, because the latter possesses the decided advantages of being an amorphous powder which is more adhesive.

Don't store powdered or ground white or black mustard, or mustard-plasters in a damp place, as they will rapidly lose strength.

Don't keep Compound Licorice Powder and other compound powders in the cellar, as they absorb moisture and deteriorate.

Don't dispense Cerates and Ointments when rancid, because they are very irritating.

Don't neglect to keep Syrups, Mucilages, Honeys, in fact all preparations which are liable to turn sour, in a cool place, preferably in a refrigerator.

Don't dispense Biologic Products, Ferments and other limited preparations after expiration of date, as much injury to the health of the patients may result from the use of such preparations.

Strength of Preparations.—Don't forget that, according to the Brussels Protocol, an International Agreement was signed by which all potent tinctures are 10 percent in strength, and all arsenical preparations are 1 percent in strength, and that the U. S. P. VII was the first Pharmacopœia to adopt these new standards.

Don't forget that Pearson's Solution of Sodium Arsenate, N. F., contains only one-tenth the amount of Sodium Arsenate as the U. S. P. Liquor Sodii Arsenatis.

Don't forget that, according to this International Agreement, Diluted Hydrocyanic Acid contains 2 percent of HCN, and Cherry Laurel Water 1 per mille. HCN.

Don't forget that Mercurial Ointment U. S. P. contains 50 percent metallic mercury, while Blue Ointment only contains 33 percent Hg.

Don't neglect to fill foreign prescriptions or to make preparations of foreign Pharmacopœias according to their standards, as there is quite a difference, not only in physical and chemical characteristics, but also in strength.

Dispensing.—Don't dispense *Coaltar Creosote*, when Creosote is called for, as Creosote means *Beechwood Creosote*.

Don't dispense Crocus, when Saffron is desired, to be made into an infusion against measles, but dispense Carthamus.

Don't dispense Anthemis, when Chamomile is called for, especially by a foreigner who wants Matricaria.

Don't dispense Spiritus Aetheris Compositus, when Hoffmann's *Drops* are asked for by a German customer, as he wants Spiritus Aetheris, *not* the compound.

Don't dispense Petroleum Naphtha or Benzin, when Naphtha or "Nafta" is called for by a Scandinavian who wants Spirit of Ether.

Don't dispense Petroleum Benzin, when Benzine is called for by an English customer who wants Coal-tar Benzene or Benzol C_6H_6 .

Don't dispense *Boiled Linseed Oil*, in place of Oleum Lini.

Don't dispense the ordinary Turpentine for internal use, but the Rectified Oil of Turpentine.

Prescription Department.—Above all don't substitute, but dispense the articles which are prescribed and charge for same.

Don't hide your Prescription Department, but make it the most prominent feature of your store. Such signs as "*Drugs and Prescriptions in the Basement*" are a disgrace to professional pharmacy.

Don't make your motto "Cheapness and Quickness," in your Prescription Department, but much rather "Prescriptions Compounded Carefully and Conscientiously."

Don't run your Prescription Department without any or but very little apparatus and utensils, but have a complete outfit. No matter how expert the pharmacist is, he must have the necessary tools in order to turn out good work.

Don't convert metric weights and measures into the apothecaries' system; have a complete set of metric weights and measures, use these and thus avoid errors.

Don't neglect to properly number prescriptions consecutively and also to date them.

Don't forget to mark the price on each prescription in plain figures, as this will prevent unpleasant disputes with customers.

Don't file prescriptions by such an antediluvian method as a string or wire, but preserve them in a sanitary manner in a prescription book or still better, in the opinion of the author, by means of one of the up-to-date filing-cabinets.

Don't dispense ordinary water when distilled water is wanted.

Don't forget that *sterilized* water means *freshly boiled distilled water*.

Don't dispense solutions or syrups which are cloudy, but filter or strain them.

Don't forget that psychology still plays a very important part in medicine and

pharmacy. This is especially true regarding the prescriptions which you dispense.

Last, but not least, don't forget the motto: "*Cleanliness is Next to Godliness,*" and to this we might add, "*and is of the greatest importance in medicine.*" It will be a credit to your Prescription Department to display such a sign.

Conclusion.—Should this little advice on "Don'ts in Pharmacy" prove helpful to the members of the New Jersey Pharmaceutical Association, then it will be followed with a continuation of them at the next meeting next year.

Meanwhile permit me to give you just one more "Don't," which in my opinion is *the* most important one, viz.:

Don't be a "Jack of all Trades," but try and be a master of a profession, namely, pharmacy.

ADVERTISING A RETAIL DRUG STORE.*

ADOLPH H. ACKERMAN, PHAR. D.

In the olden times the insignia of the alchemist, the then time pharmacist, was the glass retort or the stone mortar and the pestle. Then, when several dispensers of medicine occupied the same town, they used different signs to inform the people of their own particular drug store. These signs, were, as a rule, taken from the animal kingdom, which was, at that time, the principal source of supply for drugs for the treatment of the sick. It was the apothecary shop of "The Snake," of "The Swan," "The Lion," or "The Scorpion," etc. Within our time and particularly in Continental Europe, pharmacies are even now recognized by these signs.

In our generation the colored window show-bottle can still be seen as the sign of the apothecary.

In these days, when the profession of pharmacy is subservient to that of the commercial aspect of pharmacy, this is no longer sufficient to inform the people of the various communities of the location and capacity of a drug store, so to-day the pharmacist is compelled to use all the means and arts of the advertiser, to inform the public in regard to these facts.

The daily papers are being used by the big chain drug-stores to reach the masses. Local papers, programs, and other organs, are being utilized by the community drug-store. This class of publicity seems to be about the only method of advertising which is understood as "Advertising" amongst the retailers.

If you gentlemen, however, will recognize that Advertising is Salesmanship, and Salesmanship is Advertising, and that the object of both are "Merchandising," you will then admit that the methods I point out to-day should all be classed as advertising and should have the same earnest consideration you give any other feature of your business.

Advertising is intended not alone to tell the people in your vicinity that your

*Delivered at the Annual Convention of the Massachusetts State Pharmaceutical Association, June 17, 1914, at Swampscott, Mass.

store is located at a certain corner, but it is also meant to get your neighbors' good-will and confidence in such a manner that he will voluntarily come to your store to make his purchases in your lines.

Any action you take which induces this good-will is Advertising.

Appearance: The looks of the front of your store, such as clean, fresh paint; neat, tidy awnings; readable, dignified signs, is Advertising. Many a beautiful window is spoiled by a weather-worn frame of dingy paint or a tattered, dirty awning. Your wood-work should be painted at least four times a year with one coat of paint. This will always keep it in a clean and slightly condition, and it costs only a very small sum.

Your signs should be clean-cut and conspicuous, but still dignified and in harmony with the general color-scheme of your store.

Window-displays are really one of the most important factors of publicity and one of the least expensive methods of obtaining the interest of the passer-by. Clean windows and attractive displays should be the continual duty of the wide-awake pharmacist; and right here let me emphasize the increased selling-efficiency of the window attractively decorated, bearing price tags on every item exhibited. It is fifty percent more effective by having the prices shown.

Within the store your show cases, your floors, your soda-fountain, your prescription-counter, all, should be continually considered as means of getting the confidence, respect and good-will of your customers.

A few dollar's worth of varnish and furniture polish, applied at regular intervals, adds greatly to the neatness of your store.

Perhaps in no business is cleanliness as important as in that of the drug store. The eternal dusting, scrubbing and cleaning of your store is one of the best investments in the publicity game.

Every container leaving your store, and particularly every prescription-container, should be of unquestionable neatness and cleanliness. The prescription-bottle only partly cleansed, with the label on crooked, showing paste on the edges, with a frail cork, and untidily wrapped, is not conducive to getting the good-will nor the confidence of your customers.

If that same prescription had been put into a crystal clear, clean bottle, properly filtered if necessary, with a neatly type-written label, put on straight, the bottle capped, then wrapped in white tissue paper and neatly tied, it would have added dignity to your profession and thereby increased the confidence and respect of your customers.

The use of embossed, neat, small stickers adds elegance to the appearance of your merchandise.

The neat appearance of your clerks, and the proper decorum in which they do their duties in front or in the rear of your store, also are important factors in the attainment of your customer's good-will.

Service: In this word "service" we have the real kernel of the secret of modern merchandising, and in this age the word "service," applied to the merchant, has taken on a new and a larger meaning than that of old, when service meant servility.

Service, as applied to modern merchandising, enters into every feature of your

business. You, as the retail merchant, are therefore serving the convenience of the public, and the more convenient your store becomes to the public, the larger your rewards will be in the commercial, as well as the ethical results.

The idea which I wish to *emphasize* to you, gentlemen, is that you should become an absolute need to the community in which your store is located. Then, and then only, you can be classed among the successful druggists.

The telephone is a factor in obtaining this service-good-will. The boundaries of your store extend just as far as the farthest telephone owner who is located within convenient and profitable delivery-distance from you.

Make those of your neighbors who have telephones, get the habit of thinking your telephone number when they are in need of drug-store goods. If you accomplish this, and give them quick and cheerful service, you will surely increase your business.

The above methods we will call "Passive Advertising," to differentiate them from the constantly changing and the planning of the "Active Advertising" methods.

Throughout this country there are thousands of concerns making a specialty of planning and executing "Active Advertising" methods for the business world.

Many of these are splendid concerns, doing wonderful and profitable work for their clients, but many, through want of knowledge and experience, are costing the business world millions of dollars in luxurious and extravagant methods of publicity. And, as a whole, it is not feasible for the retail merchant to employ this class of help; first, due to the expense, and next, to the danger of putting your advertising service in hands which will merely make it a burden to you.

Now, if the retail merchant would give a thought to some of the recognized effective, but still inexpensive, methods of publicity and would understand how simple these methods are, he would surely give this part of the merchandizing-scheme more consideration than he now is doing, and thereby profit to a greater extent.

The question of a reasonable sum for the active advertising appropriation is the first one to be considered. For a retailer a sum equivalent to $2\frac{1}{2}$ percent of the total business done should be a fair annual appropriation for this purpose.

Now, how should a retail druggist expend this sum in such a manner that it would show a decided profit?

Under certain conditions, the local paper undoubtedly furnishes a very satisfactory and effective method to expend a part of this sum, but in larger cities and their suburbs, the carrying of an advertisement in that city's daily paper not alone involves the expenditure of a much greater sum, but in this case the cost of the ad. covers a section from which the retailer could not hope of getting any returns, due to the distance the prospect lives from the store, so the *pro rata* cost of the circulation of this paper in your locality makes it prohibitive.

Every package leaving your store, gives you the means of distributing advertising to people who are accustomed to come to your store. Therefore, circulars, such as you get up yourself, such as are gotten up for you by the manufacturers, and yearly calendars, should be enclosed with the purchase of every customer.

This cost is not very great and should be less than 10 per cent of your total active advertising appropriation.

An occasional large flyer, covering some event in your store, like that of opening a new department, or "featuring" the soda-water fountain, or calling attention to some specialty which you wish to dispose of quickly, can be made very effective but should be carefully planned and distributed.

Here the principal expense is the cost of reliable distributors. From \$2.00 to \$2.50 per thousand is the usual cost for getting such advertising matter distributed in a reliable manner. An estimate of about 20 percent of your appropriation should be charged against this method of publicity.

The custom of placing your advertisements in the programs of local fairs, dances, etc., should not be charged to advertising, as it is considered to be merely money thrown away from the publicity standpoint. It is undoubtedly a judicious thing to do at times, to retain the good-will or at least to insure yourself against the ill-will of the kind of people who call on you to solicit this "Hold-up-Money."

I suggest that this should be charged to "Profit and Loss." I can see no other place for this expenditure. It is a very thinly-veiled procedure for either charity or blackmail.

There has recently come into vogue another method of publicity, which is styled "Direct Mail Advertising," and it is this method which I to-day will strongly advocate for the retail druggist. It seems to hit "the nail right on the head," and a tremendous amount of evidence can be brought forth to show that it is the most profitable of all methods of getting more business, and I strongly advise that the balance of the "Active Advertising" appropriation should be expended on this feature.

"Direct Mail Advertising" means the sending through the mail of either post-cards, personal letters, pamphlets, blotters, or any other matter directed to some specific person at some specific address.

A profitable direct mail-advertising campaign depends, firstly, on the persons to whom you address this matter; secondly, on the matter itself; thirdly, on the proximity of the recipient of this to your store, either by means of personal visit, by telephone call, or by parcel-post delivery.

I will take up each point separately and in detail.

Your Mailing List: The mailing list should be carefully prepared and kept up to date, and should be divided in two sections: First, your "Present customers";—second, "Prospective customers."

The Present customer's list you can of course obtain from your ledgers, from personal information by your clerks and yourself, and by inquiry at the time of their visit, and should be used at regular intervals.

The Prospective customer's list should be carefully prepared and kept to date, and is the important part of a sound foundation of direct mail advertising, and requires constant inspection and revision.

It is evident that it would not pay you to try to reach a man who lives too far away from your store, unless he was on a direct mail-route and not more convenient to some other drug store.

The way I obtained our mailing-list was this. I took a map of the locality of our store, then I marked each street corner to which we could conveniently and inexpensively send a messenger-boy. This then, gave me our first zone of direct delivery.

I then procured a Roxbury Blue Book and the telephone book and by checking off the persons in the blue book who live within our zone of delivery, and who also were up-to-date enough and in such close touch with our store that they owned a telephone, I put on the mailing-list, and now we are reaching these families by direct mail at frequent intervals.

Club-membership lists, church-membership lists, voting-lists and rural free delivery-lists are all good means for getting your mailing-list from.

Keep your list in the form of a card-catalogue and, whenever a prospect becomes a customer, transfer her or his name to the customer's-list.

If the series runs out without a sale, transfer your card to the catalog of "Dead Ones."

Your mailing-list is one of your most valuable assets. It represents the present good-will of your business and future prosperity.

Each card should indicate the proper place of recording information, such as Full Name, Address, Send Statement To, Number in Family, Names of Other Members That Can be Used, Occupation, Advertising, Financial Rating, etc. You will thus be able to avoid sending a circular on razors and shaving material to Mrs. Brown, or some dainty toilet article to Mr. Jones, or advertising baby-requisites to a bachelor.

Salesmanship is a continuous and progressive study of human nature. Children grow up and forget their toys; men and women grow prosperous and their tastes change, but, if you can make each member of the family form the habit of thinking of your store when in need of drugs, you have made a valuable customer for years to come.

The matter which we are using at the present time, and find highly profitable, is that of personally addressed and signed type-written letters produced on the Multigraph. This splendid machine will turn out type-written letters easily and quickly, which cannot be told, apart, from personally dictated and type-written letters.

These letters I send out at frequent intervals direct to some member of each family. When I am talking candy, perfume and toilet articles, I address it to the lady of the house. When I am talking cigars or tobacco, I address the gentleman of the house.

I submit herewith copy of a letter on tooth brushes which we have used with excellent results:

Good Morning Mrs. Goodwin:

What a pleasure it is to use a good tooth brush! A well-shaped brush, one in which the bristles do not come out.

We have just secured six gross of the finest tooth brushes, manufactured by Deitsch Bros., the famous New York brush makers.

We wish to supply the discriminating families with a year's supply of these brushes, at especially low prices.

You can buy one or more of these brushes for 23c apiece, each in its own separate container.

These brushes are built to retail for 40c, others at 35c and 30c. We sell them all at one price: 23c, your own selection and assortment.

BUY A BOX OF SIX OR TWELVE.

We positively guarantee them to be the best constructed brush on the market, and will gladly risk all of our future business-relations on the quality of this brush.

In ordering just say, "Letter tooth-brush offer."

Respectfully yours,

LINUS D. DRURY CORP.

TEL. ROXBURY 48 AND GET DRURY'S INSTANT DRUG SERVICE.

These letters were printed on a high-class bond paper, correspondence size, and enclosed in similar high-grade envelopes. They were mailed at 4 o'clock in the afternoon, so that I would be sure that the lady of the house received it in the first delivery next morning, and probably would read it at the breakfast table.

You noticed that I advertised our telephone in the last line and promised them "Drury's Instant Drug Service" by merely saying "Roxbury 48" in the telephone. The result was that we received in the forenoon of the following day, nine telephone orders for tooth brushes, and all told, took forty-seven orders by telephone for this particular tooth-brush offer.

This, you must agree with me, is profitable advertising. I can cite you many other instances of similar results.

A few days before Easter, for instance, I sent out a letter about "Apollo" chocolates, and the direct result of this letter was an increase of fifty percent on our total candy business during the succeeding month.

The value of these letters did not end with the sale of the particular article we advertised, but they brought new customers, who now are buying other goods from us and will continue to do so as long as our service gives satisfaction.

How, then, brother pharmacists, can you say that you can never see direct results from advertising? It is a simple equation. A good mailing-list, pertinent advertising matter at the psychological moment, backed up by proper service gives — plus results.

This advertising by mail comes the nearest to expressing your own personality to the prospective customer in your own community, and, as one advertiser said, a well-written letter is equivalent to putting yourself in an envelope, sealing the flap, and letting "Uncle Sam" deliver you to your prospect's door.

Twenty-five dollars will reach five hundred people once a month, with this highly profitable method.

I believe that it is advisable to occasionally change the style of letters used, introducing novelties, and to enclose printed literature and I also advocate the occasional use of postal cards instead of letters.

This method should also be part of your physician's campaign. Personal letters to them describing your prescription-desk, or the especially fine galenical preparation of your own make, or the announcement to them of the stocking of some new and important product from the larger pharmaceutical houses.

Always enclose some pertinent advertising-matter with your statements.

Finally, I believe that all your "Active Advertising" should be so distinctively

YOURS that anybody should recognize it as "Your Advertising" by the merest glance, even without reading it.

Make yourself a necessity and a convenience to your neighbors; give them a "square deal" and good goods. Inform them of this every hour, with your "Passive" and "Active" Advertising, and if you do this, the department drug store need never be the "bug-a-boo" to your store, which it now threatens to become to many good pharmacists who hide their light under the bushel of obscurity.

A CRITICISM OF THE CHEMICAL TESTS FOR FRANGULA AND RHAMNUS PURSHIANA AS PROPOSED FOR THE NEW U. S. P.

E. N. GATHERCOAL, PH. G.

The introduction of chemical identity and quality tests in pharmacopœial crude-drug descriptions other than the alkaloidal assays, is a distinct advance in pharmacopœial pharmacognosy and should be encouraged.

Therefore in discussing the tests introduced into the text, descriptive of the anthraquinone drugs of the U. S. P., my object is to assist in the perfection of these tests.

The identity test for *Rhamnus Purshiana*, as stated in the Journal of the A. Ph. A., Vol. III, p. 398, is as follows: "Add 0.100 gm. of powdered *Cascara Sagrada* to 10 cc. of hot water, shake the mixture occasionally until cold, filter it and add sufficient water to make 10 cc. On the addition of 10 cc. of ammonia water to this liquid it should be colored an orange yellow."

Cascara responds very nicely to this test, though the color of the liquid after the addition of the ammonia water, is better described as a dark orange or even a light red-brown color. However, as no two people perceive a color exactly alike, I would not criticise the name of the color as stated in the text.

I would criticize however, the omission of a statement, after the test, as to from what other drugs this test is to especially distinguish *Cascara*. If in the application of the test, powdered *Rhubarb* is used, instead of powdered *Cascara*, the final color obtained is almost identical with that of *Cascara*.

The results of the above mentioned test, applied to a series of drugs, including other members of the anthraquinone group, is a matter of interest. The colors, against a white background with diffuse sunlight, of the liquid, after the addition of the ammonia, may be ranged as follows:

Cascara Class—Orange

Senna, Alexandria.

Senna, India.

Rhamnus Chlorophorus bark.

Rhamnus Californica bark.

Cascara, commercial.

Rumex.

Aloes.

Cascara, uncured, (kept but 3 months after collection).
Cascara, selected bark.
Cascara with 5% KOH solution, instead of ammonia water.
Rhubarb.

Frangula Class—Red.

Frangula, commercial.
Rhamnus Catharticus bark.
Frangula, selected bark.
Frangula, with 5% KOH solution, instead of ammonia water.
Rhamnus Crocea bark.

The solutions have been listed above in the order of their depth of color, the Alex. Senna being a decidedly light orange-yellow color; the commercial Cascara, a perceptibly deeper orange; the other three Cascaras, deeper yet, and the Rhubarb, forming the connecting link with the first Frangula. The Rhamnus Crocea bark is the darkest of all. The solutions almost form a finely graded series, from a light orange to a cherry red. All of the Cascara class are of the same color, differing only in intensity. Any one of the darker colors, suitably diluted with water, could be made to match any one of the lighter colors.

However, there is a distinction between the reds of the Frangula class and the oranges of the Cascara class, even when the red colors are diluted to the same depth of color as the orange colors.

If there should be placed, in parenthesis, after the description of the test, a statement indicating that this test is intended to distinguish Cascara from Frangula, all would be well, for the distinction in color obtained from Cascara, as compared with that from Frangula, is very pronounced: an orange from Cascara; a cherry red from Frangula.

The identity test proposed for Frangula, is similar to that proposed for Cascara, except that "a few drops" of ammonia are directed to be added, instead of 10 cc. of ammonia. I think the two tests should correspond in their wording. I found by comparing the whole series of drugs above enumerated, that the smaller amount of ammonia (0.3 cc.), answered practically as well as the larger amount (10 cc.).

The use of 1 cc. ammonia in the test for each drug would be fully satisfactory. The test should be followed with a statement that it is intended to distinguish Frangula from Cascara.

The quality test prescribed under each drug, works very satisfactorily. Used upon a number of different lots of Cascara and Frangula, the drugs in each case responded to the test, though with Cascara the final color was exceedingly faint. Here again, however, the distinction in the color obtained from Cascara and Frangula, was not as pronounced as the statement in the test would lead one to expect. In each case, the color of the ammonia, separated from the ether, is a red; more faint and more of an orange in the case of Cascara.

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

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PART IV—FIRST PROOF.

A fourth installment of the Abstract of proposed new descriptions and standards and of changes in descriptions and standards is herewith submitted.

This Abstract embraces most of the proximate assays of crude drugs and galenical preparations.

Other Abstracts will be submitted later. Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, Longport, Atlantic County, New Jersey, before August 1, 1914.

PROXIMATE ASSAYS.

GENERAL DIRECTIONS FOR ALKALOIDAL ASSAY.

Nearly all alkaloids are practically insoluble in water, but they are more or less soluble in alcohol, chloroform, ether, amyl alcohol, benzene, petroleum benzin, or mixtures of several of these. The salts of these alkaloids, however, are mostly soluble in water, but practically insoluble in most of the above mentioned solvents. The process of assay by immiscible solvents, which is generally known as the "shaking out" process, is based on this property of alkaloids, and it is carried out by treating the drug or a concentrated liquid extract with an immiscible solvent, in the presence of an excess of alkali, which liberates the alkaloid. The free alkaloid is dissolved by the immiscible solvent, which is then transferred to a separator and shaken with an excess of acid diluted with water. If the immiscible solvent is specifically heavier than water (e. g., chloroform or a mixture of more than one volume of chloroform to one volume of ether), it will separate in the bottom of the separator. It is then drawn off into another separator and shaken with a second portion of weak acid, and this operation is repeated until the alkaloid is all removed. If the immiscible solvent is specifically lighter than water (e. g., ether, or a mixture of more than two volumes of ether with one volume of chloroform), it will, on separation, form the upper liquid. The lower acid liquid is then drawn off and preserved, and the residual immiscible solvent shaken with successive portions of weak acid until wholly free from alkaloid. The volume and strength of the acid to be used is left to the discretion of the operator. It is best, however, to keep the total volume as small as possible. For the first extraction, it is advisable to use 10 Cc. of half-normal acid V. S., or sufficient to render the mixture distinctly acid; for the second extraction, use 5 Cc. of half-normal acid V. S. and 5 Cc. of distilled water. Repeat the extraction with the same proportion of acid and distilled water. In all assays, the extraction should be

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continued until 0.5 Cc. of the acid washings shows only a very faint cloudiness on the addition of a drop of mercuric-potassium iodide T. S., or, in the case of caffeine and colchicine, on the addition of a drop of iodine T. S. The united acid solutions containing the alkaloid in the form of a salt are shaken thoroughly with ether and allowed to stand at least fifteen minutes for complete separation. The acid solution is then drawn off into a second separator, the ether washed with a little water and this wash-water added to the acid solution. The acid solution is then made alkaline in most cases with ammonia water, and shaken out with several successive portions of the appropriate immiscible solvent. The volume of the latter to be used in each operation is not less than half that of the acid solution, and the operation must be repeated as long as any alkaloid is extracted by the immiscible solvent. To test this, evaporate 1 Cc. of the last extraction and dissolve the residue in a few drops of diluted hydrochloric acid; the resulting solution should show not more than a very faint cloudiness on the addition of a drop of mercuric-potassium iodide T. S., or, in the case of caffeine and colchicine, on the addition of a drop of iodine T. S. The number of extractions required depends largely on the character of the alkaloid. With most alkaloids it is advisable to "shake out" three or four times before testing. Physostigmine and pilocarpine require about twice as many extractions as most other alkaloids. After having drawn off from a separator any liquid containing an alkaloid, a fresh portion of the solvent should be immediately added to the contents of the separator, and, before shaking, about 1 Cc. of this should be drawn off to wash out the stem of the separator. In the case of volatile solvents, the outside of the stem of the separator should also be washed by dipping it in the portion of the fresh solvent to be used for the next shaking out operation. Before evaporation the final ether or chloroform solution should be filtered through a dry filter, or preferably through a pledget of purified cotton. When filtering volatile solvents containing alkaloids through a paper filter, the upper edge of the filter should not reach the top of the funnel and the filter should be kept constantly full of the liquid until all has been added, then covered until the last of the liquid has passed through. Finally the filter should be washed thoroughly by applying a fresh portion of the volatile solvent to the top and carefully washing the outside of the funnel stem. Immiscible solvents heavier than water may be conveniently filtered by packing the stem of the separator below the stop-cock with absorbent cotton before drawing off the solvent. The alkaloidal solution is finally evaporated cautiously to expel the solvent, and the residue either dried to constant weight and weighed, or more commonly titrated with volumetric acid. When using aliquot parts, the solvent and the aliquot part should be measured at the same temperature. When pouring volatile liquids, the lower the temperature at which the operation can be conducted, the less the danger of loss by evaporation. The shaking or rotation of immiscible solvents should ordinarily be continued about one minute. Long or violent agitation should be avoided as permanent emulsions are apt to form. Should a partial emulsion form it may be removed by drawing off the clear portion, introducing a tuft of cotton and with a glass rod moving the cotton about in the emulsion next to the surface of the separator. Should the emulsion prove persistent, draw off the emulsified portion and evaporate the volatile solvent. The resulting residue, if alkaline, should be washed with each

successive portion of the solvent used in extracting the original solution. If acid it should be washed with acidulated water.

Another method of treating emulsions is to remove the emulsified portion to another separator, and wash it with successive portions of the solvent that is being used to extract the alkaloid. Emulsions are less apt to form in strongly acid or alkaline solutions than in those which are neutral or weak. Emulsification is sometimes prevented by increasing the volume of the aqueous or immiscible solvent. Chloroform or ether solutions of drugs rich in fat form very troublesome emulsions. In such cases it is advisable to add about 10 Cc. of normal sulphuric acid V. S., and evaporate off the volatile solvent, stirring with a rubber-tipped glass rod. When the resinous and fatty matter has been agglutinated, cool the acid solution and filter it through a small wetted filter into a separator. Re-dissolve the residue in 15 Cc. of ether, add 5 Cc. of tenth-normal acid V. S., evaporate off the ether as before, with continued stirring, and pour the acid solution through the filter into the separator. Repeat the extraction of the fatty residue with dilute acid two or three times and finally wash the filter free from alkaloids. Then make the solution in the separator alkaline, and "shake out" with immiscible solvents in the usual manner. The stems of separators, funnels and the lips of flasks, separators, and graduates, from which volatile solvents containing alkaloids have been poured or drawn off, should be carefully washed to remove any of the alkaloids left by evaporation. All alkaloidal residues to be determined volumetrically should be softened by the addition of about 1 Cc. of neutral alcohol or ether, the required amount of standard acid added, and the mixture gently warmed to insure the complete solution of the alkaloid. Finally add a sufficient quantity of distilled water to make the volume of the liquid for titration measure about 25 Cc. When the residue is to be weighed, if the final solvent has been chloroform, the last traces of that solvent should be removed by the addition of a little ether or alcohol followed by evaporation, care being taken to avoid loss by decrepitation, especially when evaporating a chloroformic solution of strychnine. This may usually be prevented by the addition of a little alcohol.

Aconitum.—No change in percent. of alkaloids required; "aconitine" changed to "ether-soluble alkaloids of Aconite." *Assay* as under Belladonna Root using 15 Gm. of Aconite in No. 40 powder and ether only as the immiscible solvent throughout the assay. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 64.5 milligrammes of the ether-soluble alkaloids of Aconite.

Fluidextractum Aconiti.—The alkaloidal yield from 100 Cc. changed from "0.4 Gm. of aconitine" to "not less than 0.45 Gm. nor more than 0.55 Gm. of the ether-soluble alkaloids." *Assay*.—Drop from a pipette 15 Cc. of Fluidextract of Aconite evenly over the surface of 15 Gm. of purified sawdust (see p. 997) and evaporate to dryness at a temperature not exceeding 75° C. Then transfer the mixture to a 25 Cc. flask, and proceed as directed in the Assay of Belladonna Root, modifying the process there given by using the ammonia water with a little additional water to rinse out the dish in which the mixture was evaporated, and only ether as the immiscible solvent throughout the assay. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 64.5 milligrammes of the ether-soluble alkaloids of Aconite.

Tinctura Aconiti.—The alkaloidal yield from 100 Cc. changed from "0.045 Gm. of aconitine" to "not less than 0.045 Gm. nor more than 0.055 Gm. of the ether-soluble alkaloids." *Assay.*—Evaporate 150 Cc. of Tincture of Aconite at a temperature not exceeding 75° C., until it measures about 20 Cc. Add 10 Gm. of purified sawdust to this liquid, incorporate it thoroughly and then continue the evaporation until the sawdust is dry. Transfer the impregnated sawdust to a 250 Cc. flask, and proceed as directed in the Assay of Belladonna Root, modifying the process there given by using the ammonia water with a little additional water to rinse out the dish in which the mixture was evaporated and only ether as the immiscible solvent throughout the assay.

Extractum Aconiti Pulveratum.—It yields not less than 1.8 percent. nor more than 2.2 percent. of the ether-soluble alkaloids. *Assay.*—Introduce 3 Gm. of Powdered Extract of Aconite into a 250 Cc. flask, add 10 Gm. of washed sand and mix thoroughly. Then add 150 Cc. of ether and 2 Cc. of ammonia water, shake the mixture vigorously every 10 minutes during a half hour, and when the drugs have settled decant 100 Cc. of the clear liquid, representing 2 Gm. of the extract. Proceed as in the Assay of Belladonna Root, modifying the process there given by using only ether throughout the assay.

Belladonna Folia.—No change in alkaloidal standard. *Assay* as under Belladonna Root using 15 Gm. of Belladonna Leaves, in No. 60 powder, increasing the amount of water added after maceration to 25 Cc. and, before titration, treat the final residue twice with 5 Cc. of ether, evaporating to dryness each time.

Tinctura Belladonnae Foliorum.—The alkaloidal yield from 100 Cc. changed from "0.03 Gm." to "not less than 0.027 Gm. nor more than 0.033 Gm. of the mydriatic alkaloids from Belladonna Leaves." *Assay.*—Evaporate 100 Cc. of Tincture of Belladonna Leaves on a water-bath until it measures about 10 Cc., transfer the evaporated liquid to a separator, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by increasing the ammonia water to 5 Cc., which, with about 5 Cc. of water, is to be used in divided portions to rinse out the dish in which the mixture was evaporated; before titrating treat the residue twice with 5 Cc. of ether, evaporating to dryness each time.

Extractum Belladonnae Foliorum.—The alkaloidal yield changed from "1.4 percent." to "not less than 1.18 percent. nor more than 1.32 percent. of the mydriatic alkaloids of Belladonna Leaves." *Assay.*—Dissolve 2 Gm. of Extract of Belladonna Leaves in 10 Cc. of diluted alcohol, transfer the solution to a separator and wash the vessel in which the extract was dissolved with about 10 Cc. of diluted alcohol in divided portions, adding the rinsings to the separator, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by treating the residue twice with 5 Cc. of ether before titrating, evaporating to dryness each time.

Extractum Belladonnae Foliorum Pulveratum.—It yields not less than 1.18 percent. nor more than 1.32 percent. of the mydriatic alkaloids of Belladonna Leaves. *Assay.*—Introduce 3 Gm. of Powdered Extract of Belladonna Leaves into a 250 Cc. flask, add 10 Gm. of washed sand and mix thoroughly. Then add 150 Cc. of a mixture of chloroform, 1 volume, and ether, 2 volumes, and 5 Cc. of

ammonia water. Shake the mixture vigorously every 10 minutes during a half hour and when the dregs have settled decant 100 Cc. of the clear liquid representing 2 Gm. of the extract. Proceed as directed in the Assay of Belladonna Root, modifying the process there given by treating the residue twice with ether, before titrating, evaporating to dryness each time.

Belladonnæ Radix.—No change in percent. of alkaloids. *Assay*.—Introduce 15 Gm. of Belladonna Root, in No. 60 powder, into a flask of about 300 Cc. capacity and add 150 Cc. of a mixture of chloroform, 1 volume, and ether, 2 volumes. Stopper the flask, shake it well and allow it to stand ten minutes, then add 5 Cc. of ammonia water and shake the flask vigorously every ten minutes during two hours. Now add 15 Cc. of distilled water, again shake the flask well, and, when the drug has settled, decant 100 Cc. of the solution, representing 10 Gm. of Belladonna Root. Filter the solution through a pledget of purified cotton into a separator, and rinse the graduate and cotton with a little ether. Completely extract the alkaloids from the chloroform-ether solution by shaking out repeatedly with weak sulphuric acid. Collect the acid washings in a separator, add ammonia water until the solution is decidedly alkaline to litmus, and completely extract the alkaloids by shaking out repeatedly with chloroform. Evaporate the combined chloroform washings to dryness and dissolve the alkaloids from the residue in exactly 5 Cc. of tenth-normal sulphuric acid V. S., and titrate the excess of acid with fiftieth-normal potassium hydroxide V. S., using cochineal T. S. as indicator. Each Cc. of tenth-normal sulphuric acid V. S. consumed, corresponds to 28.92 milligrammes of the mydriatic alkaloids from Belladonna Root.

Fluidextractum Belladonnæ Radicis.—The alkaloidal yield from 100 Cc. changed from "0.4 Gm." to "not less than 0.405 Gm. nor more than 0.495 Gm. of the mydriatic alkaloids from Belladonna Root." *Assay*.—Introduce 10 Cc. of Fluidextract of Belladonna Root into a separator and add 10 Cc. of water and 2 Cc. of ammonia water. Completely extract the alkaloids by shaking out repeatedly with chloroform and then extract the alkaloids from the chloroform solution by shaking out repeatedly with weak sulphuric acid until the alkaloid is completely removed. Collect the acid washings in a separator, add ammonia water until the solution is decidedly alkaline to litmus, and completely extract the alkaloid by shaking out repeatedly with chloroform. Evaporate the combined chloroform washings to dryness, dissolve the alkaloids from the residue in exactly 5 Cc. of tenth-normal sulphuric acid V. S. and then titrate the excess of acid with fiftieth-normal potassium hydroxide V. S., using cochineal T. S. as indicator. Each Cc. of tenth-normal sulphuric acid V. S. corresponds to 28.92 milligrammes of the mydriatic alkaloids from Belladonna Root.

Cantharis.—It should yield, when assayed by the process given below, not less than 0.6 percent. of cantharidin. *Assay*.—Introduce 15 Gm. of Cantharides, in No. 40 powder, into a stout bottle of not less than 250 Cc. capacity, add 150 Cc. of a mixture of benzene, two volumes, and purified petroleum benzin, one volume, and then add 2 Cc. of hydrochloric acid. Stopper the bottle tightly, shake it well, and allow it to stand over night. Now gradually warm the bottle and its contents to about 40° C. and maintain it at that temperature with fre-

quent shaking during three hours. Cool the mixture, decant or filter off 100 Cc. of clear solution and evaporate this rapidly in a tared beaker or wide-necked flask to a volume of about 5 Cc. Now add 5 Cc. of chloroform to the residue and set it aside in a moderately warm place. When the solvent has all evaporated, add to the crystals 10 Cc. of a mixture of equal volumes of absolute alcohol and purified petroleum benzin, which has previously been saturated with pure cantharidin, allow it to stand during fifteen minutes and then decant it through a pellet of purified cotton. Wash the crystals with successive portions of a saturated solution of cantharidin, similar to that directed above, until it is free from fat and coloring matter, and pass the washings through the same pellet of purified cotton. Then wash the cotton with a very small quantity of warm chloroform to dissolve any adhering crystals, collect the chloroform in the tared flask or beaker containing the washed crystals, evaporate off the solution with the aid of a blast of air, dry them at 60° C. for one-half hour and weigh. The resulting weight will be the amount of cantharidin obtained from ten grammes of Cantharides.

Cinchona.—The requirement that it “contain not less than 5 percent. of total anhydrous Cinchona alkaloids and at least 4 percent. of anhydrous ether-soluble alkaloids” changed to “not less than 6 percent. of the total alkaloids of Cinchona.” *Assay*.—Introduce five grammes of Cinchona, in No. 40 powder, into a flask of 500 Cc. capacity and add 200 Cc. of a mixture of chloroform, 1 volume, and ether, 2 volumes. Stopper the flask, shake it well, and let it stand ten minutes. Then add 5 Cc. of ammonia water, shake the flask frequently for one hour, and let it stand over night. Now add 10 Cc. of distilled water, shake the mixture vigorously and when the drug has settled, decant 160 Cc. of the solution, representing four grammes of Cinchona. Filter it through a pledget of purified cotton into a separator, and rinse both cylinder and cotton with ether. Completely extract the alkaloids from the chloroform-ether solution by shaking out repeatedly with weak sulphuric acid. Collect the acid solutions in a separator, add ammonia water until the solution is distinctly alkaline to litmus, and completely extract the alkaloids by shaking out repeatedly with chloroform. Filter each portion of chloroform as it comes from the separator through a pledget of purified cotton into a tared flask, and wash the funnel and cotton with chloroform. Evaporate off the chloroform, add 5 Cc. of alcohol to the residue, and again evaporate. Repeat the evaporation with alcohol and dry the residue at 100° C. to constant weight. The weight will be the amount of total alkaloids from four grammes of Cinchona.

Fluidextractum Cinchonæ.—The alkaloidal yield from 100 Cc. changed from “4 Gm. of anhydrous ether-soluble alkaloids from Cinchona” to “not less than 4.5 Gm., nor more than 5.5 Gm. of the total alkaloids of Cinchona.” *Assay*.—Drop from a pipette 5 Cc. of Fluidextract of Cinchona evenly over the surface of 10 Gm. of purified sawdust and evaporate it to dryness at a temperature not exceeding 80° C. Then transfer the mixture to a 500 Cc. flask, and proceed as directed in the Assay of Cinchona, modifying the process there given by increasing the ammonia water to 10 Cc. Use this in divided portions to rinse the dish in which the mixture was evaporated and add the rinsings to the flask.

Tinctura Cinchonæ.—The alkaloidal yield from 100 Cc. changed from "0.75 Gm. of anhydrous ether-soluble alkaloïds" to "not less than 0.9 Gm. nor more than 1.1 Gm. of the total alkaloids of Cinchona." *Assay*.—Evaporate 25 Cc. of Tincture of Cinchona on a water-bath until it measures about 15 Cc., add 10 Gm. of purified sawdust, incorporate this thoroughly and then continue the evaporation at a temperature not exceeding 80° C. until it is dry. Transfer the impregnated sawdust to a 500 Cc. flask; proceed as directed in the Assay of Cinchona, modifying the process there given by increasing the ammonia water to 10 Cc. Use this in divided portions to rinse the dish in which the mixture was evaporated and add the rinsings to the flask.

Cinchona Rubra.—The requirement that it "contain not less than 5 percent. of cinchona alkaloids" changed to "not less than 6 percent. of the total alkaloids of Cinchona." *Assay* as under Cinchona, using 5 Gm. of Red Cinchona.

Tinctura Cinchonæ Composita.—One hundred cubic centimeters yields not less than 0.45 Gm. nor more than 0.55 Gm. of the total alkaloids of Cinchona. Proceed as directed in the Assay of Tinctura of Cinchona, modifying the process there given by using 50 Cc. of the Compound Tincture instead of 25 Cc. of the Tincture there directed. (Not assayed in U. S. P. VIII.)

Colchici Cormus.—No change in alkaloidal standard. *Assay* as under Colchicum Seed, using 15 Gm. of Colchicum Corm.

Extractum Colchici Cormi Pulveratum.—The alkaloidal yield changed from "1.4 percent." to "not less than 1.25 percent. nor more than 1.55 percent. of colchicine." *Assay*.—Proceed as directed in the Assay of Colchicum Seed, modifying the directions there given by using 6 Gm. of the Powdered Extract of Colchicum Corm instead of 15 Gm. of Colchicum Seed. The final weight will be the amount of colchicine from 2 Gm. of Powdered Extract of Colchicum Corm.

Colchici Semen.—No change in alkaloidal standard. *Assay*.—Introduce 15 Gm. of Colchicum Seed, in No. 60 powder, into a 500 Cc. flask, and add 300 Cc. of a mixture of 10 Cc. of solution of lead subacetate and 290 Cc. of distilled water. Weigh the flask and contents, and digest the mixture at from 60° to 70° C. for three hours, with occasional agitation. Cool, add distilled water to restore the original weight and filter off 200 Cc. Add 0.75 Gm. of sodium phosphate to the clear filtrate, shake the mixture frequently during half an hour, and filter off 100 Cc. representing 5 Gm. of Colchicum Seed. Shake out the alkaloïd from the filtrate with chloroform until completely extracted, as shown by testing with iodine T. S. in place of the usual mercuric potassium iodide T. S., and evaporate the chloroform solution, adding about 1 Cc. of alcohol and again evaporating. Repeat this operation once more and dry the residue to constant weight at 100° C. To this weighed residue contained in a flask add 5 Cc. of approximately tenth-normal sulphuric acid V. S. and 5 Cc. of distilled water and heat the mixture for ten minutes to 70° C. Now filter the liquid through a pledget of purified cotton, and wash the flask and cotton with distilled water, rejecting the filtrate and washings and removing as much of the water from the cotton as possible. Dissolve any insoluble residue that may remain on the cotton by washing it first with a little alcohol and then with ether; collect the alcohol-

ether washings in the flask, evaporate, and dry the residue to constant weight at 100° C. Deduct this weight from the weight of residue previously obtained. The difference will be the weight of colchicine obtained from 5 Gm. of Colchicum Seed.

Fluidextractum Colchici Seminis.—The alkaloidal yield from 100 Cc. changed from "0.04 Gm." to "not less than 0.036 Gm. nor more than 0.044 Gm. of colchicine." *Assay.*—Introduce 15 Cc. of Fluidextract of Colchicum Seed into a 500 Cc. flask, add 10 Cc. of solution of lead subacetate, previously diluted with 35 Cc. of water, shake the mixture thoroughly, then add 240 Cc. of water, again agitate the mixture and proceed as directed in the assay of Colchicum Seed.

Tinctura Colchici Seminis.—The alkaloidal yield from 100 Cc. changed from "0.004 Gm." to "not less than 0.036 Gm. nor more than 0.044 Gm. of colchicine." *Assay.*—Evaporate 150 Cc. of Tincture of Colchicum Seed on a water-bath to about 20 Cc., transfer it to a 50 Cc. graduated flask and rinse the evaporating dish with about 10 Cc. of water in divided portions. Then add 10 Cc. of solution of lead subacetate, shake the mixture thoroughly, add enough distilled water to make 50 Cc. and pour this into a 500 Cc. flask. Now add 250 Cc. of recently boiled distilled water, using part of the water to rinse the 50 Cc. flask and proceed as directed in the Assay of Colchicum Seed.

Guarana.—The requirement that it "contain not less than 3.5 percent. of its alkaloidal principles," changed to "not less than 4 percent. of caffeine." *Assay.*—Introduce 6 Gm. of Guarana, in No. 60 powder, into a flask and add 120 Cc. of chloroform and 6 Cc. of ammonia water. Stopper the flask, shake it frequently for half an hour, then let it stand four hours. Again shake the flask vigorously and when the drug has settled, filter the liquid rapidly through a pledget of purified cotton and collect 100 Cc. of the filtrate, representing 5 Gm. of Guarana. Evaporate the clear filtrate to dryness and dissolve the residue in weak sulphuric acid with the aid of heat. When the liquid has cooled, filter it into a separator and wash the container and filter with several small portions of distilled water. Now add ammonia water until the liquid is distinctly alkaline to litmus and shake out the alkaloid with chloroform until completely extracted, as shown by testing with idoine T. S. in place of the usual mercuric potassium iodide T. S. Evaporate the united chloroform solutions and dry the residue to constant weight at 100° C. The weight will be the amount of alkaloid from 5 Gm. of Guarana.

Fluidextractum Guaranae.—The alkaloidal yield from 100 Cc. changed from "3.5 Gm. of the alkaloids from Guarana" to "not less than 3.6 Gm. nor more than 4.4 Gm. of caffeine." *Assay.*—Introduce 5 Cc. of Fluidextract of Guarana into a separator, add 1 Cc. of ammonia water, and shake out the alkaloid with chloroform until completely extracted, as shown by testing with iodine T. S. Evaporate the combined chloroform solutions to dryness and dissolve the residue in 20 Cc. of distilled water with the aid of heat. Allow this to cool, filter it into a separator and wash the container and filter with several small portions of distilled water, adding the rinsings to the liquid in the separator. Then shake out the alkaloid with chloroform until completely extracted, as shown by testing with iodine T. S., evaporate the combined chloroform solutions and dry the

residue at 100° C. to constant weight. The weight will represent the alkaloid in 5 Cc. of Fluidextract of Guarana.

Hydrastis.—No change in percent. of alkaloids required, “hydrastine” changed to “ether-soluble alkaloids of Hydrastis.” *Assay* as under Belladonna Root, using 10 Gm. of Hydrastis, in No. 60 powder, and 100 Cc. of ether and taking 50 Cc. of the ether-solution, representing 5 Gm. of Hydrastis. Use only ether as the immiscible solvent throughout the assay and dry the residue to constant weight at 100° C. The weight will be the amount of ether-soluble alkaloids from 5 Gm. of Hydrastis.

Fluidextractum Hydrastis.—The alkaloidal yield from 100 Cc. changed from “2 Gm. of hydrastine” to “not less than 1.8 Gm. nor more than 2.2 Gm. of the ether-soluble alkaloids of Hydrastis.” *Assay*.—Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 5 Cc. of Fluidextract of Hydrastis instead of 10 Cc. of the Fluidextract of Belladonna Root. Use only ether as the immiscible solvent throughout the assay and dry the residue at 100° C. to constant weight, instead of titrating it. The weight will represent the amount of ether-soluble alkaloids in 5 Cc. of the Fluidextract of Hydrastis.

Glyceritum Hydrastis.—100 Cc. yields not less than 1.12 Gm. nor more than 1.37 Gm. of the ether-soluble alkaloids of Hydrastis. (Not assayed in U. S. P. VIII.) Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 5 Cc. of the Glycerite of Hydrastis instead of 10 Cc. of the Fluidextract of Belladonna Root. Use only ether as the immiscible solvent throughout the assay. Wash the final ether extractions with 10 Cc. of water, draw off the water and discard it. Then filter the ether solution through a pledget of purified cotton, wash the cotton with ether, evaporate the filtrate and washings, and dry the residue at 100° C. to constant weight instead of titrating it. The weight will represent the amount of ether-soluble alkaloids in 5 Cc. of the Glycerite of Hydrastis.

Tinctura Hydrastis.—The alkaloidal yield from 100 Cc. changed from “0.4 Gm. of hydrastine” to “not less than 0.36 Gm. nor more than 0.44 Gm. of the ether-soluble alkaloids of Hydrastis.” *Assay*.—Evaporate 50 Cc. of Tincture of Hydrastis on a water-bath until it measures about 10 Cc., transfer the evaporated liquid to a separator, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using the ammonia water with about 5 Cc. of water, in divided portions, to rinse out the dish in which the mixture was evaporated. Use only ether as the immiscible solvent throughout the assay and dry the residue at 100° C. to constant weight, instead of titrating it. The weight will represent the amount of ether-soluble alkaloids in 50 Cc. of Tincture of Hydrastis.

Extractum Hydrastis Pulveratum.—It yields not less than 9.0 percent. nor more than 11.0 percent. of the ether-soluble alkaloids of Hydrastis. *Assay*.—Introduce 3 Gm. of Powdered Extract of Hydrastis into a 250 Cc. flask, add 10 Gm. of washed sand and mix thoroughly. Then add 150 Cc. of ether and 5 Cc. of ammonia water. Shake the mixture vigorously every 10 minutes during a half hour and when the dregs have settled decant 100 Cc. of the clear liquid,

representing 2 Gm. of the extract. Proceed as directed in the Assay of Belladonna Root, modifying the process there given by using only ether throughout the assay, and drying the residue to constant weight at 100° C. The weight will be the amount of ether-soluble alkaloids from 2 Gm. of Powdered Extract of Hydrastis.

Hyoscyamus.—The percent. of mydriatic alkaloids required, changed from "0.08" to "0.06." *Assay* as under Belladonna Root, using 30 Gm. of Hyoscyamus, in No. 60 powder, and 300 Cc. of the chloroform-ether mixture. Increase the amount of distilled water, added after maceration, to 40 Cc. and take 200 Cc. of the chloroform-ether solution, representing 20 Gm. of Hyoscyamus. Before titration treat the final residue twice with 5 Cc. of ether, evaporating to dryness each time.

Fluidextractum Hyoscyami.—The alkaloidal yield from 100 Cc. changed from "0.075 Gm." to "not less than 0.055 Gm. nor more than 0.075 Gm. of the mydriatic alkaloids of Hyoscyamus." Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 25 Cc. of the Fluidextract of Hyoscyamus in place of 10 Cc. of Fluidextract of Belladonna Root; before titrating treat the residue twice with 5 Cc. of ether, evaporating to dryness each time.

Tinctura Hyoscyami.—The alkaloidal yield from 100 Cc. changed from "0.007 Gm." to "not less than 0.0055 Gm. and not more than 0.0075 Gm. of the mydriatic alkaloids of Hyoscyamus." *Assay*.—Evaporate 250 Cc. of Tincture of Hyoscyamus on a water-bath to about 10 Cc., transfer the evaporated liquid to a separator, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by increasing the ammonia water to 5 Cc., which, with 5 Cc. of water is to be used, in divided portions, to rinse the dish in which the Tincture was evaporated, before titrating treat the residue twice with 5 Cc. of ether, evaporating to dryness each time.

Extractum Hyoscyami.—The alkaloidal yield changed from "0.3 percent." to "not less than 0.215 percent. nor more than 0.288 percent. of the mydriatic alkaloids of Hyoscyamus." *Assay*.—Proceed as directed in the Assay of Belladonna Leaves, modifying the process there given by taking 5 Gm. of Extract of Hyoscyamus instead of 2 Gm. of Extract of Belladonna Leaves.

Ipecacuanha.—The percent. of Ipecac alkaloids required changed from "1.75" to "2." *Assay* as under Belladonna Root, using 10 Gm. of Ipecac, in No. 80 powder, and 100 Cc. of ether. Take 50 Cc. of the ether solution, representing 5 Gm. of Ipecac. Use ether only as the immiscible solvent throughout and dissolve the residue in 10 Cc. of tenth-normal sulphuric acid V. S. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 24.0 milligrammes of Ipecac alkaloids.

Fluidextractum Ipecacuanhæ.—The alkaloidal yield from 100 Cc. changed from "1.5 Gm. of the alkaloids of Ipecac" to "not less than 1.8 Gm. nor more than 2.2 Gm. of the ether-soluble alkaloids of Ipecac." Drop from a pipette 10 Cc. of Fluidextract of Ipecac evenly over the surface of 10 Gm. of purified sawdust, and evaporate it to dryness at a temperature not exceeding 80° C. Then trans-

fer the impregnated sawdust to a 250 Cc. flask, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by increasing the ammonia water to 5 Cc. Use this with about 5 Cc. of water, in divided portions, to rinse the dish in which the mixture was evaporated, and add the rinsings to the flask. Now add 100 Cc. of ether, and take 50 Cc. of the ether solution, representing 5 Cc. of Fluidextract of Ipecac. Use only ether as the immiscible solvent and dissolve the residue in 10 Cc. of tenth-normal sulphuric acid V. S. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 24 milligrammes of the ether-soluble alkaloids of Ipecac.

Jalap.—No change in total resin standard. The further requirement that "not more than 15 percent. of the total resin should be soluble in ether" is omitted. *Assay.*—Pack 10 Gm. of Jalap, in No. 60 powder, in a cylindrical percolator and extract it with alcohol until 100 Cc. of percolate is obtained. Transfer 20 Cc. of the percolate to a separator, add 20 Cc. of chloroform, mix the liquids, then add 20 Cc. of distilled water and shake the mixture thoroughly. When the liquids have completely separated, draw off the chloroform into a tared beaker, wash the contents of the separator with 5 Cc. of chloroform without shaking and draw it off into the beaker. Evaporate the chloroform solution on a water-bath, add about 2 Cc. of alcohol, again evaporate, then dry the residue to constant weight at 100° C. The weight will be the amount of total resin from 2 Gm. of Jalap.

Nux Vomica.—The requirement that it "contain not less than 1.25 percent. of strychnine" changed to "not less than 2.5 percent. of the total alkaloids of Nux Vomica." *Assay* as under Belladonna Root using 15 Gm. of Nux Vomica in No. 40 powder, and increasing the quantity of ammonia water from 5 to 10 Cc. and the time of maceration to 12 hours; also, for titration, dissolve the alkaloid in the residue in 10 Cc. of tenth-normal sulphuric acid V. S. instead of 5 Cc. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 36.4 milligrammes of the total alkaloids of Nux Vomica.

Fluidextractum Nucis Vomicae.—The alkaloidal yield from 100 Cc. changed from "1 Gm. of strychnine" to "not less than 2.37 Gm. nor more than 2.63 Gm. of the total alkaloids of Nux Vomica." Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by dissolving the alkaloidal residue in 10 Cc. of tenth-normal sulphuric acid V. S. instead of 5 Cc. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 36.4 milligrammes of the total alkaloids of Nux Vomica.

Tinctura Nucis Vomicae.—The alkaloidal yield from 100 Cc. changed from "0.1 Gm. of strychnine" to "not less than 0.237 Gm. nor more than 0.263 Gm. of the total alkaloids of Nux Vomica." Evaporate 100 Cc. of Tincture of Nux Vomica on a water-bath until it measures about 10 Cc., transfer the evaporated liquid to a separator, and proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 5 Cc. of ammonia water with a little water, in divided portions, to rinse the dish in which the Tincture was evaporated and by dissolving the residue in 10 Cc. of tenth-normal sulphuric acid V. S. instead of 5 Cc.

Extractum Nucis Vomicae Pulveratum.—The alkaloidal yield changed from "5 percent. of strychnine" to "not less than 15.2 percent. nor more than 16.8 percent. of the total alkaloids of Nux Vomica." Introduce 3 Gm. of Powdered Extract of Nux Vomica into a 250 Cc. flask, add 10 Gm. of washed sand and mix thoroughly. Then add 150 Cc. of a mixture of ether, 2 volumes, and chloroform, 1 volume, and 5 Cc. of ammonia water. Shake the mixture vigorously every 10 minutes during half an hour and when the dregs have settled decant 100 Cc. of the clear liquid, representing 2 Gm. of the extract. Proceed as directed in the Assay of Belladonna Root, modifying the process there given by dissolving the alkaloidal residue in 10 Cc. of tenth-normal sulphuric acid V. S. instead of 5 Cc.

Physostigma.—No change in alkaloidal standard. *Assay.*—Introduce 15 Gm. of Physostigma in No. 60 powder, into a flask of about 300 Cc. capacity, and add 150 Cc. of ether. Stopper the flask, shake it well and allow it to stand ten minutes, then add 10 Cc. of an aqueous solution of sodium bicarbonate (1 in 20) and shake the mixture vigorously at intervals during four hours. Now add 15 Cc. of distilled water, again shake the flask well, and when the drug has settled, decant 100 Cc. of the solution, representing 10 Gm. of Physostigma. Filter the solution through a pledget of purified cotton into a beaker and rinse the graduate and cotton with ether. Add 20 Cc. of tenth-normal sulphuric acid V. S. and evaporate off the ether, stirring during the evaporation with a rubber-tipped glass rod. After the resinous and fatty matter has agglutinated, pour off the acid solution through a wetted filter into a separator. Redissolve the residue in the beaker in about 15 Cc. of ether, add 2 Cc. of tenth-normal sulphuric acid V. S., evaporate off the ether with continued stirring as before and pour the acid solution on the filter. Repeat this operation until all of the alkaloid is extracted and then wash the filter with distilled water until it is free from alkaloids. Collect the solution and washings in a separator, add sufficient sodium bicarbonate to make the solution decidedly alkaline to litmus and completely extract the alkaloids by shaking it out repeatedly with ether. Wash the combined ether with 10 Cc. of distilled water and filter the ether solution, washing the container and filter with ether. Evaporate the combined ether solutions to dryness, dissolve the alkaloids from the residue in exactly 5 Cc. of tenth-normal sulphuric acid V. S. and titrate the excess of acid with fiftieth-normal potassium hydroxide V. S., using cochineal T. S. as indicator. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 27.52 milligrammes of the alkaloids of Physostigma.

Tinctura Physostigmatis.—The alkaloidal yield from 100 Cc. changed from "0.014 Gm. of the ether-soluble alkaloids from Physostigma" to "not less than 0.013 Gm. nor more than 0.017 Gm. of the alkaloids of Physostigma." Evaporate 150 Cc. of Tincture of Physostigma on a water-bath until it measures about 20 Cc., add 10 Gm. of purified sawdust to the liquid and incorporate it thoroughly. Continue the evaporation on a water-bath, until the mixture is dry, then transfer the impregnated sawdust to a 250 Cc. flask, and proceed as directed in the Assay of Physostigma, modifying the process there given by using the solution of sodium bicarbonate, in divided portions, to rinse the evaporating dish:

Extractum Physostigmatis.—The alkaloidal yield changed from “2 percent. of ether-soluble alkaloids” to “not less than 1.7 percent. nor more than 2.3 percent. of the alkaloids of Physostigma.” Dissolve 2 Gm. of Extract of Physostigma in 10 Cc. of diluted alcohol, drop the solution evenly over the surface of 15 Gm. of purified sawdust, and rinse the vessel with 5 Cc. of diluted alcohol in divided portions, adding the rinsings to the sawdust. Evaporate the mixture to dryness on a water-bath, transfer it to a 250 Cc. flask, and proceed as directed in the Assay of Physostigma, modifying the process there given by using the solution of sodium bicarbonate in divided portions, to rinse the evaporating dish.

Pilocarpus.—Percent. of Pilocarpus alkaloids changed from “0.5” to “0.6 percent.” Assay as under Belladonna Root using 15 Gm. of Pilocarpus, in No. 60 powder, and decreasing the amount of water to be added after maceration to 5 Cc. Each Cc. of tenth-normal sulphuric acid V. S. corresponds to 20.8 milligrammes of the alkaloids of Pilocarpus.

Fluidextractum Pilocarpi.—The alkaloidal yield from 100 Cc. changed from “0.4” to “not less than 0.55 Gm. nor more than 0.65 Gm. of the alkaloids from Pilocarpus.” Drop from a pipette 15 Cc. of Fluidextract of Pilocarpus evenly over the surface of 15 Gm. of purified sawdust, and evaporate it to dryness on a water-bath. Then transfer the mixture to a 250 Cc. flask, and proceed as directed in the Assay of Belladonna Root, modifying the process there given by increasing the ammonia water to 5 Cc., which, with 5 Cc. of water is to be used, in divided portions, to rinse the dish in which the Fluidextract was evaporated. Each Cc. of tenth-normal sulphuric acid V. S. corresponds to 20.8 milligrammes of the alkaloids of Pilocarpus.

Stramonium.—No change in alkaloidal standard. Assay as under Belladonna Root, using 15 Gm. of Stramonium, in No. 50 powder, increase the amount of water to be added after maceration to 25 Cc., and, before titration, treat the final residue twice with 5 Cc. of ether, evaporating to dryness each time. Each Cc. of tenth-normal sulphuric acid V. S. consumed corresponds to 28.92 milligrammes of mydriatic alkaloids.

Tinctura Stramonii.—The alkaloidal yield from 100 Cc. changed from “0.025 Gm.” to “not less than 0.0225 Gm. nor more than 0.0275 Gm. of the mydriatic alkaloids from Stramonium.” Evaporate 100 Cc. of Tincture of Stramonium on a water-bath until it measures about 10 Cc., transfer the evaporated liquid to a separator, and proceed as directed in the assay of Fluidextract of Belladonna Root, modifying the process there given by using the ammonia water and about 5 Cc. of water in addition to rinse the dish in which the Tincture was evaporated, and treat the residue twice with 5 Cc. of ether, before titrating, evaporating to dryness each time.

Extractum Stramonii.—The alkaloidal yield changed from “1.0 percent.” to “not less than 0.9 percent. nor more than 1.1 percent. of the mydriatic alkaloids of Stramonium.” Proceed as directed under the Assay of Extract of Belladonna Leaves, using 2 Gm. of Extract of Stramonium.

Extractum Stramonii Pulveratum.—It yields not less than 0.9 percent. nor more than 1.1 percent. of the mydriatic alkaloids of Stramonium. Proceed as

directed under the Assay of Powdered Extract of Belladonna Leaves, using 3 Gm. of Powdered Extract of Stramonium.

Purified Sawdust.—(Insert among Reagents.) Moisten 1000 Gm. of Oak Sawdust, in No. 20 Powder, with water, pack in a cylindrical percolator and pour on enough of a 1 percent. sodium hydroxide solution to saturate the powder and leave a layer above it. When the liquid drops from the percolator, close the lower orifice and macerate the sawdust during 24 hours. Then proceed to percolate slowly until 5000 Cc. of the sodium hydroxide solution has been added, continue the percolation with 4000 Cc. of 1 percent. hydrochloric acid and then wash the sawdust with water until the acid is all removed, the percolate being neutral. Finally dry the powder.

TOTAL EXTRACTIVE AS A FACTOR IN FLUIDEXTRACT MANUFACTURE.

E. L. MAINES, PH. C., PHAR. D., AND R. J. GARDNER, PH. G.

The determination of total extractive is an important factor in the manufacture of fluidextracts, especially those of the non-alkaloidal drugs.

This principle is carried out in part by the assay methods for the oleoresinous drugs, such as *Aspidium*, *Cubeb*s, *Capsicum* and *Ginger*, and the resinous drugs, such as *Podophyllum* and *Jalap*. In these assays, however, the oleoresin and resin, respectively, are estimated, whereas, in the total extractive determination, all substances soluble in the percolating menstruum are determined combined.

The complete exhaustion of a drug is made more positive by total extractive estimations, provided of course, the proper menstruum is employed. It also gives an index to the possible yield in the manufacture of solid or powdered extracts.

Several conditions tend to regulate the amount of solids in a fluidextract, such as, nature of drugs, fineness of powder and menstruum employed. Such drugs as *Cincona* and *Ipecac* give varying amounts of extractive matter and indeed, in some instances, it is almost impossible to completely extract even their active principles.

In the alkaloidal drugs, however, the estimation of extractive matter is of little or no importance.

Drugs that are extremely difficult to exhaust are fortunately in the minority and in most cases complete extraction is readily accomplished and the total extractive yield fairly constant.

The manner of making total solid (extractive) determinations is so well known that it is not necessary to comment upon it in this article. A table of total extractive determinations is given below which represents estimations covering many years of work and the products of several of the largest manufacturers.

TABLE SHOWING TOTAL EXTRACTIVE OF FLUID EXTRACTS.

Fluid Extracts	Percent Extractive
Aletris	9-12
Aloes, Fluid, for Tinct.....	28-30
Ambrosia	12-19

Fluid Extracts	Percent Extractive
Angelica Root.....	8-10
Arbor Vitæ.....	8-10
Arnica Flowers.....	14-16
" Root.....	9-11
Asafetida, Fluid for Tinct.....	14-17
Asarum.....	12-15
Asclepias.....	10-12
Avena Sativa.....	5-10
Balsam Poplar Buds.....	30-35
Bayberry Bark.....	12-15
Baptisia.....	12-15
Benzoin, Fluid for Tinct.....	45
" Comp. Fluid for Tinct.....	35-40
Berberis.....	8-10
Blackberry, Aromatic.....	28-30
Black Willow.....	12-13
Blue Cohosh.....	18-22
Bryonia.....	4-5
Buchu.....	16-20
" Comp.....	15-18
Buckthorn Bark.....	18-20
" Berries.....	30-35
Calamus.....	8-12
Calumba.....	4-5
Cantharides.....	12-15
Caraway Seed.....	12-17
Cardamom Seed.....	2½-3
Cascara Amarga (Snakewood Bark).....	12-14
Cascarilla.....	6-8
Cassia Cinnamon.....	6-9
Catechu.....	30-32
Caulophyllum.....	18-22
Celery Seed.....	4-5
Cereus Grandiflorus, Green Drug.....	1-2
Chamomile.....	22-25
Chimaphila.....	25-28
Chionanthus.....	25-30
Cimicifuga.....	8-10
Cloves.....	14-15
Cocculus Indicus.....	10-12
Collinsonia.....	12-15
Colocynth.....	16-18
Coltsfoot.....	10-12
Condurango.....	10-12
Convallaria.....	20-24
Corn Silk.....	5-6
Corydalis.....	10-20
Cubebs.....	10-12
Cypripedium.....	14-17
Dogwood.....	25
Echinacea.....	10-12
Elecampane.....	19-22
Eucalyptus.....	22-25
Euonymus.....	12-14
Euphorbia.....	14-16
Galega.....	13-16
Gambir Comp., Fluid for Tinct.....	30-35
Garlic.....	9-10
Gelsemium.....	14-16
Gentian.....	25-30
" Comp., Fluid for Tinct. and Infusion.....	24-30
Geranium.....	30-35
Glycyrrhiza.....	16-18
Gossypium.....	16-30
Gravel Plant.....	12-17
Grindelia.....	12-15
Guaiac Resin, Fluid for Tinct.....	58-60
Guarana.....	22-26

Fluid Extracts	Percent Extractive
Hamamelis Leaves.....	22-30
Horse-Nettle Berries.....	8-10
“ Root	8-10
Hops	26-30
Hydrangea	8-10
Ignatia	14-16
Inula	16-20
Iris	11-13
Jaborandi	13-14
Jambul Seed.....	11-16
Juglans	20-24
Juniper Berries.....	30-32
Kava Kava.....	4-6
Krameria	22-25
Lactucarium	15-20
Lappa	25-28
Larkspur Seed.....	15-20
Leptandra	20-25
Life Root.....	12-14
Lobelia	15-17
“ Comp.	12-15
Logwood	6-8
Lupulin	35-38
Male Fern.....	5-6
Manaca	5-6
Myristica	10-14
Myrrh	22-25
Orange Peel, Bitter.....	14-16
Pareira	18-20
Parsley Seed.....	7-9
Passion Flower.....	16-17
Phytolacca Fruit.....	36-39
“ Root	17-20
Pichi	15-18
Pomegranate	15-17
Pulsatilla	7-9
Quassia	2-4
Queen of the Meadow.....	7-9
Red Gum.....	24-26
Rhubarb	25
“ Aromatic	26-30
Rhus Aromatica.....	12-20
“ Glabra	24-25
“ Toxicodendron	12-20
Rose	30-34
Rosin Weed.....	10-12
Rue	16-20
Rumex	20-22
Salix Nigra.....	12-13
Sambucus	18-22
Sandalwood	5-10
Sarsaparilla	10-12
“ Comp., for Syrup.....	20-25
Sassafras Bark.....	20-23
Savin	5-7
Saw Palmetto.....	4-5
Scoparius	9-11
Scutellaria	18-20
Senega	25-28
Senna	14-16
Serpentaria	9-11
Skullcap	12-15
Soaptree Bark.....	30-35
Spigelia	16-20
“ and Senna, for Syrup.....	16-20
Spikenard	12-14
Squaw Vine.....	16-18
“ Comp.	15-18

Squill, 1890.....	25-30
“ Comp., for Syrup.....	26-30
“ U. S. P.	25-30
“ Alcoholic	25-30
Staphisagria	11-14
Stillingia	6-8
Sumbul	20-24
Sundew	14-15
Symphytum	12-15
Taraxacum	20-25
Tolu (for Tinct.).....	40-42
Trifolium	14-17
Triticum	29-32
Turnera	14-16
Uva Ursi.....	50-60
Valerian	10-15
Viburnum Opulus.....	15-18
“ Prunifolium	14-16
Water Pepper.....	6-8
White Pine Bark.....	17-20
Wild Cherry Bark.....	30-35
Xanthoxylum Berries.....	5-7
Yerba Santa.....	19-25

Remarks:—The term “Fluid” is applied to those preparations which do not represent the U. S. P. standard of strength.

MANUFACTURING LABORATORIES, BRISTOL-MYERS COMPANY, June 5, 1914.

.. PREPARATION AND ANALYSES OF VLEMINCK'S SOLUTION.*

JOSEPH L. MAYER.

A short time ago two samples of Vleminck's Solution were submitted to me with a request that, in view of the fact that the color of one sample was markedly different from the other, analyses be made to ascertain if they were properly prepared.

Since the National Formulary, only, contains a formula for the preparation, and various pharmaceutical authorities consulted, made no reference to a standard, it was necessary to make samples, to determine how the solution should be prepared and what should be the strength of the finished product. The following work was therefore undertaken.

Referring to page 81, 3rd edition of the National Formulary we found that “Liquor Calcis Sulphuratæ”—“Vleminck's Solution”—was directed to be prepared as follows:

Lime, freshly slaked	165 grammes
Sublimed Sulphur	250 grammes
Water, a sufficient quantity to make	1000 grammes

Mix the slaked lime with the sulphur, and add the mixture gradually to 1750 cc. of boiling water. Then boil the whole, under constant stirring, until it is reduced to 1000 grammes, strain, and having allowed the solution to become clear by standing in a well-stoppered bottle, decant the clear brown liquid, and keep it in completely filled and well-stoppered bottles.”

*Read before the Kings County Pharmaceutical Society, May 12, 1914.

We, accordingly, made up one-tenth of this formula, by taring a 600 cc. porcelain evaporating dish, adding 175 cc. of water, heating to boiling, and then slowly adding the mixture of freshly slaked lime and sulphur, constantly stirring while heating, until the weight was reduced to 100 grammes. The material was then decanted into a 4 oz. cork-stoppered bottle, allowed to stand until the next day, filtered and assayed for total sulphur by the following method:

"Measure 10 cc. of the clear sample in a 100 cc. measuring flask and fill to the mark. Analyze 10 cc. aliquots of this solution. Treat with 3 cc. of saturated solution potassium hydroxide or sodium hydroxide solution, following by 50 cc. hydrogen peroxide free from sulphates. Heat on the steam bath for one-half hour exactly, and then acidify with hydrochloric acid, precipitate with barium chloride,—in the usual way, in boiling solution,—and finally weigh as barium sulphate."

Multiplying the weight of barium sulphate by the proper factor gives the quantity of sulphur and this, multiplied by 100, gives the percentage.

Blanks were run on the reagents, and these determined the quantity of sulphate present, which was then deducted from that found in the actual analysis.

This is Avery's method, and it is suggested by the Association of official agricultural chemists for the analysis of lime-sulphur-dips and lime-sulphur-salt mixture (U. S. Dep't Agr. Bureau of Chemistry, Bul. 107 rev. page 34). It is an extremely accurate and simple test which in our hands yielded remarkably close results.

We also analyzed the sample for total sulphur in solution, mono-sulphur equivalent, thiosulphate sulphur, sulphate and sulphite sulphur, total sulphide-sulphur and total lime (CaO) in solution, following the method in the Bulletin of the Bureau of Chemistry, U. S. Department of Agriculture, No. 162, page 29, but seeing no advantage over the Avery method, we employed that in all our analyses and simply determined the total sulphur of which the above sample showed the presence of 10.838 grammes in 100 cc. of solution.

Another 100 gramme lot made up in the same manner contained 14.581 grammes of total sulphur in 100 cc. of solution.

This great variation in results, indicated difficulty in properly preparing the solution. We therefore referred to the directions in the N. F. and found it directed to add the lime and sulphur mixture "gradually to 1750 cc. of boiling water. Then boil the whole under constant stirring until it is reduced to 1000 grammes"; this procedure differs from mine in that it directs the water to be heated to boiling, the mixture of lime and sulphur added and the whole boiled under constant stirring until the weight is reduced to 1000 grammes.

Another 100 gramme lot was then made by strictly adhering to these directions and when assayed showed the presence of 4.448 grammes of total sulphur in 100 cc. solution.

My original reading of the process was, as above noted, to heat the water to boiling and then, while the water was still on the fire, to gradually add the lime and sulphur under constant stirring, and boiling until the proper weight was produced, whereas the last product was made by strictly following the N. F. by heating the water to boiling, taking it off the fire, stirring the lime and sulphur

in, putting it back on fire, stirring and heating until the proper weight was attained.

The above figures clearly indicated that the wording of the manipulation in the N. F. was faulty; therefore another batch of 100 grammes, employing the official quantities, was made by taring a 250 cc. Erlenmeyer flask, adding 175 cc. of water, heating on the hot plate until boiling, and then adding the lime and sulphur previously mixed and boiling on the hot plate, without stirring or further attention, until the weight was reduced to 100 grammes, transferred to a 4 oz. cork-stoppered bottle, allowed to stand until the next day, filtered and assayed.

The solution contained 29.162 grammes of total sulphur in 100 cc.

Another lot made by the same method contained 29.593 grammes of total sulphur in 100 cc. solution.

These figures indicate that, if the solution is prepared in a flask, the product will practically be of uniform strength.

It is true the N. F. does not state whether a flask or evaporating dish should be employed. The result of the failure to specifically state, that a flask or similar vessel be used, is shown, by the analyses, to yield preparations of indefinite strength. If a large flask is not at hand, vessels which are deep should be employed, the object being to avoid too rapid evaporation of water, as the proper preparation of the product requires several hours.

In view of the above results the Committee on National Formulary should revise the wording of the directions for the preparation of Vlemminck's solution, and thus insure a uniform product. If thought necessary a standard could be fixed for the preparation, and a method of assay appended.

I would take this opportunity to acknowledge my indebtedness to my assistant, J. H. Wiener, Ph. C., for assistance rendered in the preparation and analyses of some of the samples.

THE ASSAY OF MAGMA MAGNESIAE.*

CHARLES H. LA WALL, PH. M.

Magma Magnesiae is a form of medicinal whitewash employed as an antacid, consisting of a suspension of magnesium hydroxide in water. Its use has been popularized by a well-known proprietary preparation, and as every pharmaceutical manufacturer and many retail pharmacists are at present making their own product, the necessity for standardization for the production of uniformity becomes apparent, and the Committee on Scope of the Ninth Revision of the U. S. P., have wisely concluded to admit the preparation to the official list under the above title.

The proposed formula provides for a preparation containing about 5 percent of magnesium hydroxide in suspension in water, all appreciable amounts of other compounds being removed in the process of washing which the precipitate undergoes. From the standpoint of the pharmacist the simplest method of assay would

*Presented to the meeting of the New Jersey State Pharmaceutical Association, June, 1914.

be by evaporation to dryness, or evaporation and subsequent ignition, but experimentation has shown that the former method is inaccurate, on account of the varying states of hydration which the product assumes as it dries, and the latter method is no more accurate and is just as tedious as the more logical method of determining the alkalinity of the preparation by residual titration and then calculating the results to magnesium hydroxide. The following method was found to give very satisfactory results:—

Take, approximately, 3 gm. of the magma, in a tared 100 cc. beaker or dish. Weigh accurately and dissolve in 25 cc. of half-normal hydrochloric acid. Titrate the excess of acid with normal potassium hydroxide V. S., using phenolphthalein as indicator. The factor for magnesium hydroxide, with half-normal hydrochloric acid, is 0.0148.

An examination of twelve specimens by the foregoing method, showed the following results:—

		Percent of magnesium hydroxide
No.	Theoretical amount present..... Origin of Sample	5.28
1.	Experimental lot made by student.....	9.57
2.	Experimental lot made by student.....	8.58
3.	Experimental lot made by student.....	3.11
4.	Made by a retail pharmacist.....	4.44
5.	Made by a Philadelphia manufacturer A.....	7.25
6.	Made by a Philadelphia manufacturer B.....	6.36
7.	Made by a Philadelphia manufacturer C.....	2.81
8.	Made by a Philadelphia manufacturer C.....	3.11
9.	Made in a hospital dispensary.....	2.22
10.	Made by a Brooklyn manufacturer.....	4.44
11.	Proprietary preparation.....	7.54
12.	Proprietary preparation.....	7.25

The foregoing results indicate the great need for standardization, in a product of which the variation, as shown in commercial samples, is such that there is a difference of over 300 percent between the strongest and the weakest.

If the present official process is adopted, it would seem advisable to establish a range, say from 4.5 to 5.5, which should be the extreme tolerance of variation in a product of this kind.

Sail on, O Ship of State!
 Sail on, O Union, strong and great!
 Humanity with all its fears
 With all the hopes of future years,
 Is hanging breathless on thy fate!
 —Longfellow.

COLLOIDS AND THEIR IMPORTANCE TO PHARMACY.*

CURT P. WIMMER, PHAR. D., NEW YORK.

If I remember correctly, it was about five or six years ago that my esteemed friend, Jerome Alexander, in conjunction with Professor Hallock of Columbia University, exhibited and explained the ultra-microscope for the first time at a meeting of the College of Pharmacy. A few months after that, at a meeting of the Chemist's Club, I had again occasion to view a number of substances in the ultra-microscope and, each time and ever since, have been greatly interested in the colloid state of matter and have made it my business to follow the rapid strides which this new science, called "Colloid-Chemistry," has made. The first sight of a substance in the colloidal state under the ultra-microscope is a truly impressive and remarkable one: the substance, which appears to be perfectly homogeneous and at rest when observed with the naked eye, is found to be full of life and motion. We see little particles oscillating back and forth; we see the everlasting, never-ending motion of matter. Again, a few weeks ago, I attended a series of colloid-chemical conferences held by Dr. Wolfgang Ostwald at Columbia University, and I felt that Colloid Chemistry is, and will be destined to be of the greatest importance to all sciences, but especially to pharmacy.

It is with a great deal of pleasure that I come before you to-night with the privilege of talking about colloids and their importance to pharmacy.

In the short space of an hour allotted to me, it will be possible only to skip over the surface of the science and to give the most important facts, omitting much that would be of great interest.

I have divided the subject matter of my lecture into two general parts:

1. The nature, preparation and properties of colloids.
2. Their importance to the sciences, especially to that of pharmacy.

The subject of colloids is a vast one, although the science, as such, is only about fifteen years old, and is growing at a pace which makes it well nigh impossible to keep track of it. Colloids have been prepared and used for centuries, but without any true conception of this state of matter.

Although true colloidal solutions have been prepared as far back as 1802 by Richter, in 1839 by Woehler, and again in the fifties by Faraday, Kuhn and St. Gilles, none of these investigators had an exact idea of the true state of colloidal sub-division, although some of them suspected that they had metals suspended in the liquid in fine subdivision. The first systematic investigations along these lines were made by Thos. Graham, an English scientist, in 1861 to 1864, who published his findings in "Philosophical Transactions," and in "Liebig's Annalen der Chemie." Graham studied dialysis—the diffusion of dissolved substances through parchment paper or a membrane. He observed that some substances passed readily into a surrounding pure solvent, while others did not or, at least, did so at an exceedingly slow rate.

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Those which passed through, he found to be substances which could be readily obtained in crystalline form, those which did not pass through were usually amorphous or glue-like, so he divided all matter into two general classes: Crystalloids and Colloids (from colla, glue).

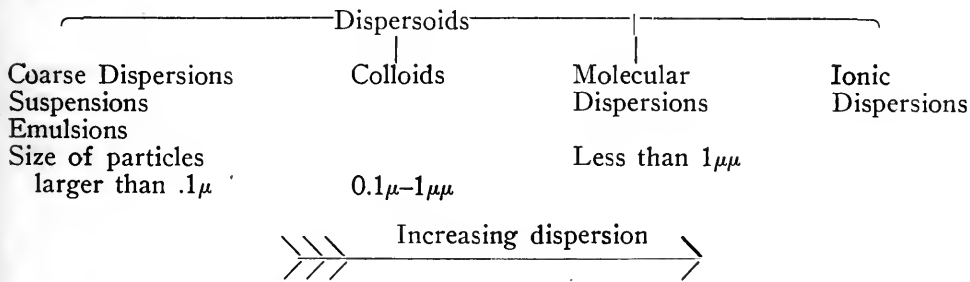
But Graham made another important discovery. He found that certain substances, which were said to be insoluble, could be obtained in so-called pseudo-solutions, (a term proposed by Franceschi di Selmi in the forties). Graham prepared solutions of Ferric Hydroxide, Chromium Hydroxide and others, and found that they did not dialyse, so he gave them the name "Colloidal Solutions," or "Sols," a term which is now accepted and used for a colloidal solution. It would lead too far to go into all of Graham's investigations; simply let me state that they laid the foundation for the colloid chemistry of to-day. After Graham, work on colloidal substances was done by others, but little importance was attached to it; the theoretical and practical researches of organic and inorganic chemistries dominated the scientific world. Whatever chemical change or phenomenon which could not be expressed by a formula was not considered worth investigation. Interest in the subject was re-awakened, however, in the late nineties, when Bredig succeeded in preparing colloidal solutions of heavy metals by the aid of the electric spark.

The actual impetus to the work on colloids, however, was given by the invention of the Ultra-Microscope by Zigmondy and Siedentopf in 1905.

Our present view of the nature of colloids is diametrically opposed to that of Graham. He distinguished two worlds,—the Crystalline and the Colloid worlds. Our present accepted view is, that there is only one world and that the colloid state can be assumed by any substance, solid or liquid, under appropriate conditions.

A general definition for a colloidal solution or a "sol" is this: A colloid is any solid, liquid or gaseous substance in a certain state of subdivision, or dispersion, in another solid, liquid or gaseous substance.

A substance which is subdivided or dispersed is called a "Dispersoid." In order to illustrate the above definition of colloid, I ask you to kindly look at Ostwald's Schema:



There are, of course, transition states between the above dispersions.

A colloidal solution, or "sol," consists of at least two substances, the dispersoid and the dispersion medium; a colloidal solution is, therefore, a "di-phasic heterogeneous system."

Inasmuch as solids, as well as liquids and gases, can form part of a colloidal system, we distinguish nine different cases, as follows:

<i>Dispersoid</i>	<i>Medium</i>
Solid	Solid——Ruby-glass, Sodium in Sodium Chloride, precious stones.
	Liquid——Suspension—Colloids. (See below.)
	Gas——Cigar and other smoke, cosmic dust.
Liquid	Solid——Water in salts, occluded water in crystals.
	Liquid——Emulsoids. (See below.)
	Gas——Vapors, Clouds—Foams.
Gas	Solid——Gases in lava.
	Liquid——Fog.
	Gas——Not a colloid system.

Of the above, the two systems, Solid-Liquid and Liquid-Liquid have been studied most thoroughly and are of special interest.

The following are the general characteristics of these two systems:

(a) *System*: Solid-liquid, also called "Suspension colloid."

Type: A gold-sol.

- (1) Viscosity is about that of the dispersion medium.
- (2) They are slightly turbid or opalescent. Under the ultra-microscope we see bright and distinct spheres.
- (3) They exhibit Brownian movement, the rapidity of which increases with increase of temperature and decrease of viscosity of dispersion medium.
- (4) They have a distinct electric charge. After addition of an electrolyte, they coagulate and separate. They become irreversible, viz., they cannot be brought in suspension again by simple means.
- (5) Centrifugation may separate them as fine powder.

(b) *System*: Liquid-liquid, also termed "Emulsion colloid."

Type is solution of albumen in water.

- (1) High viscosity (inner fraction). A tremendous increase of viscosity follows a slight concentration. Higher temperature decreases viscosity. For example, on heating a solution of gelatine from 21° C. to 31° C., the viscosity decreases by about 1000 percent.
- (2) They foam upon shaking.
- (3) They exhibit pseudo-fluorescence, (like suspensoids).
- (4) The Ultra-Microscope shows a bright field, particles or spheres are, as a rule, not seen.
- (5) They have no distinct electric charge.
- (6) They coagulate only upon addition of large amounts of electrolytes.
- (7) They may gelatinize or swell.

There are several different ways of classifying colloids, none of which has yet been definitely accepted.

Preparations of Colloids: Inasmuch as the colloids are in degree of dispersion, between coarse suspensions and molecular and ionic solutions, we have two general methods of preparation.

Coarse Suspension $\gg \longrightarrow$ Colloid $\longleftarrow \ll$ Molecular Sol.

- (1) Method of dispersion: We start with a solid or coarse suspension.
 - (a) Mechanical grinding—Colloidal osmium.
 - (b) Action of light—colloidal silver.
 - (c) Action of electric current—colloidal gold, etc.

- (2) Method of concentration: We start with one or more molecular solutions and obtain the colloid by chemical reaction. Colloidal silver, gold, barium sulphate, etc.

In using these methods, we obtain at times particles of different sizes; we remove the coarse ones by filtration and the molecular ones by dialysis.

Most metals have been obtained in colloidal solutions, either in water or in organic solvents, such as alcohol, pentane, ethyl-ether or iso-butyl alcohol. Even the radio-active elements, or their salts, have recently (see *Kolloid Zeitschrift*, Feb., 1914) been prepared in this condition.

The Properties of Colloids. (1) Mechanical properties. They exhibit Brownian movement when observed under the ultra-microscope. This is a dancing, trembling movement discovered by the English botanist Brown in 1827. The motion is back and forth from a fixed central point. Smaller particles move faster than large ones, particles larger than $3\text{--}5\mu$ in diameter do not show the motion any more. There are several theories for the cause of this motion; one is that the gravity of the particles is only partially overcome by the viscosity of the medium, that the particles fall or rise until the viscosity of the medium overcomes the gravity and the particles are pushed back again. In coarser suspensions, the gravity overcomes the viscosity and a separation takes place, viz., cream, in which the particles of butterfat are $2\text{--}10\mu$ in diameter.

(2) Diffusion: Colloids have been found to diffuse. They differ in this respect from crystalloids only in the rapidity of diffusion.

(3) Osmotic Pressure. The osmotic pressure of colloidal solutions is, as a rule, very slight; some have none at all.

(4) Gravity: The density of colloidal solutions cannot be calculated from the density of the dispersoid and that of the medium. Dispersoids show, as a rule, a volume contraction and the density increases with increasing dispersion. J. Rose determined the following figures for gold:

Gold, melted and pressed.....	19.33
Gold, by oxalic acid.....	19.49
Gold, by FeSO_4 —finest powder.....	19.55–20.71

(5) Optical properties: Most colloidal solutions appear to be clear and transparent when viewed with the naked eye. Often, a turbidity, fluorescence or opalescence can be noticed, especially in reflected light. A ray of strong light sent through a solution of this kind, will show the "Tyndall phenomenon," viz., the light is repeatedly reflected and polarized. The ultra-microscope is constructed so that all rays, except those reflected from the suspended particles, are excluded. We see the "halo," so to say, of the particles. The color of the colloidal solution varies with the degree of dispersion. System Liquid-liquid most often appears whitish to pale yellow. Gold "sols" may be violet, red, blue, green, orange. The intensity of the color is measured by the amount of white which must be added to get a certain tint.

(6) Electric Properties: The disperse-phase is charged either positively or negatively.

Positive charge have: Metal hydroxides, silicic acid and certain dyes like methylene blue.

Negative charge have: Metals and their sulfides, dyes like indigo, eosin, fuchsin, also starch, mastic and acacia.

Filter paper in water becomes negatively charged—a substance, therefore, which does not ascend the filter paper by capillarity, is positive in charge, viz., it coagulates on the paper.

The kind of charge is usually stated for water, for it may be different in other solvents; for example, it is the opposite charge from that in oil of turpentine. Graphite in oil is positive, in water it is negative. Addition of certain substances may reverse the electric charge; albumin becomes negative by addition of an alkali; it becomes positive on addition of an acid. In passing the electric current through a colloidal solution, the particles travel either to the anode or cathode, according to their charge. This is Electro-osmosis or Kataphoresis. Colloidal solutions conduct electricity considerably less than dissociated solutions. The addition of a so-called “protective colloid,” such as albumose, acacia, etc., imparts to the dispersoid the charge of the protective colloid. So, collargol, lysargin and other colloidal preparations carry the charge of the protective colloid used.

(7) *Jellification*: Under this head we distinguish (a) setting, and (b) swelling.

The setting or jellifying of colloidal solutions is due to changes in the internal dispersion and in hydration. Setting takes place upon warming and consequent concentration, or upon the addition of electrolytes. The amount of the latter must exceed certain minimal values and amounts, which differ greatly with the nature of colloid as well as electrolyte. Hydrophilous colloids increase their volume on being brought in contact with water—they swell. This swelling may go on to such an extent that the particles of the substance are torn apart and a colloidal solution results, or it may reach a certain limit and then stop. The setting and swelling of colloids is a very important phenomenon. Every substance or organ has a certain definite swelling-value, which may counter-balance or even overcome osmotic pressure. The force of swelling is often very great. Ostwald states that swelling peas lifted the cover of an iron pot which had been weighted down with 83.5 Kg. The swelling-pressure of starch has been found to be equal to a pressure of 2523 atmospheres. The old Egyptians drove wooden sticks into stones and poured water in them. The swelling of the wood broke the stones, which were used for building purposes. The curling of gelatine-films is due to a swelling, also the straightening or curling of hair in dry or moist air respectively. Interesting work has been done on the structure of jellies. When we dissolve a small amount of gelatine in a mixture of alcohol and water and allow to cool slowly, we note under the microscope, that small semi-liquid drops separate and, as their number increases, they adhere to one another and finally form a net-like structure. By varying the amount of the gelatine, we get slightly different results, but we find that jellies are sponge-like colloidal structures filled with colloidal solution.

Salts, or acids, or bases—in short, electrolytes, have great influence upon swelling.

Acids and alkalis increase swelling, as do many neutral salts. Gelatine swells more in the presence of Magnesium Citrate than in water alone. Calcium Chloride, Hydrochloric Acid and Sodium Hydroxide increase the swelling ca-

capacity very considerably. The cause for this must be sought in the chemical nature of these hydrophilous colloids. They are probably amphoteric, that is they have weak acid and alkali reaction at the same time. By an addition of acid or bases, they form more or less ionized salts, which in turn cause a hydration, or a taking up of water, with subsequent increase in volume. R. Chiari, in Vienna, found that he could distinguish between distilled water and ordinary water, by means of the degree of swelling of purified globulin, which he found to be very sensitive to electrolytes.

(8) Coagulation: When we boil a solution of albumin, or add Ammonium Sulphate, we coagulate the albumen. Coagulation is an electrical phenomenon conditioned by colloids of different electric charge or by electrolytes. The amount of electrolytes must, however, exceed certain minimum values.

Gold or platinum "hydrosols" can be coagulated by Ferric or Aluminum hydroxide "hydrosols," provided the amounts added are such as to exactly neutralize the electric charge of each other. A 1/10,000 percent solution of gelatine will coagulate a mastic emulsion; if more is added the gelatine will act as a protective colloid.

(9) Pectization is the gradual resolution of substances into the colloid condition; for example, when we treat silver or mercurous iodide with solutions of potassium iodide of different strengths, we will get a colloidal solution. Szillard, of Paris, has made a large number of interesting experiments in which he tried to prove that inorganic substances can act like albumens.

(10) Adsorption: We are all familiar with the property of charcoal to condense large volumes of gases, or to take coloring matter out of solutions; the various silicates, like fuller's earth, kaolin, etc., can be used for the same purpose. Gelatine and isinglass can also be used for clarification or decoloration. The analyst knows that the concentration of certain salts (viz., lead), is reduced upon filtration through paper. These phenomena are classed as adsorption phenomena and are due like many other properties of colloids to their tremendously large surface development. A cubic centimetre of a substance reduced to colloidal dispersion has a total surface of 600 square metres and the surface forces of the colloids are, therefore, very pronounced. Adsorption is caused by a decrease in the surface tension of the solvent conditioned by the dispersed substance, or a third substance added. Quincke showed that a substance which causes a decrease in surface tension of a colloidal solution, has a tendency to travel to the dispersoid phase and form a sort of covering around it.

Fats, fatty acids, albumen and its decomposition-products, decrease the surface tension of water very considerably and are also readily adsorbed. It appears that adsorption is a physical phenomenon and that no chemical process plays any part. Ostwald, to emphasize this, has termed it "Mechanical absorption."

(11) Reactions in jellies: When we allow chemical reactions to take place in jellies, we find that the reaction-product separates out in ring forms, which rings appear in periods. A gelatine "gel" containing potassium dichromate, with a solution of silver nitrate on top of it, will slowly show the yellow rings of silver chromate. Such rings are called "Liesegang rings" after the scientist who investigated them most thoroughly.

On reviewing what I have told you so far about the preparation and properties of colloids, I find that I have omitted much that is important and exceedingly interesting, but I must hurry. I hope, however, that another opportunity will present itself to take some one certain phase of colloid-chemistry and go into it more thoroughly. Time does not permit me to tell you anything about the methods of colloid research. Most of them are directed, of course, by the properties of colloids. Splendid and very promising results have been obtained by the method of ultra-filtration devised by Bechold. In fact, colloid chemistry has opened a field of research which is tremendously large.

There is no science in which colloid chemistry does not enter in some way or other, and as a system of knowledge it is of the utmost importance. Each of us here is a fine example of a heterogeneous polyphasic colloid system; so is the chair on which you sit, the nails which hold the pieces of wood together and the glue which lends stability. You arise in the morning—the linen of your bedding, the feathers of your pillows are colloids, you proceed to bathe and use soap—again a colloidal process. You have your breakfast which consists of colloids; digestion sets in—again a colloidal process; the cigar you smoke and the smoke you exhale are colloidal systems—and so on and on. To still more emphasize the importance of colloids, I beg leave to say a few words about their uses in the various arts and sciences.

Cookery and Foods: The kitchen is a great colloidal-chemical laboratory. Meat of young animals is richer in juice and of softer tissue than that of older animals. This depends upon the swelling value of the tissues, which value changes with the age. Meat, on boiling, loses 20-30 percent of its weight of water—no doubt a dehydration of a colloid. On frying meat, a heat coagulation prevents the loss of juice. Artificial foods are now classed according to their content of carbohydrates and nitrogen. The colloid chemist will classify them according to their swelling value, upon which depends primarily the degree to which a food can be readily absorbed. Milk will be examined as to its surface tension and viscosity, which show abnormal fat and protein contents. Addition of water is detected by coagulation with calcium chloride and the refractometer; the amount of milk sugar is estimated by the polariscope after removal of the milk colloids with colloidal ferric hydroxide. Cheese is albumen colloiddally dissolved in milk; the determination of the swelling-values of the different cheeses will, no doubt, solve the question of their digestibility. Bread and beer are colloidal preparations which are now being investigated. The taste of beer depends on its viscosity, due to colloids, and its electrolytes. The brewing water used, seems to have considerable influence upon the taste.

Mineralogy: Most precious stones owe their colors to minute quantities of a colloid substance, viz., in topaz?sapphire we have colloidal cobalt oxide, in ruby, chromium oxide. The opal is a "gel."

Metals: Steel is a system: Iron-Carbon-Iron Carbide. Tungsten filaments were made by pressing tungsten together with dextrin or syrup through small openings into wire form. The filament was then subjected to high heat to carbonize the organic material. Kuzel has improved this method by preparing a "tungsten-gel" by alternate action of acid and alkali upon finely powdered

tungsten. This is pressed into filaments and gives splendid results in the Tungsten lamp.

Dyeing and tanning are purely colloidal processes and our knowledge of these most important subjects has been considerably enriched by colloid chemistry.

The setting of cement is a colloidal process; pottery and porcelain ware are colloidal substances.

Photo-chemistry has made tremendous progress since Luppö-Cramer, of Dresden, has applied colloid chemical methods to its research.

Cellulose and its preparations are colloids: Parchment paper swells in presence of acid, mercerized silk in sodium hydroxide. A solution of cellulose in copper-ammonia solvent, is a colloidal solution. Rubber is a colloidal system. Vulcanization is an adsorption of sulphur by rubber.

To come nearer home: Enzyme-action is a colloidal process, so are the various immunity reactions, the Wassermann reaction, for example.

The urine, the blood, as well as all other body fluids are colloidal solutions.

Martin H. Fischer, of Cincinnati, has made very interesting experiments on the cause of oedema and finds that all swellings of parts of the body are due to abnormal acid production, which is again a colloidal phenomenon. He also finds that nephritis is caused by abnormal productions of lactic acid, which causes the kidney tissues to become soft and the appearance of albumen in the urine. The application of colloid-chemical methods has proved most fruitful in explaining the causes of many physiological phenomena, viz., muscle contraction, ossification, formation of gall-stones, disturbances of circulation, etc. Under the heading, "Importance of Colloids to Pharmacy," we must consider first of all the remedies which are colloidal and are supplied by the pharmacist. The first one of these was Ung. Cr   , which appeared in the market in 1896, and from then on, and especially in the last few years, colloidal remedies have been put forth, one after another, so that to-day we have a very large number of them, and with them has come a voluminous literature of their own. French physicians and pharmacists are especially prolific, and a French firm now puts on the market the following:

Electrargol	Colloidal silver stabilized
Electrauroil	" gold "
Electroplatinol	" platinum "
Electropalladiol	" palladium "
Electrocuprol	" copper "
Electroselenium	" selenium "
Electromartiol	" iron "

They are also investigating, at the present time, the physiological activities of

Electrotell��rol.....	Tellurium	Also, Thallium
" indiol.....	Indium	Cadmium
" uraniol.....	Uranium	Lead
" vanadiol....	Vanadium	Aluminum
" manganese..	Manganese	Oxides of heavy metals and
" cobalt.....	Cobalt	ferrocyanides, etc., all in
" nickel.....	Nickel	the colloidal state

The larger pharmaceutical manufacturers of England, Germany and the United States have also taken up the manufacture of such preparations. Names like

Collargol, Lysargin, Protargol, etc., are familiar to us. Collargol is prepared by reducing silver nitrite with ferrous citrate in the presence of dextrin, which acts as a stabilizer. Lysargin contains metallic silver protected by the sodium salt of lysalbinic acid. As to the action of these preparations, we may say in general that they have the same physiological activity as their salts would have in diluted solution, viz., colloidal silver is used as an antiseptic, colloidal iron is recommended for the different forms of anæmia. One of the prominent features of their activity is a certain catalytic action which they exert. Palladium colloid, for example, is now used for obesity. It seems to stimulate the oxidation processes of the body and it has been found that intravenous injection of this colloidal metal is followed by a considerable loss in weight. No bad side-effects whatsoever have been reported.

Considering next the time-honored remedies prepared by the pharmacist, I believe that I do not overstate matters when I say that fully 80 percent of all of our pharmaceutical preparations are colloidal. Our gums, resins, and many alkaloids will form colloidal solution by simply mixing with a solvent. We use gelatine, gum acacia, tragacanth, etc., to stabilize preparations. Emulsions, most liniments, our collodions are colloidal preparations. All of our fluidextracts, most of our tinctures and syrups, as well as glycerites, are colloidal preparations.

I will cite specific cases, which show that the pharmacist has made and is making daily use of colloid chemistry.

You prepare Peppermint Water by rubbing up the oil with purified talcum—you increase the surface of the oil so that it may be dissolved in the water—this is a colloidal solution—a colloidal-chemical process has been made use of. You make an emulsion by shaking up in a dry bottle some oil of turpentine with tragacanth and then add water and again shaking. This is colloid-chemistry—the system, oil-water, is stabilized by the tragacanth, which is adsorbed at the boundary lines of the two liquids and thereby forms a covering around the globule of oil. The stability of an emulsion is directly proportional to the dispersion of the oil. You prepare liniment of ammonia. The ammonium oleate formed, decreases the tension of the cotton seed oil toward the water and is, therefore, absorbed at the boundary line of the system, oil-water. You prepare vinegar of squills and boil it—the coagulation of the albumin is a colloidal process. We add alkalis to fluidextracts of senega and taraxacum, to prevent pepticization. We know that alcohol or salts in certain amounts, will crack emulsions; this is due to the dehydration of the colloid and subsequent coagulation. We distinguish between solution of ferric sulphate and Monsel's solution, by addition of sulphuric acid—this is a colloid-chemical test. Monsel's solution is a colloidal solution which is coagulated by the electrolyte H_2SO_4 .

Cold cream is a colloid-system water-fat. The water, the dispersed phase, is dissolved in the fat. We know that only such substances as are soluble in fat, are absorbed by the skin, and the principal action of cold cream depends upon its water contents.

Ferric hydroxide is used as arsenic-antidote because it adsorbes arsenous acid.

And so I could go on and on and recite to you manipulation after manipulation, test after test, used by pharmacists and belonging strictly to the field of colloid-chemistry.

What a field of research lies here before us! The scientific pharmacy of the future will be in a position to determine in advance what the action of certain remedies will be or, how certain remedies must be modified, to exert certain actions, or to make them more stable and presentable. Professor Thoms, of the University of Berlin, in a lecture delivered before the German Pharmaceutical Association, pleaded for more active participation of the pharmacists in researches of biologic standardization. Without wishing to detract one iota from his arguments, I want to call to your attention that in colloid-chemistry there is a field of research for the pharmacist which is not alone of interest and value, but also full of promise of reward.

The lecturer carried out the following experiments to illustrate his remarks:

Preparation of colloidal gold and of colloidal silver by the electric spark under water.

Preparation of colloidal gold and silver in different colors by chemical means.

The Tyndall phenomenon in gold "sols," in cigar smoke and other colloidal systems.

Different forms of dialysers—sausage—thimble—filters—parchment—colloidion, etc.

A number of Liesegang's rings and LeDuc's figures.

Preparation of coagulated colloidal Ferric Hydroxide.

Preparation of gelatinous Barium Sulphate, gelatinous charcoal, etc.

LIQUID PETROLEUM OR "RUSSIAN MINERAL OIL."*

Petroleum has been in use as a medicine from time immemorial. It was known to Herodotus 400 years before Christ and is mentioned by Plutarch, Dioscorides, Pliny and other early writers. It was extensively used by the Arabians and evidently played an important part in the practice of medicine in India, being known to the Bengalese as "Muthe Katel." The raw product was the substance used in earlier times and differed much in character and composition, as obtained from different sources.

As an internal remedy it was early employed in chronic pulmonary affections, in obstinate skin diseases, in rheumatism, and for the expelling of tapeworms. It was extensively used for these several purposes in France under the name "Oleum Gabianum" and in North America as "Seneka oil." The internal use of the refined product may be traced to a patent granted to Robert A. Chesebrough of New York, in June, 1872, for the manufacture of a "new and useful product from petroleum, named vaseline." This name was originally applied only to a semi-solid preparation, but later a liquid products known as liquid vaseline was marketed and for a time exploited as a cure for coughs, colds, consumption and a number of other diseases and conditions.

The liquid petrolatum has since become known under a variety of names, proprietary and otherwise, in addition to being used as a substitute or an adulter-

*From the Journal of the A. M. A., May 30, 1914.

ant for other, more costly, fats and oils. Some of the names applied to the product are:

Adepsine oil	Neutralol
Amilee	Olo
Atoleine	Paraffin Oil
Atolin	Paroline
Blandine	Petalol
Crysmalin	Petro
Deeline	Petrolax
Glyco	Petrolia
Glycoline	Petronol
Glymol	Petrosio
Heavy Petroleum Oil	Rock Oil
Liquid Albolene	Russian Liquid Petrolatum
Liquid Cosmoline	Russian Mineral Oil
Liquid Fossiline	Russian Paraffin Oil
Liquid Geoline	Russol
Liquid Paraffin	Saxol
Liquid Petrolatum	Terraline
Liquid Saxoline	Terralbolia
Liquid Vaseline	Usoleine
Mineral Glycerin	Waterwhite-Mineral Oil
Mineral Oil	White Paraffin Oil

A preparation similar to that official in the Pharmacopœia of the United States as liquid petrolatum has been included in many, if not all, of the foreign pharmacopœias, the official title under which this preparation is recognized being as follows:

Petrolatum liquidum, U. S. Pharmacopœia; Paraffinum liquidum, pharmacopœias of Great Britain, Germany, the Netherlands, Japan, Belgium, Austria, Denmark, Switzerland, Sweden, Seryia, Italy, Hungary and Russia; Oleum Paraffinæ, Spanish Pharmacopœia; Vaseline liquidum, French Pharmacopœia, and Oleum Vaselini (as a synonym) pharmacopœias of Denmark and Russia.

The requirements of the several pharmacopœias differ somewhat and the specific gravity as given is as follows:

U. S. P. VIII, 1905.....	0.870	to	0.940	at 25°
Ph. Brit. IV, 1895.....	0.885	to	0.890	at 15.5°
B. P. C. II, 1911, usually.....	0.875	or	lower	at 15°
Ph. Germ. V, 1910, at least.....	0.885			at 15°
Ph. Ross. VI, 1910.....	0.880	to	0.885	at 15°
Ph. Hung. III, 1909.....	0.88	to	0.89	at 15°
Ph. Ital. III, 1909.....	0.875	to	0.890	at 15°
Ph. Fr. V, 1908, about.....	0.875			at 15°
Ph. Serb. II, 1908, about.....	0.880			at 15°
Ph. Svec. IX, 1908.....	0.88	to	0.90	at 15°
Ph. Helv. IV, 1907.....	0.880	to	0.885	at 15°
Ph. Dan. VII, 1907, at least.....	0.880			at 15°
Ph. Austr. VIII, 1906, at least.....	0.880			at 15°
Ph. Belg. III, 1906, not below.....	0.880			at 15°
Ph. Japon. III, 1906.....	0.875	to	0.945	at 15°
Ph. Ndl. IV, 1905, not below.....	0.860			at 15°
Ph. Hisp. VII, 1905.....	0.840			at 15°

For pharmaceutical purposes, liquid petroleum may be divided into two grades, the lighter or more limpid oil, used extensively as a vehicle for oil sprays, and the heavier, more viscid oil generally recognized in European pharmacopœias and used as an ingredient of ointments and more recently as a remedy in the treatment of intestinal stasis.

Under petrolatum liquidum the U. S. P. recognizes a mixture of hydrocarbons, chiefly of the methane series, which occurs as a colorless or very slightly yellowish, oily, transparent liquid without odor or taste and having a specific gravity of about 0.870 to 0.940 at 25 C. For the U. S. P. IX, it is proposed to change this requirement somewhat so as to have it apply to a transparent liquid free from fluorescence, without odor or taste and having a specific gravity of from 0.845 to 0.940 at 25 C.

Such a requirement would include all of the available paraffin oils irrespective of origin. The now commonly available commercial liquid petrolatum, used for pharmaceutical purposes, is practically colorless and all of the better grade are free from odor or taste. The specific gravity varies from 0.855 to 0.895. The lighter oils, having a specific gravity of from 0.860 to 0.870, are usually preferred in the making of oil sprays or solutions of substances to be used as local applications. The product having a specific gravity above 0.875 evidently contains a considerable amount of dissolved solid paraffin which separates out at temperatures at or below 0 C., but readily dissolves again at temperatures above 10 C.

There is considerable difference in the chemical composition of the paraffin oils obtained from various sources. The American oil consists largely of hydrocarbons of the methane series, while the Russian oil contains naphthenes or hydrocarbons of the benzene series, having the empirical composition of ethylene (C_nH_{2n}) which may be considered as hydrogenated aromatic hydrocarbons, though they behave with reagents very much in the same way as do the hydrocarbons of the methane series.

Mineral oils with a naphthene base are best suited for making white petrolatum, and at the present time the production of the colorless water-white liquid petrolatum appears to be confined largely or almost exclusively to the crude product of the Baku district of Russia, though it is asserted that it is now also made from the Hanover (Germany) crude oil and that some is being produced by "cracking" the white solid paraffin.

It is also said that the American oil can be made water-white but that it is not being so produced at present for economic reasons; the yellowish oil, free from fluorescence, having a very wide sale, both as a lubricant and as a substitute for lard oil and other of the more costly lubricating oils.

From a pharmaceutical point of view it would appear important to note the physical characteristics of the oil and to insist on absence of color, absence of odor and taste, absence of acid and of alkali and a specific gravity in harmony with the purposes for which the oil is to be used.

During the past year or two liquid petrolatum has attracted considerable attention as a remedy in the treatment of intestinal stasis or chronic constipation, the practice of using it having been developed largely through its recommendation by Sir W. Arbuthnot Lane and his associates. This use of liquid petrolatum and of petrolatum products generally is by no means novel. N. A. Randolph,¹ of Philadelphia, was among the first to suggest its use for this purpose in an article published in 1885. Randolph also appears to have been the first to experiment with petrolatum and to determine its non-absorbability from the intestinal tract.

¹Randolph, N. A.: *Therap. Gaz.*, 1885, ix, 732.

In an article² in 1884 he concludes that "pure petrolatum while entirely unirritating to the digestive tract is valueless as a foodstuff."

The experiments recorded by Randolph were evidently prompted by the fact that vaseline and a number of imitation products then on the market were being sold as substitutes for lard and butter, and opinions regarding the food value of petroleum products appear to have differed very materially. Following the experiments of Randolph, Robert Hutchison in 1899 made a series of experiments to demonstrate that petroleum, petrolatum, paraffin and related products were absolutely unassailable by any of the digestive fluids, despite the "large vogue that had of late years been given to various petroleum emulsions, chiefly by ingenious and unterrified advertising." He came to practically the same conclusions arrived at by Randolph fifteen years earlier and pointed out that "liquid paraffin in one sense may be regarded as an artificial intestinal mucus and might in that way have some value on certain forms of constipation."

William Duffield Robinson³ reports on the use of a perfectly refined colorless and odorless petrolatum, supposedly of American origin. He was able to show that all of the product passed unchanged through the intestinal tract and could be regained from the feces. In his conclusions he expressed the belief that the effect of the administration of these petroleum products is far more than as a simple intestinal lubricant. In over fifty selected cases in which nutrition, digestion and body-weight were impaired, and the purest oil administered in 1- or 2-dram doses each day for a period of from four to six months, there was in every instance an improvement of weight, health and feeling of well-being. The administration of refined paraffin oil gave no discomfort in any instance, even in cases in which nearly a pint was given in a few hours.

William Ewart⁴ suggests liquid paraffin as a safe agent for the local treatment of the lesions in typhoid fever. He says in part: "Mineral oil, such as petrolatum or paraffin, is neither absorbed nor dissolved; therefore, after all absorbable ingestions are taken up by the lacteals, it will still remain in the bowel. In this way pure liquid paraffin is valuable, precisely because it is inert; moreover, it might some day, perhaps, be made the vehicle for effective topical remedies."

A. D. Schmidt⁵ quotes Stubenrath as having given liquid paraffin in the treatment of chronic constipation, and he himself gave as much as 20 gm. of liquid paraffin to adults without observing any injurious effect whatever. He says, "As a result of the administration of liquid paraffin, the feces are softened considerably and are found under the microscope to contain numerous minute globules of paraffin." He was, however, unable to recover from the feces the entire quantity of paraffin administered and believes that a certain portion of it, probably the fractions with a low boiling-point, are absorbed or possibly oxidized in the organism.

²Randolph, N. A.: *Proc. Acad. Nat. Sc., Philadelphia*, 1884, p. 281.

³Robinson, William Duffield: *Med. News*, 1900, lxxvii, 56.

⁴Ewart, William: *Brit. Med. Jour.*, 1902, ii, 1505.

⁵Schmidt, A. D.: *München. med. Wchnschr.*, 1905, lii, 1970.

Maurice Vejux Tyrode⁶ also refers to the use of liquid petroleum in the treatment of constipation.

Sir W. Arbuthnot Lane in his recommendations of liquid petrolatum calls it an ideal remedy for stasis, but cautions against the use of the lighter oil as extensively prescribed in this country as a vehicle for sprays in nose and throat work.

Paraffin oil is not absorbed from the alimentary tract and so far as known exerts no deleterious influence. It is usually given in quantities of from 10 to 20 cc. half an hour or an hour before meals or in larger doses, from 30 to 50 cc., at one time on retiring. From available evidence it appears that comparatively huge doses may be administered without the production of any untoward results. According to many observers, liquid paraffin should not be given with or after meals because of the inhibiting influence that it may have on the digestion of food. It is not soluble in water or the ordinary solvents and therefore cannot be diluted. The denser oils are preferably slightly warmed or drunk with warm water so as to obviate the disagreeable slimy sensation that persists when taken cold.

Volatile oils may be used in moderate amounts to give a distinctive taste to the otherwise rather insipidly tasteless paraffin oil. Among the more desirable oils to be used for this purpose would be oil of peppermint, oil of cinnamon, oil of betula or methyl salicylate and oil of cloves. From 2 to 10 drops of any of these oils can be added to a pint of the oil. When larger doses of the oil are to be given at one time, it would, of course, be advisable to use a comparatively smaller quantity of the volatile oil as a flavor.⁷

From the foregoing it would appear that apart from the Pharmacopœia of the United States, practically all other known pharmacopœias describe a water-white mineral oil under the title "Paraffinum Liquidum" or "Liquid Paraffin" as a colorless, odorless, tasteless, non-fluorescent, oily liquid, free from acids, alkalies and organic impurities. As explained before, the specific gravity of the preparation as recognized in other countries and as offered on the American market at the present time varies considerably, and there appears to be some difference of opinion as to the exact nature of the product that is preferable for use for different purposes. This matter requires further investigation.

Since the definition of liquid petrolatum in the U. S. Pharmacopœia permits the use of fluorescent products of widely varying specific gravities, it is recommended that physicians who desire the water-white non-fluorescent (Russian)

⁶Tyrode, Maurice Vejux: *Boston Med. and Surg. Jour.*, 1910, clxii, 673.

⁷In addition to the articles referred to in the preceding footnotes, the following are of interest in connection with this subject:

Editorial, *Therap. Gaz.*, 1885, ix, 353.

Junker, F. A.: *Med. Record*, London, 1885, xiii, 506.

Editorial, *Med. News*, 1886, xlviii, 105.

Dunbar: *Deutsch. med. Wchnschr.*, 1896, xxii, 33.

Stubenrath, Franz Casimir: *München. med. Wchnschr.*, 1897, xlv, 639.

London Letter, *Med. News*, 1899, lxxiv, 504.

Hutchison, Robert: *Brit. Med. Jour.*, 1899, i, 724.

Schlesinger, E. G.: *Boston Med. and Surg. Jour.*, 1913, clxix, 14.

Lane, W. Arbuthnot: *Brit. Med. Jour.*, 1913, ii, 1126; *Proc. Roy. Soc. Med.*, 1913, vi, 49; *Surg. Gynec. and Obst.*, 1913, xvi, No. 6.

Jordan, Alfred C.: *Practitioner*, London, February, 1913.

Chrysospathes, J. G.: *Zentralbl. f. Chir.*, 1913, No. 45; abstr., *The Journal A. M. A.*, Dec. 13, 1913, p. 2201.

mineral oil should use the term "Petrolatum Liquidum, Grave," or "Paraffin Liquidum, B. P.," if the heavy product recommended by Lane is desired, and "Petrolatum Liquidum, Leve" if the light varieties are required. It is further recommended that under the foregoing names, manufacturers and pharmacists be requested to dispense the products, in accordance with the following descriptions:

Petrolatum Liquidum, Grave.—Heavy (Russian) Liquid Petrolatum.—Paraffinum Liquidum, B. P., liquid paraffin.—A transparent, colorless, tasteless, non-fluorescent, oily liquid, odorless when cold but giving off a faint petroleum odor on heating. This preparation should correspond to the requirements of the British Pharmacopœia for liquid paraffin and have a specific gravity of about 0.885 to 0.890 at 15 C. It is insoluble in water or alcohol, but soluble in boiling absolute alcohol and readily soluble in ether, chloroform, carbon disulphide, petroleum benzin, benzene and fixed and volatile oils. It serves as a solvent for volatile oils and related substances like camphor, menthol and thymol.

This is the type of preparation used by Sir W. Arbuthnot Lane, and his associates for internal administration. It is also used as a basis for ointments and salves and as a local application to wounds, ulcers and in certain forms of skin diseases in which a simple protective is desired.

Petrolatum Liquidum, Leve.—Light (Russian)—Liquid Petrolatum.—A transparent, colorless, tasteless, non-fluorescent, oily liquid, odorless when cold, but giving off a faint petroleum odor on heating. In other respects this preparation should correspond to the pharmacopœial tests for liquid petrolatum and have a specific gravity of about 0.860 to 0.875, at 15 C. Like the heavy variety of liquid petrolatum, it is insoluble in water and alcohol, but soluble in boiling absolute alcohol and readily soluble in ether, chloroform, carbon disulphide, petroleum benzin, benzene and fixed and volatile oils. It serves as a solvent for volatile oils and related substances like camphor, menthol and thymol.

This is a type of preparation extensively used as a vehicle for the oily sprays in nose and throat work. It is also being used as one of the constituents in the now popular paraffin oil cold cream and has been used to some extent for internal administration in the treatment of chronic stasis. Being more limpid than the preparation preferred by Lane, it is more readily taken, though greater care must be exercised in securing a sample devoid of the lighter fractions of petroleum distillates.

The mystic chords of memory, stretching from every battle-field and patriot-grave to every living heart and hearth-stone all over this broad land, will yet swell the chorus of the Union, when again touched, as surely they will be by the better angels of our nature.—*Abraham Lincoln.*

CHEMICAL AND PHARMACAL ARTS IN THE PALACE OF LIBERAL ARTS AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

In so large a division of industries as those assembled under the caption "Chemicals, Drugs, Dyes, and Medicines," it is difficult to obtain figures that have a direct comparative value. There are so many articles of manufacture that even in showing, extent, or volume, there is necessarily much duplication of total amounts, the finished product in one class or group becoming the raw material of another. For purposes of classification the Thirteenth Census includes thirty classes under the group denominated "chemicals and allied products."

In considering the statistical analysis, to be shown immediately, of this great group it will at once become apparent how intimately they are associated with the daily life of the people. The very existence of some of the classes, as established parts of our commercial system, is important knowledge to the masses. And by the same token, to gather together a characteristic representation thereof, as will be done in the Liberal Arts Palace of the Exposition, must confer a lasting benefit upon the people. Science, it may be said, applied to manufacture, takes no backward step. Even the abandonment of a compound, for the use of a newer and better one, marks a step in development. And here one people teaches another by universal displays of these pseudo-arts. An exposition, especially one emphasizing modernity in processes, becomes a world's laboratory. Inventive science, everywhere, is stimulated to the production of a like compound, and, thus stimulated, often produces a better one. And the light spreads, until the whole earth is illuminated by the idea, and its use becomes the common property of all men. In this the Liberal Arts' displays takes place second to none.

The sale of drugs throughout the world illustrates the principle of mutual benefit in trade, which may be stated by paraphrasing the socialistic propaganda, "from each people according to ability, to each people according to need." Drug-houses have their buyers in all parts of world. In laboratories of the nations, lies advancement in almost every public utility. The dissemination of this knowledge, by means of national exhibits, at an universal exposition, becomes a state problem. Just to know where to buy the anti-toxins, which have been discovered and developed for use in the free clinics of civic institutions, is of immediate and never-ending benefit to the people. Even the new work in social science, depends upon investigations in these departments of physical science.

We introduce here as comprehensive of this group of industries the following figures: In all there are 9427 establishments engaged in manufacture. These employ 237,988 wage earners (average number) and turn out products valued at \$1,111,915,753. Of these establishments the drug trade is especially interested in the following: Chemicals, 349 establishments, product \$117,688,887; drug grinding, 25 establishments, product \$6,006,999; oil, castor, 4 establishments, product \$904,825; oil, cottonseed, and cake, 817 establishments, product \$147,-867,894; oil, essential, 68 establishments, product \$1,737,234; oil, linseed, 29 es-

tablishments, product \$36,738,694; oil, not elsewhere specified, 189 establishments, product \$30,865,122; patent medicines and compounds and druggists' preparations, 3,642 establishments, product \$141,941,602; petroleum, refining, 147 establishments, product \$256,997,659; soap, 421 establishments, product \$111,357,777; sulphuric, nitric, and mixed acids, 42 establishments, product \$9,884,057; turpentine and rosin, 1,585 establishments, product \$25,295,017; wood distillation, not including turpentine and rosin, 120 establishments, product \$9,736,998.

In the class "chemicals" are included "acids, except sulphuric, nitric, and mixed acids, and such as are made by establishments in the wood-distillation industry; sodas; potashes, alums, coal-tar products; cyanides, bleaching materials; chemical substances made by electrical processes; plastics; compressed or liquified gases; fine chemicals, and all chemicals not covered by other more specific classifications"; "wood distillation, etc." includes pyroligneous acid, wood alcohol, acetates, tar, and charcoal made by the destructive distillation of wood in closed vessels at a red heat"; tanning extracts and liquors, including chrome tanning solutions; and mordants, sizes, gums, and dextrins"; and continuing through the list, which we have not space to specify further.

In group 36, chemical and pharmacal arts, Liberal Arts Palace, there were originally twenty-four classes, but not all the products in the census classification are included therein, part of them appearing in the Palace of Manufactures, Agriculture, and Mines and Metallurgy. The revised classification in the Liberal Arts Palace, contains twenty-one classes, showing equipment, processes and products, as follows:

"Class 148. Laboratory apparatus and utensils; lamps, blowpipes, presses, drying ovens, filters, furnaces, ovens, etc., used in chemical laboratory work.

"Class 149. Apparatus and instruments for making industrial and commercial analyses.

"Class 150. Equipment and processes used in the chemical treatment of animal substances, with their products; super-phosphates, soaps, candles, glycerine.

"Class 151. Apparatus and processes for the production by electrolysis of hydrogen peroxide, chlorine, hypochlorites, chlorates, soda, bleaching materials, and various other chemicals. Also electro-thermal apparatus and processes for chemical manufacture not otherwise specified.

"Class 152. Equipment and processes used in the manufacture of vegetable essences.

"Class 154. By-products for pharmacal use, obtained from the treatment of mineral substances, such as petroleum and coal tar derivatives, etc.

"Class 155. Equipment and processes used in treating waste matter from factories (by chemical or electrical methods), with a view to permitting their return to water courses or to the atmosphere.

"Class 156. Equipment for charcoal-work and the production of its various derivatives; methylated spirits, acetone, acetic acid, tar, wood alcohol, pyroligneous acid. Products of charcoal burning.

"Class 157. Apparatus and processes for the compression and liquefaction of gas. Liquified gases.

"Class 158. Apparatus and processes for the manufacture of artificial textiles.

"Class 159. Appliances and processes used in the manufacture of pharmacal products. Raw materials of pharmacy; sera and other biological products, as

bacterins, vaccins, tuberculins, etc.; drugs of mineral, animal and vegetable origin; crude, powdered and compound; special appliances for collecting, cleaning, peeling, slicing, cutting and garbling crude drugs.

"Class 160. Disinfectants; standardization of disinfectants; manufacture of disinfectants; drug preservation; drug sterilization; ampouls, etc.

"Class 161. Acids, alkalies, salts and compounds of every kind. Chemical elements derived from their compounds and chemical compounds not otherwise classified.

"Class 162. Refined sulphur and derivatives from sulphur.

"Class 163. Equipment and processes used, and products obtained, in the manufacture of phosphorus and matches.

"Class 164. Drug adulteration; methods of adulteration; methods of detecting adulteration.

"Class 165. Various products of chemical industries; tanning materials, waxes, essential oils, glue and gelatine; perfumes, cosmetics, and extracts; various glazes, printing ink, blacking.

"Class 168. Alcohols modified for industrial purposes.

"Class 169. Equipment and appliances for producing calcium carbide and for the storage of acetylene gas.

"Class 170. Insecticides; fungicides; parasitocides and methods of manufacture and use.

A mere glance at this classification discloses the fact that the showing of all these products is especially designed to benefit the public good. Nowhere in the whole exposition will the "pure food" laws find greater exemplification. Nowhere will the interested individual be better able to relate the whole to his daily living. Municipal authorities will be able to study the methods of amelioration which constitute their abiding problem, by witnessing the direct application of manufacture to use and the relation which the product bears to the public health. Not only this, but the retail druggist will be able to inspect the equipment and processes used in the manufacture of many of the articles which find standard sale over his counters. All of these results insure to the manufacturer-exhibitor a profitable return for the expense and trouble of installing his exhibit. When the fact is added that visitors and dealers from all parts of the world will witness, study and analyze the display, and experts will relate same to foreign markets, the benefits from a commercial point of view are still more apparent.

The infinity of creation is revealed as much by the microscope as the telescope. Science is yet in its infancy. The constitution of matter is not yet fixed. The atom has been succeeded by the electron. Where the material ends and the spiritual begins is a subject of fascinating speculation and fraught (if discovery be possible) with mystic possibilities in the treatment of disease. The germ theory has revolutionized in the short period of twenty-five years the practice of medicine. The chemical engineer, he who studies, long and minutely, crystals and compounds; what, for want of a better name, may be called the affinities of molecules or the laws of attraction and repulsion in material substances, has become a public servant and benefactor. And it behooves the man whose business it is to dispense the result of these labors to the people to keep abreast of every advance. Toxins and anti-toxins are not only in the hands of physicians licensed by the state, but they are in the hands of the pharmacist who must also receive

the permission of the constituted authorities to carry on his business. And general public results are justifying these cautions thrown around the use of all these products, dangerous or salutary, as the case may be.

Indeed, the wonders of modern chemistry are never ending, and the "apothecary shop" of old, has been transformed into a public clinic, from which remedies and compounds are dispensed to the public, for a nominal cost, that have become indispensable, because so well-known and understood by the pharmacist as to become fixed in the public regard. So marvelous are many of the modern discoveries that the ancient alchemist, with his dreams, is no longer the derision of the scientist. The transmutation of metals, in the case of some rare ones recently discovered, has been actually accomplished. Radium is, perhaps, the world's greatest wonder of today. Not all is understood. Effects are produced through the scientific process, which defy analysis, while the result remains. And in the case of some of the well-known disinfectants, results justify a use, when science is unable to explain the transformation.

The public value of the exhibits in this section of the Palace of Liberal Arts, therefore, cannot be overestimated. Foreign governments should see to it that public laboratories make contributions to this highly important department of the coming universal exposition. And manufacturers, by exhibit of their latest products, may reach unlimited markets in remote lands that will justify the investment of largely augmented capital.

LOYALTY.

"First, then, by industry you must fulfil your vow to your country; but all industry and earnestness will be useless unless they are consecrated by your resolution to be, in all things, men of honour; not honour in the common sense only, but in the highest. Rest on the force of the two main words in the great verse, "*Integer vitae, scelerisque purus.*" You have vowed your life to England; give it to her wholly—a bright, stainless perfect life—a knightly life. Because you have to fight with machines, instead of lances, there may be a necessity for more ghastly danger, but there is none for less worthiness of character than in olden time. You may be true knights, though perhaps not *equites*; you may have to call yourselves 'cannonry' instead of 'chivalry,' but that is no reason you should not call yourselves "true men." So the first thing you have to see to, in becoming soldiers, is that you make yourselves wholly true. Courage is a mere matter of course among well-born youths; but neither truth or gentleness is a matter of course. You must bind them like shields about your neck; you must write them on the tables of your heart. Though it be not exacted of you, yet exact it of yourselves,—this vow of stainless truth."—*John Ruskin, at the Royal Military Academy, Woolwich.*

Education is a better safeguard to liberty than a standing army.—*Everett.*

Papers Presented to Local Branches

PREPARATIONS OF THE NEW U. S. P.*

L. A. BECKER.

The comments which follow are made with the understanding on the part of the writer, that the *text* in the Pharmacopœia should be *concise*, of *positive value* (not valueless or non-essential), and so worded as to exclude all opportunity for quibble or legal interpretation, wherever such an ideal is obtainable.

Following the preparations, in the order published in the April number of the *Journal*, my attention was directed to the requirements for "Aqua."

Using a dilution of Tr. Ferric Chloride with water, (representing Iron, 1-100,000), as test solution, and applying freshly prepared H₂S water, somewhat cloudy with Sulphur, no noticeable change in color or turbidity was shown in several hours; heavy metals should show darkening in 15 minutes, according to the text. This test was made to determine if Iron could be detected by this test, when present in small amounts. On adding Ammonia water, a dark coloration was produced immediately. This is a requirement of the present "U. S. P." heavy metals test.

In the next test for the limit of iron, the statement "no blue coloration should be produced immediately (iron)," needs modification. Since, the application of this test to a 1-100,000 iron solution,—which, by the way, develops a marked color on aging,—does not give a positive result, interpreting the text strictly. It takes about half a minute for a green coloration to show, which develops into a definitely blue coloration in about one minute. This certainly is not "immediately," as any lawyer required to defend this condition would contend, and probably with success.

Iron dilutions of 1-500,000, show a blue coloration in from three and one-half to five minutes; dilutions of 1-1,000,000, show this color in from seven-ten minutes. It is recommended that a definite time be stated, instead of the word "immediately," if this test is to be retained.

It would appear that these two tests establish a *much less rigid* standard, than the present "U. S. P." "heavy metals" test, if experimental contaminations serve, as well as those found in nature, as a guide to test them. Under Aqua Destillata, the present standard allows 7.5 Mg. per 100 cc. and not 5 Mg., as reported by the committee in comparison with the new standard of 1 Mg. Thus making the allowable residue, 7.5 times smaller, instead of 5 times, as the published text shows.

*Read before Chicago Branch, May, 1914.

Aqua Destillata Sterilisata: The requirement that only "freshly distilled water" may be used, and the recommendation that it be used "within 48 hours," surely makes its preparation difficult, and expensive for emergency use. One queries why those responsible for the restriction, "*freshly*," did not go the limit, and insist also on the, "all Jena glass" conditions, usually imposed by those claiming deleterious effects from products of less rigid manufacturing processes.

The medicated waters are all required to be made with recently boiled distilled water. Never having experienced any trouble with these preparations, I fail to see the reason for this, excepting the possibility that water, from which the air and CO₂ are removed, more readily takes up oils to saturation; or it may also be, that it is the purpose to sterilize the water just before using, to secure a better product. This latter, to insure success, requires bacteriological *technique* beyond the average pharmacist's attainment.

Liquor Sodii Chloridi Physiologicus: 8.5 gm. per litre, seems a rather large amount, especially when other salts are also added, to produce Ringer's or Locke's solutions. 7.5 gms.,—the mean between the extremes usually stated, namely, 0.6%-0.9% (from Howell's Physiology), may be less apt to produce hypertonicity than the higher amount. The hardship imposed by requiring freshly distilled water, holds also here and the recommendations regarding sterilization, I fear, will lead to many a dispute between Pharmacist and Physician should the former become the purveyor of this preparation to the latter.

For where there is infection,—where sterilized materials are employed, either instruments, dressings, suture materials, etc., or preparations,—the physician almost invariably seeks to put the blame on any other cause, however far-fetched his reasoning, rather than to ascribe bad results to his possible faulty *technique* or poor judgment. For the pharmacists' protection against accusations of this nature, the process of sterilization should produce unquestionable results, and the most thorough is none too safe. Therefore, I would recommend fractional sterilization—auto-claving from 15-20 minutes on three successive days at 115° to 120° C., or boiling for 1 hour on three successive days—allowing a shorter procedure only on the physician's explicit permission and by his direction. Also I would waive the requirement of freshly distilled water, proper keeping conditions being insisted upon for *Aqua Destillata*.

Liq. Sodii Arsenatis: The rubric states, "not less than 0.975%, nor more than 1.025%," but the assay requires "not less than 0.95%, nor more than 1.0%"; a discrepancy that ought to be corrected.

I cannot understand why Po. Ext. Cascara Sagrada should be directed to be made only three times the strength of the drug, when four times the strength is usually the requirement, for powdered extracts, and when most manufacturers make them of that strength. Surely pharmacists will not attempt manufacture of this extract when they are buying preparations more easily made.

The method of making Tr. Limonis Corticis and Tr. Aurantii Dulcis will probably meet with popular approval. The present "U. S. P." process for Tr. Nucis Vomicae certainly insures a more reliable preparation, with the skill required for its manufacture, than making the tincture from the drug, with assay by the pharmacist, will probably produce.

GENERAL CONSIDERATIONS.

The alcoholic preparations of the Pharmacopœia,—fluidextracts, tinctures, spirits, etc., should have the alcohol-content of the finished product stated definitely, and so adjusted that reasonably close adherence to the process would be followed.

There seems to be a tendency to complicate and increase the work in many formulas, without any apparent equivalent gain in the results obtained, for example: Liq. Calcis, Liq. Cresolis Co., Liq. Magnesii Citratis, Spt. Menth. Pip, etc.

In closing, I wish to state that the revision of the preparations—and this may also be found true of the other parts of the book—seem too much “library-made” and not enough “laboratory-made.” A thorough and practical revision could be made if the country’s most expert talent could be utilized, at times to suit the individual convenience, during the *interim* of the decennial conventions, as workers in laboratories especially arranged for this purpose, housed by the A. Ph. A. Such laboratories should be located in or near some centrally situated metropolis. In such laboratories tests and processes of great value to the profession, could be worked out, to meet conditions of environment similar to those surrounding the pharmacists of the different sections of the country.

PENNSYLVANIA STATE LAWS OTHER THAN PHARMACY LAWS
WHICH AFFECT THE RETAIL DRUGGIST.*

CHAS. H. LA WALL, PH. M.

The present era will probably be looked back upon by future historians as the “age of laws.” Many laws are now upon our national and state statute books, which class as crimes, acts which in a former generation were looked upon as simply evidences of sharp business practice. These offences, now punishable by law, have been aptly termed “artificial crimes,” because many of them are so technical in their character as to attach no moral disgrace to the individual found guilty of committing them.

The necessity for such laws has arisen on account of the complex relations brought about by our modern civilization, and in order to protect the honest, conscientious and upright individual from unjust and unfair competition on the part of those who are accustomed to look upon business from the standpoint of the old maxim “*Caveat emptor*,” and who do not realize that it has been superseded by the modern maxim “*Caveat vendor*.”

In many instances fraudulent practices have been developed to such a high degree of perfection, that the buyer is no longer able to act as a competent judge of what he is getting without the aid of expert advice. It is true in some cases these laws work an even greater hardship upon those whom they are designed to protect, than upon those whom they are calculated to punish, but that they

*Read before the Philadelphia Branch, May 5.

have become necessary, to a certain degree, at least, no one will deny, and their elimination will likely be brought about, only by the education of the individual to a point, where universal compliance with the underlying principles will voluntarily exist, through a proper understanding of the necessities of the situation.

All of these laws are mandatory in the highest degree. Wilful violation or guilty knowledge are not necessary to be proven in order to convict an offender. A proof of the violation carries with it a conviction, however innocently the violation may have occurred. The pharmacist in this respect is like the "Jungle Dweller," whose code of laws has been so admirably outlined by Kipling in the poem which concludes thus:

"Now these are the laws of the jungle,
And many and mighty are they;
But the head and the hoof of the law,
And the haunch and the hump is—Obey."

Of the pharmacy laws themselves, I shall assume that the pharmacist has sufficient knowledge, although in this connection there still exist some evidences of carelessness or wilful disregard of requirements which call for correction. I refer here more particularly to the practice of using substances for official or medicinal purposes which are labeled "For technical use only." This over-worked phrase has been a haven of refuge for manufacturers and sellers of sub-standard products, and unfortunately it is too frequently taken to mean that the article is up to the official standard in all but some minor particular, and the warning is forgotten or disregarded. An example of this kind which has come under my observation recently is of powdered magnesium carbonate supplied on an order for "Powdered Magnesium Carbonate, U. S. P." The package received was marked "Magnesium Carbonate, for Technical Use," and examination showed it to contain so much calcium carbonate, as to practically unfit it for any but filtering purposes.

Another case of the same kind, seen a year or so ago, was of gelatin marked "For Technical Use," and containing an amount of arsenic prohibitory to its use in medicinal or food products.

There is one class of products handled by druggists, for which, at the present time, there are no laws to govern the quality. This is the class of toilet preparations, such as soaps, washes, perfumes, creams, etc., for which no remedial properties are claimed and which come therefore neither under the classification of foods or drugs.

Among the Pennsylvania laws which might affect pharmacists is the general food law which prohibits adulterations and misbranding of foods generally. Maraschino cherries, for instance, which are very frequently used at the soda fountain and which are sometimes sold in the original containers, often contain sulphur dioxide compounds, resulting from the preliminary bleaching to which the cherries are subjected before dyeing them the bright red color. The national law permits the presence of sulphur dioxide if properly declared. The Pennsylvania state law prohibits it under all circumstances, except in dried fruits and molasses where the amount is limited. Such food products, therefore (other

than dried fruits and molasses in which limited quantities of sulphur dioxide are permitted when plainly declared), as are labelled to the effect that they contain sulphur dioxide, are illegal for sale or use in Pennsylvania.

Under the general food act also, would be included cake colored yellow with coal tar color, in imitation of eggs, or orange, or lemon, as the case might be; cake being frequently served at the soda counters of some of the larger stores. Under the general food act, also, would come instances of adulteration of confectionery. Adulteration in this connection need not take the form of the addition of harmful substances. The sale, for chocolate candy, of a confection containing other fats, such as cocoanut fat, which is commonly used to keep the confectionery from softening in hot weather and to cheapen it as well, is a violation of this law which is frequently detected and punished.

The sale, for licorice candy, of a product containing a minimum of licorice or none at all, but flavored with aniseed and colored with carbon black, is another example of a frequent violation of the food law. That the manufacturers know this, is shown by the fact that such goods are never labeled nor billed as the pure article, and thus the guarantee is of no value to the seller. The minimum fine for violation of the food act is \$60 and costs.

The milk and cream act, is one also which the pharmacist might easily violate, as he uses milk as an ingredient of the numerous and popular egg drinks. Milk, to be legal in Pennsylvania, must be whole milk, unskimmed and without the addition of water or any other substance, and containing not less than 3.25 percent of butter fat and 12 percent of milk solids. The use of skimmed milk, where milk is called for, is a distinct violation of the law punishable by a minimum fine of \$25. Under this same act also comes cream, which to be legal must contain not less than 18 percent of butter fat.

When a customer asks for vanilla-cream soda-water, how often is cream used in its preparation? Yet the use of any other substance than full-strength cream, is a distinct violation of the law. The use of milk or of artificially thickened products or of evaporated milk under such circumstances is a violation in each instance, punishable with the infliction of the penalty mentioned above.

Another, and a separate act, prohibits the use of any preservatives or coloring matter whatsoever in milk or cream. The minimum penalty for this offense is \$50. Thus, milk which had been skimmed and then thickened and colored or preserved, would be a violation of two separate and distinct acts, each carrying a separate penalty.

The non-alcoholic drinks act, is the next one which particularly concerns the pharmacist. In this act (which covers soda-water and all other similar beverages, either served by the glass or in bottles), a large number of preservatives are prohibited by name. Benzoic acid and benzoates are not in this list of prohibited preservatives and are the only preservatives in common use not specifically mentioned. Coal-tar colors are not prohibited under this act.

The strict interpretation of this act requires all beverages which are artificially colored and flavored, and which are not sold under distinctive names, to be declared as to their character. Thus, orangeade or lemonade, if artificially colored, must be declared as such, to the consumer. How this can be done with an un-

labeled drink sold by the glass and not drawn from any special kind of a cooling urn, upon which the lettering can be placed, is a problem. The use of placards hung up prominently or a notice accompanying the printed or stenciled list of beverages, such as frequently used, would seem to be the most efficacious method of accomplishing the result.

The penalty for violating the non-alcoholic drink act is also a minimum fine of \$25, as under the milk and cream act.

The ice cream act is the next under which the pharmacist may be liable. Ice cream must not contain any preservatives, must be true to name and must contain not less than 8 percent of butter fat, except in fruit and nut flavors, where 6 percent is required. Artificial colors are not prohibited when not used to conceal inferiority. Eggs, gelatin or vegetable gums are permitted where not used in excessive amounts.

This act also carries a penalty of a minimum fine of \$25.

The fruit-syrup act is one which is frequently violated because of ignorance of its existence. The non-alcoholic drinks act already referred to, was passed in 1909. The only other act even indirectly concerned with this subject, was the previous act of 1905, called the fruit syrup act. This act, which is short and specific, prohibits the same preservatives as were later prohibited in the non-alcoholic drinks act and in addition to this, prohibits the use of any coal-tar colors whatever. The use of coal-tar colors in the drinks themselves, was not prohibited by the later act, which, however, did not include the repeal of the former; so there now exists the anomalous condition that if a fruit syrup containing coal-tar color is sold as such it is a violation of the law, whether the presence of coal-tar color is declared or not, while if the same syrup be made up into a beverage and dispensed, it is perfectly legal if the presence of the artificial coloration is declared.

The anti-cigarette law of the legislative session of 1912-13 is of such recent origin and has been so prominently brought before the trade that it is not necessary to do more than refer to it.

The foregoing are the laws other than pharmacy laws which affect the retail pharmacist, and from the examples cited it will be evident to those who are familiar with trade conditions, that the reason why pharmacists have largely escaped punishment for violation of these laws, is because the activities of the food inspectors are kept so busy in other directions that they rarely take samples from drug stores, and not because violations do not exist. The best way to avoid danger of prosecution under these laws is to pay the same strict attention to their requirements that is paid to the requirements of the pharmacy laws, and then there will be no cause for fear.

PATRIOTISM.

Patriotism is a blind and an irrational impulse unless it is founded upon a knowledge of the blessings we are called to secure and the privileges we propose to defend.—*Robert Hall*.

Necrology

JAMES J. OTTINGER.

James Jeremiah Ottinger, of Philadelphia, died of pneumonia on Tuesday, May 19, 1914, as the result of a cold contracted while taking a motor ride.

Mr. Ottinger was sixty-five years old and was a widely known pharmacist. He graduated from the Philadelphia College of Pharmacy in 1868, and became an assistant to O. S. Hubbel, who for many years had a store on Chestnut Street, west of Broad.

For a time he was employed in the City of New York, but returned to Philadelphia to open a store at Twentieth and Spruce Streets, where he continued in business until his demise.

Mr. Ottinger became a member of the American Pharmaceutical Association in 1876, and of the Pennsylvania Pharmaceutical Association in 1899. He was a member, also, of the Alumni Association of the Philadelphia College of Pharmacy, the Navy League of the United States, the Young Republicans, and of the Philadelphia Country Club.

He is survived by a widow and daughter.

The funeral services were held on May 23, 1914, at his home. The Rev. Edward Yates Hill, pastor of the First Presbyterian Church, officiated. Interment was in Ivy Hill Cemetery, Germantown.

The honorary pall-bearers were Colonel J. Granville Leach, Professor Joseph P. Remington, Howard B. French, Earl D. Putnam, Drs. Charles S. Turnbull, Alfred Hand, Jr., Edward P. Davis, D. D. Smith, S. McClintock Hamill, Francis P. Packard and I. Minnis Hayes.

J. W. E.

MARIE BLAHNIK.

Mrs. Marie Blahnik passed away on Wednesday, April 22, 1914, at her home, 1225 South Harding Avenue, Chicago. Mrs. Blahnik was born in Christov, Bohemia. Some forty years ago she came to America, and, while always remaining true to Bohemia and to Bohemians, she was a most loyal American citizen, dearly loving her adopted country and all the activity and progress for which it stands. She was one of the oldest druggists, in years of service, in the city of Chicago. When women pharmacists were almost unknown, Mrs. Blahnik was successfully conducting a store of her own on West Eighteenth Street, which remained under her control until her death, although for some years past she had not taken an active part in its management.

She was a modest, womanly woman, "true as steel," kind, ever ready and anxious to lend "a helping hand." She had many friends among both the Bohemians and the Americans. "Those who knew her best, loved her best," could be said most truly of Mrs. Blahnik.

She was a member of the Illinois Ph. A., the A. Ph. A., the C. R. D. A., and N. A. R. D., and the Chicago Chapter of the W. O. N. A. R. D., and for years was Honorary President of the W. Ph. A., many times entertaining in her own true, hospitable manner its members in her home.

Her death was sudden, though as serene and peaceful as she had made her life. Her loss will be keenly felt, not only in her own home and among her own people, but throughout the community and by a very large circle of friends.

C. E. S.

SIR JOSEPH WILSON SWAN.

At the ripe old age of eighty-six years, Sir Joseph Wilson Swan has passed into his long rest. In his boyish days he showed a strong leaning to science, and was accordingly apprenticed to learn the "art and mystery of the Apothecary," or "Chemist," as it is more commonly termed in England. He was one of the pioneers to whom we owe the present perfection of the incandescent electric light, working in connection with the Brush Electric Light Company along that line of effort. Swan's filaments for his lamps were made by injecting a jet of colloid into a coagulating medium. This method was used for many years in the manufacture of these lamps and the manufacture of these filaments is said to have suggested to a French inventor the idea of the manufacture of artificial silk. He made many improvements in photographic processes and it is to him that we owe the invention of rapid dry plates and many other improvements in that field.

His honorable and successful career should stimulate every young pharmacist to effort, with the desire to emulate his service to the world. Napoleon said, "Every soldier carries a marshal's baton in his knapsack." So every young man, taking up the study of Pharmacy, may become a leader of the race in any of the various professions to which the study of Pharmacy opens the way.

THOMAS LATHAM.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Acting Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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SAN FRANCISCO.

The Branch Association met on Tuesday evening, June 9th. The minutes of the May meeting were read and approved. Dr. H. M. Simmons was elected to membership.

After the dispatch of the routine business, Dr. Schneider called the attention of the members to the article on the anti-dysenteric properties of Chaparro Amargosa, by Dr. P. I. Nixon, which recently appeared in the Journal of the American Medical Association. Specimens of the plant were shown.

Dr. John Zieg presented a paper on "Some points for the pharmacist regarding the products used in organ-therapy." The doctor confined his remarks to those biological products which are derived from the adrenal, thyroid, thymus, pituitary and ovarian glands, which he stated have a therapeutic value quite well established.

The Branch adjourned to meet again on July 14th. On this evening Mr. J. Lengfeld will comment on some National Formulary preparations, Elixir of Ammonium Valerianate, Solution of Aluminum Acetate and Camphor-Menthol.

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SAINT LOUIS.

The Saint Louis Branch held its last regular meeting for the season in the Saint Louis College of Pharmacy, on Friday evening, May 15. In the absence of the president and vice-presidents, Mr. Ilhardt presided and introduced Mr. W. W. Ohlweiler, general manager of the Missouri Botanical Garden, who

gave an interesting talk on the subject, "Modern Herbal Garden."

Mr. Ohlweiler stated that there were growing at the garden between five hundred and six hundred medicinal plants divided into thirty-three groups, upon each of which its name was conspicuously displayed, and that the garden was kept particularly for the use of the pharmacists of the city and its vicinity.

He also outlined the course of school gardening which will begin this fall, in which an attempt will be made to teach the economic uses of plants from the standpoint of the botanist.

The following took part in the discussion which followed: Miss M. L. Sutter, Wm. K. Ilhardt, Dr. H. M. Whelpley, Prof. Francis Hemm, Julius C. Hoester, Prof. Leo Suppan, Chas. H. Bierman, Paul L. Goodale, Dr. Richard Kring, Gustav Kring, Carl T. Buehler, Franz Berg, Ferd Freeze and J. W. Mackelden.

On motion of Professor Hemm and seconded, a vote of thanks was extended to Mr. Ohlweiler for his discourse and the interest which he and the other members of the Missouri Botanical Garden are manifesting in our Association.

JULIUS C. HOESTER, Secretary.

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NORTHWESTERN BRANCH.

The April meeting of the Northwestern Branch of the American Pharmaceutical Association was held immediately after a special meeting of the Minnesota State Pharmaceutical Association at the Nicollet Hotel, Minneapolis, on April 15, 1914, at 8 p. m.

The following program was presented:—

1. Some Recent Problems of the Pharmacist—Mr. W. A. Frost.
2. Spices: Official and Unofficial Varieties—Mr. M. H. Haynes.
3. Some Tests on the Ethereal Tincture of Digitalis—Mr. F. A. U. Smith.
4. Should Students in Pharmacy take Military Drill?—Dean F. J. Wulling.

The meeting was preceded by a dinner at 6:30 o'clock.

The resignation of Chas. T. Heller as President was accepted with regret, and, upon nomination, A. D. Thompson, of Minneapolis, was unanimously elected to fill the vacancy. Mr. Truman Griffen was elected as Vice-President, the latter office having been made vacant by the promotion of Mr. Thompson.

Mr. Frost was the first speaker, and he confined his remarks chiefly to a consideration of samples of linseed oil that he had recently purchased, some of which were of such poor quality that it was impossible to make a soap from them. Mr. Frost stated that he was indebted to Mr. M. H. Haynes for the following analysis of one sample:

"The oil is probably manufactured by the so-called 'New Process,' which consists essentially of a carbon bisulphide or petroleum naphtha extraction and consequent recovery of the solvent by distillation. This process, seemingly, permits the extraction of considerable quantities of albuminous material, which, upon distillation of the solvent, is precipitated in the oil. In the case of this sample, the filtration process evidently was not perfect, for in addition to the albuminous matter, there is vegetable tissue present, which was demonstrated by diluting a sample of the oil with twenty parts of ether and centrifuging; the sediment thrown down being subsequently submitted to a microscopic examination. Alcoholic-saponification yields a value of 179, compared with the U. S. P. 187 to 195. The iodine absorption value is 151 in comparison with the U. S. P. of not less than 170. You will note that these results are low as compared with the U. S. P. figures. This, in my opinion, may be accounted for in a large degree in that the process of extraction removes the oil not only from the flax seeds, but also from all foreign seeds present which contain volatile and fixed oils. Commercial flax may contain up to 6 or 8 percent of foreign seed, and if such is present, the results above indicated may be anticipated, working by the new process. In the case of the old process of hot pressure, these foreign oils are not usually present. Will say that upon filtration, the sample in question yields a clean, normal-appearing oil, with the exception that the viscosity appears a little low."

Mr. F. A. U. Smith spoke upon "The Relative Value of Ether Extractive and Dilute Alcohol Extractive of Digitalis."

"In the PHARMACEUTICAL JOURNAL for February 7th, Thomas Stevenson referred to an article on Digitalis, by Louis Kolipinski, which appeared three weeks earlier in the Interstate Medical Journal.

Kolipinski concluded, from observed effects, that the regulated strength of the heart-muscle and the gastro-enteric irritation pro-

duced by digitalis, are the results of different principles, and that the principle which acts best on the heart is the least poisonous.

In the leaf of foxglove there is present an acid resin. This resin has always been regarded as inert.

Kolipinski proposes to name this resin, "Digitalic Acid." He regards it as the mother source of the various principles found in digitalis, and states that it is the least poisonous of digitalis-constituents and the best in its effect on the heart.

The purest form of "Digitalic Acid" is obtained by digesting the dried leaf with ether, although Kolipinski states that, for medicinal use, a sufficiently pure product may be obtained by digesting the dried leaf with sodium hydroxide and subsequently neutralizing with sulphuric acid. The product, "sodium digitalate," occurs as deep-green, non-crystalline lamellæ of considerable lustre, soluble in water, with formation of a greenish-blue solution. When prepared from the precipitated resin, it occurs as a brownish-colored powder, which forms a greenish-brown solution with water.

Kolipinski states, that experiments upon guinea pigs showed that, in large doses, sodium digitalate arrests the left ventricle in bloodless systole. Chemical results, he states, show that it gives uniformly all the good results of digitalis, without its toxic effects, and that it can be given hypodermically, without producing local inflammation or irritation. He recommends a single daily injection of 1/33 grain (0.0022 gm.). In urgent cases, the dose may be repeated later in the day, until the severity of the symptoms is mitigated.

After reading this account of Kolipinski's work, I began immediately to prepare some of the substance which he terms "Sodium Digitalate," because I realized that such a preparation would be of great medicinal value if Kolipinski's assertions were correct.

Allen's digitalis leaf was taken, exhausted with ether, the ethereal extract dried by spontaneous evaporation and the residue dissolved in a minimum of sodium hydroxide solution. The strength was adjusted by the addition of water so that the finished solution contains the ether extraction of 10 gms. of dried digitalis leaf in 100 cc., (same strength as the U. S. P. twelve). A specimen of this liquid is here shown and you will notice that the color is green with a brownish tinge.

A sample of the ether-exhausted powdered

leaf is also shown, together with a tincture made from 10 gms. of the ether-exhausted leaf of the strength of the U. S. P. tincture. Owing to the claims of my business, I have not been able to compare the physiological strengths of these preparations until to-night, when I hope to be able to show you how such experiments are performed.

In the interval since these preparations were made, there has appeared in the PHARMACEUTICAL JOURNAL, for March 14th, an article by Gordon Sharp, of Edinburgh, a noted physiologist, entitled "Digitalic Acid (Acid Resin) the Active Principle of the Digitalis Plant." Dr. Sharp had prepared preparations similar to those I have described. He tested the products on frogs and found that the solution of digitalic acid caused no stopping or slowing of the heart, in fact showed no action at all, whereas, the tincture prepared from the ether-exhausted leaf, stopped the heart within four hours, except in one frog, in which the beat was slowed to 3 to 5 a minute. Dr. Sharp intends to try the chemical action of these preparations, bearing in mind that pharmacological experiment is not always confirmed by the therapeutical effect. Until this has been done all that Dr. Sharp can say is, that pharmacological experiment fails to find evidence of toxicity or activity in the acid resin or so-called "Digitalic Acid" of Kolipinski.

Let us now try the effect of the solutions I have prepared, on some frogs and guinea pigs and find out for ourselves whether the ether extracts the valuable properties of the drug. Incidentally, you may be interested in seeing how this work is carried out. As you know, it is necessary to use a number of animals before it is possible to standardize a preparation with exactness. This is due to many causes, including the age, weight and sex of the animals, and so forth. Take the case of frogs. At this time they are waking up from the period of hibernation and they may or may not have quite reached a condition of normal physical activity.

The results confirm the report published by Dr. Gordon Sharp, in that the "Digitalic Acid" preparation appears to produce no effect whatever, while the preparation made from the marc, gives the typical action and toxicity of good digitalis."

Owing to the lateness of the evening, Mr. Haynes deferred reading his paper on spices and spoke briefly on the subject of the adul-

teration of Santonica. He stated that several samples had recently come to his attention which contained no true Santonica, probably due to the scarcity and consequent high price of the genuine, another article having been substituted entirely. The false article resembles very closely Santonica and is probably from a closely related species of *Artemisia*. A microscopic examination shows the false flower-heads to be a little smaller, greener, and more stemmy than Santonica. The odor and taste are seemingly identical with the true drug. Upon examination with the microscope the false sample shows distinctive and apparent differences from Santonica. A chemical examination of the spurious article yields little or no santonin, the largest amount obtained being but one-fourth of one percent.

Samples of Santonica and the adulterant, were exhibited in which the members were greatly interested.

EDWIN L. NEWCOMB,
Secretary N. W. Branch A. Ph. A.

On Monday evening, April 27th, Prof. E. L. Newcomb, the Secretary of the Northwestern Branch, gave a lecture before the Ramsey County Medical Association on crude drugs, their production and valuation. He pointed out the many difficulties encountered in collecting or growing medicinal plants of good quality and warned his hearers that the cultivation of medicinal plants was not the bonanza that the lay press had represented. Plant enemies, bad seasons, lack of experience in sowing and harvesting and other causes militated against the grower of herbs in his efforts to produce good drugs.

A fine collection of growing plants and dried drugs was shown, the latter illustrating the great need for the exercise of care in a druggist's purchases, by contrasting good and bad specimens of important drugs, such as: *Belladonna Folia*, *Digitalis*, *Stramonium*, *Rheum*, *Aconitum*, *Gentian*, and others.

Dr. Newcomb described the work of the students at the School of Pharmacy of the University of Minnesota, especially in the growing of medicinal plants and the harvesting of them in proper condition for the laboratory or dispensing counter.

The Chairman, Dr. Ritchie, invited a discussion on Dr. Newcomb's paper, in which several physicians and druggists joined, including Drs. Savage, Renz and Gilfillan, and Messrs. Rietzke and Frost.

Dr. Savage thought that the physiological standardization of vegetable drugs was of vital importance, especially when the effect of the drug was alike on the lower animals and man.

Dr. Renz spoke of the importance of having prescriptions filled by pharmacists who were well informed and capable of supplying medicines in the best possible condition.

Dr. Gilfillan congratulated the speaker on his admirable discourse, and expressed the hope that this evening would not be the last one devoted to so important a subject. He wondered how many druggists took the pains to keep such drugs as digitalis in good condition, free from moisture, and other deteriorating influences.

Mr. Frost replied that druggists were very much alive to the importance of buying good drugs and storing them properly.

Mr. Rietzke expressed his pleasure in being present at this "get together" meeting of St. Paul physicians and pharmacists.

After adjournment of the meeting refreshments were served.



COLUMBUS.

The first steps in the formation of a local Branch, in Columbus, were taken at a meeting of a number of the prominent pharmacists of this vicinity, including those from the Government Post, in response to an invitation from the Acting Editor of the JOURNAL to meet him at lunch at the Chittenden Hotel on May 27.

This invitation was heartily responded to, and the feeling was evinced that the formation of a Branch in Columbus, the home of the JOURNAL, had been too long deferred; that immediate action should be taken to form a local organization and that efforts should be made to secure the adhesion of a sufficient membership. The meeting adjourned to be called together at a later date.

On the evening of June 5, the druggists of the vicinage were the guests of Professor George B. Kauffman, in the Dutch room of the Hotel Chittenden. After the serving of a bountiful repast, Mr. Marshall called the meeting to order and stated the object of the gathering. He then called for the nomination of a temporary chairman, and Professor Kauffman was elected to that position, Mr. Edward Spease being selected as Secretary *pro-tempore*.

Mr. Kauffman accepted the duties of temporary presiding officer in a ringing speech, stimulating to the loyalty of the members of the A. Ph. A. and also to their fealty to the city of Columbus. It was time he said "to get out and get under" this movement. The journal of the Association, the leading pharmaceutical organ of the country, was edited, printed and published in this city, and every druggist and every citizen in Columbus should be proud that this fact made their city the center of pharmaceutical light for this country, if not for the entire world. Ambition and duty alike, called for them to make earnest effort to show their appreciation of the honor now conferred upon their home-city and to endeavor in every way to retain that



PROF. GEORGE B. KAUFFMAN

honor. During his remarks he paid a gracious tribute to C. Lewis Diehl, "the father of American Pharmacy." He said that he was in communication with the Chamber of Commerce of the city in regard to the retention by it of the proud position it now enjoyed, relevant to American Pharmacy.

Mr. Marshall called attention to the work of Dr. Beal in establishing the JOURNAL upon a firm foundation and to its extensive circulation. By means of it, Columbus was known to every civilized country on the globe, as the JOURNAL is on file in the great libraries of the capitals of Europe, and its pages were scanned from Syria to Canton, China. As was once said of England's banner, "the sun never set

upon it," so it might be as well said that the sun was ever shining upon the open leaves of the JOURNAL!

Mr. Topping moved that a Branch be formed, and it was so ordered. A committee was appointed to present the petition to the Honorable Council of the Association, praying for permission to establish a Branch in this vicinity.

A tentative organization was effected by the choice of Mr. George B. Topping, Ph.C., President; Edwin N. Webb, Vice President; Edward Spease, Ph.C., Secretary; Ernest C. Marshall, Ph.G., Treasurer, and Professor George B. Kauffman as Council Representative. The petition for the formation of the Branch has been brought before the Council and appears in the Council letters of this issue.

It is hoped that this organization will unite all the druggists of Columbus and its vicinity into one strong organization to work for the mutual good of the profession in the district comprised within its zone of influence.

College and Society

THE N. A. R. D. CONVENTION.

The annual meeting of the National Retail Druggists' Association in Philadelphia, the week of August 17th, promises to be a most interesting one in the way of entertainment for all those who attend the Convention.

The entertainment program comprises the following special features: The Officers' Reception and Grand Ball, which will take place in the magnificent ball-room at the Bellevue-Stratford Hotel on Monday evening, August 17th; an automobile sight-seeing tour is scheduled for the ladies on Tuesday, and on Wednesday, they will be the guests at a reception to be held at the John Wanamaker's store. Thursday will be "Scottissue Day," when the delegates will be taken on a steamer-excursion, by way of the Delaware river, to the model paper-plant of the Scott Paper Company, and on the return of the delegates, a stop will be made at the League Island Navy Yard for its inspection. Friday will be "Wampole Day," and the Convention will be the guests of Henry M. Wampole & Co. at Willow Grove Park. An elaborate dinner

will here be served to all members. There is no prospect of any visitor to the Convention being afflicted with ennui or nostalgia during the gathering, for the Committee has left no moment disengaged in the program they have planned. In connection with the meeting the exhibits at the Convention will be of much interest and attraction.

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PACIFIC COAST.

The regular monthly meeting of the Women's Pharmaceutical Association of the Pacific Coast was held May 22, 1914, in the Assembly Hall, Pacific Building, San Francisco. Mrs. R. E. White was in the chair.

A large attendance was present. Discussions were held on "A Method of Preparing Solution for Testing Purity of Nitrous Oxide Gas;" "A New Method of Filling Santal Oil Capsules;" "Improved Blaud's Pills," and "Prescription Pricing."

The President appointed the following delegates to the Annual Convention of the California Pharmaceutical Association: Miss Della Crain, Santa Cruz; Mrs. E. Goodman, San Francisco, and Mrs. E. E. Patterson, San Jose.

Mrs. Philip read a paper entitled "A Clerk." The discussion of the evening was on "Laboratory Methods."

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COMMENCEMENT OF THE COLLEGE OF PHARMACY OF THE UNIVERSITY OF THE STATE OF NEW JERSEY.

The Commencement of the Department of Pharmacy of the University of the State of New Jersey, for the classes of 1913-14, took place at the Masonic Temple in Jersey City, on the evening of June 2d, President Hon. James E. Pope presiding. The invocation was delivered by the Rev. Harry L. Everett, the Chaplain of the University, and the address on behalf of the University was given by Joseph E. Bernstein, the Treasurer.

The principal address of the occasion was made by Geo. M. Beringer, of Camden, N. J.; the President of the A. Ph. A. In his usual genial manner, President Beringer gave some of the history of pharmacy and advised the young graduates to be proud of their profession and to follow the example which has been given them by their teachers. He urged them to become members of the A. Ph. A.

and thereby to benefit themselves as well as to lend a helping hand in the evolution of pharmacy.

Hon. William H. Speer, Judge of the Hudson County Circuit Court, then delivered a short address. Dr. Joseph Koppel, Dean of the Department of Pharmacy, spoke on the great many improvements which have been made in the buildings and the equipment of the College, and also in the reorganization of the Faculty. He conferred the Degree of Graduate in Pharmacy (Ph.G.) on seventeen (17) students, and the Degree of Doctor of Pharmacy (Phar. D.) on thirty-two (32) students, the latter being dignified with the Doctor's hood.

President James E. Pope awarded the following prizes: The gold medal to Joseph S. Churgin, the silver medal and the silver cup for the best examination in Organic Chemistry to Herman H. North, both of the Senior Class, and the bronze medal to Jacob Feinberg of the Junior Class. The Post-Graduate prizes consisted of three (3) memberships in the A. Ph. A., and were awarded by Prof. Otto Raubenheimer to the following students: Isaac Friedman, for the best thesis in Chemistry, namely, "Arsenic in Household Articles;" Eugene Gordon, for the best thesis in Physiological Chemistry, namely, "Seminal Fluid," and Isidor A. Saphiro for the best thesis in Pharmacy, "Phenol and a Few of Its Derivatives."

Prof. Luke C. Hines, Secretary of the Faculty, read the Honor Roll of the Post-Graduates and Seniors. Herman H. North, in an elegant manner, delivered the valedictory address of the Senior Class, and Meyer A. Feinberg delivered an excellent address in behalf of the Post-Graduate Class.

The musical and vocal talent was supplied by the Malkin Music School of New York, and was highly appreciated. After the exercises, refreshments were served and the large audience was well pleased with the Commencement.

May 18th was a gala day at the College of Pharmacy of this institution when Prof. Joseph P. Remington addressed the students on "The Graduate's Opportunity." This address was given to the graduating classes, the members of which, undoubtedly, will profit by the good advice given by the professor. The speaker made the recommendation that pharmacists and physicians should go hand-in-

hand for the mutual protection of the public. He advocated the practice of more professional pharmacy and less of commercialism.

Prof. Remington's lecture was highly appreciated by all his auditors and especially by the students, who greeted him with cheers and college cries which were specially prepared for the occasion.

Dr. Joseph Koppe, Dean of the College, announced at the same time the names of those students who successfully passed the examinations.

The College year has been a very successful one, inasmuch as the Post-Graduate class consisted of fifty (50) students, and the Senior class twenty-five (25).



LOUISVILLE COLLEGE OF PHARMACY.

On Tuesday, May 12th, this institution completed its forty-fifth year with Graduation Exercises at the Woman's Club. Diplomas were awarded to twenty-nine young pharmacists, the degrees being conferred by President Simon N. Jones.

The College Medal was awarded to Sterling T. Monroe for best general average, and the Voigt & Co. Medal to S. Elbert Nichols for second honors.

The Peter-Feat-Richardson Medal was awarded to Wm. Orville Patterson for best general average in the Junior Class.



ILLINOIS PHARMACEUTICAL ASSO- CIATION.

With the slogan of "A week-end at Fox Lake" as a rallying cry, the Illinois Pharmaceutical Association assembled at the meeting of their State Association, June 11th, 12th and 13th, and had a very successful convention. For the first time in many years the Association had selected a summer resort for the place of meeting, and that the experiment was a success was the expression of practically all of the three hundred or more druggists and traveling-men who attended the convention.

The usual opening addresses were dispensed with. The Association listened to an excellent address by President Ralph R. Dorland, which, as well as the skillful manner in which he handled the convention, was widely commented upon. He especially urged druggists to get into politics, to make themselves felt as a political factor, to the end that the in-

terests of pharmacy might be conserved in both state and national legislation. He urged the formation of local organizations, and the cordial support of the two great national associations—the A. Ph. A. and the N. A. R. D. He thanked the members for their generous assistance to the officers in carrying on the Association's work during the past year and made a strong plea for a wider co-operation among pharmacists, especially in view of the need for anti-narcotic legislation and the powerful opposition that had developed. He urged that the Illinois Pharmaceutical Association be made an all-year-round organization and that its activities be not limited to the few days of the annual convention and the semi-annual session of the Executive Committee. He recommended the maintenance of permanent headquarters and the employment of an organizer to recruit the membership and interest the druggists in the work of the Association. President Dorland's address was received with applause and was referred to a committee consisting of W. S. Denton, O. C. Nusele and James H. Wells.

The report of the Secretary, W. B. Day, concluded with the presentation of 133 new members who were elected. This is the largest accession of members in many years.

Treasurer Garver's report showed an income for the year of \$1765.68 and expenditures of \$1914.39. There was \$600.00 in the permanent fund and \$1260.63 in the general fund at the close of the fiscal year, May 31, 1914.

Chairman Byron Armstrong of the Committee on Trade Interests, presented an excellent report and strongly endorsed legislation aimed at the establishment of a system of one-price to all on trade-marked and branded goods.

Chairman Charles Brunstrom presented the report of the Legislative Committee, which was devoted chiefly to plans for the coming year when the Legislature will again be in session.

Secretary Potts of the N. A. R. D. made a stirring address and offered resolutions regarding the unfair practice of cutting prices on standard goods, commending the Stevens Bill and pledging the earnest support of this Association. These resolutions were unanimously adopted.

Other reports were made as follows: For the Committee on Propaganda, Lee M. Pedigo, Chairman; for the Committee on

Druggists' Home, George W. Sohrbeck, Chairman.

Resolutions were adopted endorsing the National Association of Retail Druggists and continuing affiliation with that Association, also resolutions commending the U. S. Pharmacal Company.

Awards of prizes for essays were made as follows: First prize, J. A. Mahaffy, "The Advertising Value of Your Window"; second prize, to H. N. Bruun, "Advertising Schemes."

The following nominees were selected for presentation to the Governor for his consideration in appointing a member to fill the next vacancy on the Board of Pharmacy: J. B. Michels, El Paso; Robert Clarkson, Springfield; Lee M. Pedigo, Chicago. To the President of the University of Illinois for appointment of a member of the Advisory Board to fill the next vacancy, the following were selected: Jos. F. Shreve, Jacksonville; J. C. Wheatcroft, Grayville; Joseph Hottinger, Chicago.

Officers for the ensuing year were elected as follows: President, W. F. Baum, Danville; Vice-Presidents, Julius Riemenschneider, Chicago; W. S. Denton, Beardstown; Byron Armstrong, Jacksonville; Secretary, W. B. Day, Chicago; Treasurer, Christian Garver, Bloomington.



UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

The new catalog of the University of Illinois School of Pharmacy is now ready for distribution. A copy may be had by addressing the Actuary, W. B. Day, 74 E. 12th Street, Chicago.

Announcement is made of an increase in the entrance requirements beginning with the session of 1916-17 to graduation from high school of accredited grade or the full educational equivalent of this. The present entrance requirements for the shorter course which leads to the degree of Graduate in Pharmacy are two years of high school of accredited grade or its full educational equivalent.

For entrance to the longer course, leading to the degree of Pharmaceutical Chemist, graduation from high school is already required.

Entrance examinations, conducted by the Registrar of the University, will be held at the College of Medicine, Congress and Ho-

nore Streets, Chicago, September 21st to 25th, and will include all the high school branches in which credits are accepted.

Mr. Andrew Scherer, an alumnus of the Class of 1875, has offered a prize of twenty-five dollars in gold to the senior student who attains the highest average in pharmacy.

The fifty-fifth session begins Tuesday, September 22d.

The longer course in the school of pharmacy, leading to the degree of Pharmaceutical Chemist, closed June 5th; the degree was conferred upon Paul Wright Edgett, Gennaro Dominic Lavieri, Albert Schreiner, Jr., George Stulik, George F. Vaupell and Edgar Philip Heidebreder.

The Advisory Board held its annual meeting at the School June 4th. There were present at the meeting, George O. Lescher, of Galesburg; A. G. C. Ackermann and Herman Fry, of Chicago, as well as the faculty of the School.

The Chicago Veteran Druggists' Association has presented to the School the silver loving cup which was presented to Albert E. Ebert in 1995 and which, upon his death, reverted to the C. V. D. A.

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MASSACHUSETTS STATE PHARMACEUTICAL ASSOCIATION.

At the annual meeting of this Association held in June, the following officers were elected: Frank J. Campbell, President; John T. Harper, Great Barrington, William Hardie, Fall River, P. J. Fitzpatrick, Wellesley, Vice Presidents; James F. Guerin, Worcester, Secretary; James F. Finneran, Boston, Treasurer; William F. Sawyer, Boston, Edward A. Mole, Adams, James W. Cooper, Plymouth, Trustees of the Permanent Fund; Elie H. La Pierre, Cambridge, Delegate to the State Board of Trade.

Messrs. John J. Tobin, John F. Hayes and George J. Carroll were nominated for the Board of Pharmacy, and Prof. Charles F. Nixon, W. S. Flint and E. F. Leonard were nominated for the Board of Health.

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The following telegram was received at the Scio office on June 17:

SANTA CRUZ, CALIFORNIA.

American Pharmaceutical Association, Scio, Ohio:

The California Pharmaceutical Convention, in annual convention assembled, extends to the American Pharmaceutical Association our

greetings and good-fellowship, and ask you to make San Francisco your convention city for nineteen-fifteen. We hope to have delegates at your nineteen-fourteen convention to present our claims. Yours fraternally,

CALIFORNIA PHARMACEUTICAL ASSOCIATION.

K. B. BOWERMAN, Secretary.

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OHIO STATE UNIVERSITY.

COLLEGE OF PHARMACY.

Commencement exercises were held in the Gymnasium on Wednesday, June 17, 1914. Six candidates for the degree of Bachelor of Science and 16 candidates for Certificate of Pharmaceutical Chemist were presented to the President by Dean George B. Kauffman.

The College of Pharmacy being an integral part of the University, its graduates participate in the general exercises of Commencement with the graduates of the other schools and stand in the same relation to the University as do all other of its graduates. The following are those who received the degree of Bachelor of Science in Pharmacy, with the titles of their theses:

Otto Carl Blum, Portsmouth, thesis, "Methods for Detecting Ethyl and Methyl Alcohol"; John Clinton Bowman, Thornville, thesis, "Outline for the Analysis of Sugar"; Robert Bruce McCann, Columbus, thesis, "Rapid Methods for the Separation of Alkaloids"; Earl Aloysius May, Van Wert, thesis, "Lead Acetate in the Examination of Gum Resins"; Albert Reinhart Paar, Canton, thesis, "Tests for the Identification of Cocaine and its Substitutes"; Paul C. Slater, Mechanicsburg, thesis, "The Estimation of Small Quantities of Alkaloids in Medicinal Preparations."

Sixteen candidates were awarded certificates as Pharmaceutical Chemists.

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, Ohio
ERNEST C. MARSHALL, Acting Editor,
63 Clinton Building, Columbus, Ohio

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Postoffice the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

All communications for insertion in the JOURNAL, or respecting advertising, requests

for back numbers, and claims for missing numbers should be sent to the Acting Editor, 63 Clinton Building, Columbus, Ohio.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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A. PH. A. PRIZE MEMBERSHIPS.

The following gentlemen have been awarded nominations to membership in the A. Ph. A. from colleges and universities because of exceptional work:

St. Louis College of Pharmacy—Julius Blanton Linn, of Canton, Mo., for general scholarship.

Baylor University, School of Pharmacy—John Morgan Fletcher, Dallas, Texas, for best general average.

University of Oklahoma—Frank Bradley, of Noble, was awarded the Browne prize, and Ralph Hron, of Guthrie, and Clarence Nicholas, of Anadarko, the Barbour prizes.

University of Tennessee—John H. Grant, Jacksboro, The Fortune-Ward Drug Co., of Memphis prize, for highest grade in Chemistry.

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PERSONAL MENTION.

Mr. Harry S. Noel, member of the advertising staff of Eli Lilly & Company, was married June 10th, to Miss Nellie K. Covert, of Indianapolis, at SS. Peter and Paul Cathedral, by the Rt. Rev. Bishop Chartrand. Mr. and Mrs. Noel are taking an extended wedding trip East and will visit Mr. Noel's parents at Williamstown, Mass. New York City, Albany, Ithaca and perhaps several other cities will be included in their itinerary. Mr. Noel is a graduate of the Albany College of Pharmacy and for two years was connected with the Druggists' Circular and is known to many readers of the drug journals as he has been a contributor to the journals from time to time for the past five or six years.

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Maurice Palais Schwartz, the Secretary of the Indiana Pharmaceutical Association, was united in marriage to Estella Cecilia Fox, daughter of Mrs. Isabella R. Fox, on Tuesday, the 26th of May last, at Indianapolis.

Council Business

COUNCIL LETTER No. 23.

PHILADELPHIA, May 26, 1914.

To the Members of the Council:

The following communication has been received from Harry B. Mason:

"I am just in receipt of the proposed programme for the 62d annual meeting—page 55 of Council Minutes. I want to protest against the way in which the two sessions of the Commercial Section have been separated by three days. I have been chairman of different sections on three or four occasions, and I have discovered that the minute you sacrifice continuity you sacrifice interest also. I was shoved in as chairman of the Commercial Section this year somewhat against my wishes, and since my appointment I have been endeavoring to get up a live, vital, interesting programme. I want, if possible, to make the Commercial Section a real asset, and to this end I plead for a fair hearing.

All of which is preliminary to this motion: that the second session of the Commercial Section be held on Wednesday morning at 9:30 instead of Friday morning at 9:30, and that the first session of the Section on Pharmacopœias and Formularies be changed from Wednesday morning to Wednesday afternoon."

Motion No. 36 (Amendment of Program for Sixty-second Annual Meeting). Moved by H. B. Mason, seconded by J. W. England (1) that the second session of the Commercial Section be held on Wednesday, August 26, at 9:30 a. m., instead of Friday, August 28, at 9:30 a. m., (2) that the second session of the Conference of Pharmaceutical Faculties be held on Wednesday, August 26, at 10 a. m., and (3) that the original program as amended by above be substituted for the program given under Motion No. 35.

E. Fullerton Cook, Chairman of the Section on Pharmacopœias and Formularies, is opposed to any change in time for the first session of his Section, and if there is no objection, the time allotted for this Section will not be changed.

The following letter has been received from A. H. Clark:

"I return an affirmative vote on the proposed program for the Detroit meeting. I sincerely hope that this program will be strictly adhered to, as I believe it is a long step in the right direction. I hope also that all the changes suggested by Mr. Mason in Council Letter No. 20 will be adopted, as I

am firmly convinced that such changes will lead to much improvement over the present proposed program for the Detroit meeting. With few exceptions, the proposed changes are so obviously, to me, the proper thing that argument seems unnecessary.

"There is one point I want to mention. No matter what the program is, how it is managed by the Council, whether it be short or long, whether there be conflicting sessions or not, there is one thing that soon or late must be done. That is this: Arrange your program before the meeting, publish it, *and then stick to it* at the meeting. What demoralizes the entire meeting, creating more confusion and dissatisfaction than all else put together, is the endless string of *changes* announced by the Local Secretary at the opening of every session. About the second afternoon of the meeting no one knows what the program is. This is the thing that must be done. The other things are really of minor importance."

The following communication has been received from Francis E. Stewart:

"In response to Letter No. 20, I am commenting upon some of the suggestions made by Harry B. Mason in his letter to the Council.

"Mr. Mason's suggestions on the whole are certainly excellent, but it would seem to me that possibly suggestion No. 5 should be modified in some way, that the Association may have the advantage of discussing important suggestions made in the reports of the committees. Suppose, for example, a committee on legislation or some other important subject makes a report which should be submitted to the general meeting for discussion and action; the suggestion No. 5 made by Mr. Mason does not provide in any way for bringing such reports before the house. The suggestion of the Committee might be of the greatest importance as relating to legislation pending in Congress, affecting in a vital manner the interests of the American Pharmaceutical Association, or of the pharmaceutical profession itself. The Committee making the report might have a very different opinion of the subject than the majority of the Association. I can even imagine a condition in which the Council itself might have a different opinion than the Association. How could such a subject be brought before the general meeting for discussion?

"In regard to Mr. Mason's suggestion No. 15, the Association would be perfectly safe to empower the general secretary to reject or reassign contributions as long as the present incumbent is retained in the secretary's chair, but it might be a very different matter if the secretary was a man of less judicial temperament and possibly biased for or against certain subjects that might be presented in papers for discussion by the Association. It would seem to me that no one person should have the power to reject a paper. This power should be vested in a committee very carefully selected by the Association, or the authority should be vested in the Council."

The following has been received from Lucius E. Sayre:

"Permit me to say I am in favor of the general principles suggested by H. B. Mason for injecting efficiency into the A. Ph. A., now needed to catch up with the modern ideas of effective and productive work.

"I should be sorry, however, to see the Section on Pharmacopoeia and Formularies discontinued. Even the *Materia Medica* and *Pharmacognosy* should be *tried out*.

"I am surprised that Mr. Mason did not suggest the discontinuance of the Historical Section, instead of the others mentioned. This section, while indeed very important, does not, to my mind, have the same element of productivity and efficiency in it as do the sections recommended to be dropped.

"I should be glad to have the Council consider seriously the recommendation of Mr. Mason and I, for one, would be glad to sacrifice some of my pet sections for the general good."

Motion No. 37 (Applications for Membership). You are requested to vote on the following applications for membership:

No. 161. Edgar Seiple LaWall, 626 Second St., Catasauqua, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 162. Joseph Hugh Cooney, 499 Columbus Ave., Boston, Mass., rec. by John G. Godding and Theodore J. Bradley.

No. 163. William Maurice Lange, 57 Dove St., Albany, N. Y., rec. by Warren L. Bradt and J. W. England.

No. 164. James Herbert Wood, 20 Broad St., Bloomfield, N. J., rec. by Garrett Byrnes and David Strauss.

No. 165. Emil Hermann Trumpold, 1108 Adams St., Dorchester, Mass., rec. by Elie H. LaPierre and Theodore J. Bradley.

No. 166. Charles Patrick Norton, 66 State St., Gt. Barrington, Mass., rec. by Theodore J. Bradley and C. H. Packard.

No. 167. Herman Jacob Epstein, 7 Page St., Boston, Mass., rec. by C. Herbert Packard and Theodore J. Bradley.

No. 168. Robert Edson Bemis, 7 Concord Square, Boston, Mass., rec. by C. Herbert Packard and Theodore J. Bradley.

No. 169. Floris Nagelvoort, 231 Van Dyke Ave., Detroit, Mich., rec. by W. Ohliger and H. M. Avery.

No. 170. D. Edmund Perrin, Fourteenth and Warren Ave., W., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 171. Mrs. M. E. Pinkerton, 179 National Ave., Detroit, Mich., rec. by Geo. W. Crane and Wm. A. Hall.

No. 172. Ernest Kimmich, care Parke, Davis & Co., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 173. Walter J. Turnbull, 1173 Hamilton Blvd., Detroit, Mich., rec. by Nathaniel H. Jones and Wm. A. Hall.

No. 174. Wirt P. Doty, 1913 Woodward Ave., Detroit, Mich., rec. by Nathaniel H. Jones and Wm. A. Hall.

No. 175. George M. Schettler, 55 West Fort St., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 176. Roy E. Bodimer, 381 Clay Ave., Detroit, Mich., rec. by Nathaniel H. Jones and Wm. A. Hall.

No. 177. John A. Greer, 898 Michigan Ave., Detroit, Mich., rec. by Geo. W. Crane and Wm. A. Hall.

No. 178. Joseph Altman, 919 Intervale Ave., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 179. Adolf Shnitter, 1424 Washington Ave., Bronx, New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 180. Frederick F. Alt, 208 East 84th St., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 181. Joseph S. Churgin, 210th St. and Gun Hill Road, New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 182. Herman Harold North, 164 Grant Ave., Jersey City, N. J., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 183. John Edward Stacey, Summer St., East Saugus, Mass., rec. by Theodore J. Bradley and John Godding.

No. 184. Cyrus L. Schlobach, 437 Northampton St., Easton, Pa., rec. by Paul B. Anspach and C. H. Packard.

No. 185. Arthur L. Pillsbury, 1401 Lawrence St., Denver, Col., rec. by F. W. Nitardy and Emmett Powers.

No. 186. J. Atlee Dean, 1809 Wallace St., Philadelphia, Pa., rec. by Charles H. LaWall and A. J. Standt.

No. 187. Everett I. Frasier, 577 Antoine St., Detroit, Mich., rec. by Oliver H. Grunow and Wm. A. Hall.

No. 188. James H. Joyce, 1023 Third Ave., Detroit, Mich., rec. by R. W. Rennie and C. A. Weaver.

No. 189. Frederick J. Henning, 697 Third Ave., Detroit, Mich., rec. by R. W. Rennie and C. A. Weaver.

No. 190. Mathew H. Douglas, 488 Lincoln St., Detroit, Mich., rec. by R. W. Rennie and C. A. Weaver.

No. 191. C. H. Potts, 561 Trumbull Ave., Detroit, Mich., rec. by R. W. Rennie and C. A. Weaver.

No. 192. Oliver H. Greenow, 93 Gratiot Ave., Detroit, Mich., rec. by Wm. A. Hall and L. A. Seltzer.

No. 193. Alfred Price Breitenbach, 199 Gratiot Ave., Detroit, Mich., rec. by Wm. A. Hall and L. A. Seltzer.

No. 194. Alexander Reid, 87 Henry St., Detroit, Mich., rec. by Wm. A. Hall and L. A. Seltzer.

No. 195. Robert W. Rennie, 771 Third Ave., Detroit, Mich., rec. by Wm. A. Hall and L. A. Seltzer.

No. 196. E. C. Kinsel, 24 and 26 Michigan Ave., Detroit, Mich., rec. by Wm. A. Hall and L. A. Seltzer.

J. W. ENGLAND,
Secretary of the Council.

415 North Thirty-third Street.

COUNCIL LETTER No. 24.

PHILADELPHIA, PA., May 30, 1914.

To the Members of the Council:

The following communication was received from Local Secretary Seltzer with reference to program for sixty-second annual meeting of the American Pharmaceutical Association, after the issuance of Council Letter No. 23 (May 28, 1914), containing amendments by H. B. Mason and J. A. Koch to program:

DETROIT, MICH., May 28, 1914.

Mr. J. W. England, Secretary of the Council,
Philadelphia, Pa.:

DEAR SIR—At a meeting of the local committee called for the purpose of considering the program submitted in Council Letter No. 22, it was deemed advisable to suggest a few changes. As modified, the program would read as follows:

Monday:

- 9.00 A.M. Meeting of Council.
- 3.00 P.M. First General Session.
Meeting of Committee on Nomination.
- 7.30 P.M. House of Delegates.
- 8.30 P.M. Joint Reception of Presidents of A. Ph. A. and M. S. P. A., followed by ball.

Tuesday:

- 9.30 A.M. Second General Session.
First General Session M. S. P. A.
- 10.00 A.M. National Association of Boards of Pharmacy.
- 10.00 A.M. Ladies Shopping and Visiting.
- 1.30 P.M. Ladies Boat Ride to Bois Blanc Island and Supper.
- 2.00 P.M. National Association of Boards of Pharmacy.
- 2.30 P.M. Scientific Section (1).
Joint Session of Commercial Section and M. S. P. A. (1)
- 7.30 P.M. House of Delegates.
Meeting of Council.

Wednesday:

- 9.30 A.M. Section on Education and Legislation (1).
Section on Pharmacopœias and Formularies (1).
Commercial Section (2).
National Association of Boards of Pharmacy.
- 10.00 A.M. Conference of Pharmaceutical Faculties.
- 12.30 P.M. Luncheon of College Alumni.
- 2.00 P.M. National Association of Boards of Pharmacy.
- 2.30 P.M. Women's Section (1).
Section on Practical Pharmacy and Dispensing (1).
- 2.30 P.M. Scientific Section (2).
- 7.30 P.M. Meeting of Council.
Theatre Party for Ladies.
Smoker for Men.

Thursday:

- 9.30 A.M. Section on Education and Legislation (2).
 Scientific Section (3).
 Joint Session of Section Practical Pharmacy and Dispensing and M. S. P. A. (2).
 10.00 A.M. National Association of Boards of Pharmacy.
 1.30 P.M. Excursion for Everybody to St. Clair Flats.

Friday:

- 9.30 A.M. Historical Pharmacy (1)
 Section on Pharmacopœias and Formularies (2).
 Women's Section (2).
 2.30 P.M. General Auto Ride
 7.30 P.M. Reorganization of Council.
 8.00 P.M. House of Delegates.
 8.30 P.M. Joint Session of Section on Education and Legislation, A. C. P. F. and N. A. B. P.

Saturday:

- 9.00 A.M. Meeting of Council.
 10.30 A.M. Final General Session.

In submitting the above program, we desire to say that each item of the program was very carefully considered, and the changes made were found necessary to meet the conditions, as we find them, some of which are beyond our control. The only exception to this is our suggestion to revert to our former custom of having the First General Session at 3.00 p. m. Monday, and the House of Delegates at 7.30 p. m.

Our reason for offering this suggestion is that we fear that the General Session held at 7.30 will seriously interfere with the reception in the evening. Even if we succeed in transferring much of the work usually done in the General Session to the House of Delegates, the one and a half hours allotted will not be sufficient to do what is left, including the work of the Nominating Committee. But even supposing that it were possible to transact all this business in one and a half hours, this brings us right up to the moment of the opening of the reception, 9.00 p. m. Since the room in which the session is to be held is the one in which the reception is to be held, it will be necessary to clear the room for that purpose, which takes time, and furthermore those who are active in the work of the session are also prominent at the reception, and they will require some time between these two engagements for preparations.

It seems to the committee that it will require but little mathematical calculation on the part of anyone experienced in how things move at such times to come to the conclusion that to hold the First General Session at 7.30 p. m. will result in pushing the opening of the reception well into the night, and in fact spoil that function, which to some of the visitors is a very important one.

On the other hand, should the House of Delegates meet at 7.30 and find it necessary to continue its deliberations beyond the hour

of the reception, it could do so, as its officers are not the officers of the Association whose presence at the reception is necessary.

Inasmuch as a serious effort is going to be made to run our program on schedule time, let us not handicap ourselves in the start by making a schedule which it will be a mathematical impossibility to live up to.

I, therefore, move the adoption of the above program as a substitute for motion No. 35.

Yours very truly,
 (Signed) LEONARD A. SELTZER.

The above motion will be known as *Motion No. 38 (Substitute Motion for Motions Nos. 35 and 36)*. Do you favor the adoption of the same?

CAMDEN, N. J., May 28, 1914.

To the Members of the Council of the American Pharmaceutical Association:

GENTLEMEN—Council Letter No. 21 contains a proposition from the William S. Merrell Chemical Company to assign a patent on Antiseptic Leaves to the American Pharmaceutical Association. As this matter is presented in this letter, several conditions are named. These conditions should receive the most careful consideration by the members of the Council before the proposition is accepted.

The assignment of this patent of the William S. Merrell Chemical Company is to be effective only "so far as the Association is concerned, provided this form is made official." Further, the Association is requested to formulate a price protection plan.

The first of these conditions seems to indicate that the assignment is made for the purpose of securing official recognition for this form of bichloride antiseptic medication. The Committee of Revision of the United States Pharmacopœia have voted to introduce a Bichloride of Mercury Antiseptic Tablet in deference to the extensive use of such tablets and the necessity for a legal standard therefor. I doubt if the Bichloride Antiseptic Leaf has yet attained such popularity or use as to receive official recognition, and I do not know that such a proposition has been presented to the Committee of Revision. It is evident that the American Pharmaceutical Association could not insure the pharmacopœial acceptance of any form of medication and this should not be made a condition of the Association's acceptance of the assignment of the patent.

The second proposition introduces another complication. The courts have not looked favorably upon any of the plans evolved for maintaining prices and this does not appear to be a proper field of work for the American Pharmaceutical Association to engage in.

It is intimated that the proposition of the William S. Merrell Chemical Company is on a par with that of the Norwich Pharmacal Company. That the members of the Council may have a clear understanding of the difference, I will explain that in the several conferences between the officers of the Nor-

wich Pharmacal Company and your President and Vice-President Apple, it was made very clear that the American Pharmaceutical Association could not be induced to engage in any commercial enterprise; that its acceptance of the assignment of their patent could only be accepted by the Association for the purpose of "promoting the public welfare" in accordance with the objects and aims set forth in the Constitution. The proposition which the Norwich Pharmacal Company submitted is a clean, clear, free-will offering, not associated with any conditions. It was the voluntary relinquishment of rights in the invention for the humanitarian purpose of safeguarding human life. The only reservation made was the right of manufacture by the inventor to be enjoyed in common with other manufacturers under such regulations as the Association may adopt to protect its rights under the U. S. patent laws.

I have no personal interest in any of these forms of Mercury Bichloride medication and am only concerned that the acceptance of such proposition shall be without conditions that might involve the Association in controversies or lawsuits.

Yours respectfully,
(Signed) GEORGE M. BERINGER.

J. W. ENGLAND,
Secretary of the Council.

415 North Thirty-third Street.

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COUNCIL LETTER No. 25.

PHILADELPHIA, PA., June 11, 1914.

To the Members of the Council:

Motions No. 34 (Election of Members; Applications Nos. 124 to 160, inclusive), No. 37 (Election of Members. Nos. 161 to 196, inclusive), and No. 38 (Substitute Motion for Motions No. 35 and 36) have each received a majority of affirmative votes.

Professor J. A. Koch, Chairman of the Executive Committee of the American Conference of Pharmaceutical Faculties, asks that provision be made in the program adopted under Motion No. 38 for a meeting of the Conference on Tuesday evening, August 25, at 8:30 p. m., and, if there is no objection, this will be done.

The following communication has been received:

COLUMBUS, OHIO, June 7, 1914.
Council of the American Pharmaceutical Association:

GENTLEMEN—The undersigned, a Committee representing and appointed from a meeting of the pharmacists of Columbus, Ohio, and its vicinity, called for the purpose of such action, respectfully petition your honorable body for its approval of the formation of a Local Branch of The American Pharmaceutical Association in and about this city, to be known as the Columbus Branch of the American Pharmaceutical Association.

They respectfully represent in support of their petition that they have received the pledges of the following-named "members of the Association in good standing,"—in accordance with the provisions of Article 1, Chapter XII of the By-Laws of the Association,—that they are desirous that such a Branch shall be formed in this vicinity:

Ackermann, P. J., Columbus.
Ashbrook, C. S., Mansfield
Bagley, Anna G., Columbus.
Beal, J. H., Scio.
Creighton, Mary L., Scio.
Dye, Clair A., Columbus.
Fickhardt, F. L., Circleville.
Ford, M. N., Columbus.
Franklin, Peter P., Columbus.
Hansen, M. K., Columbus.
Harp, L. D., Columbus.
Harrington, E. W., Columbus.
Hatton, E. W., Columbus.
Howson, A. B., Chillicothe.
Hauenstein, Sidney, Bluffton.
Hoffman, C. O., Arcanum.
Johnson, R. V., Columbus.
Kauffman, George B., Columbus.
Markworth, O. S., Columbus.
Marshall, E. C., Columbus.
McClintock, C. W., Columbus.
Oole, Edward, Columbus.
Powell, Fred A., Circleville.
Reed, C. D., Pomeroy.
Spease, Edward, Columbus.
Topping, George B., Columbus.
Webb, E. N., Columbus.

The Committee believe, should this petition be granted by your honorable body, that good results will result from the formation of this Branch, and they pledge themselves to make it a credit to the Association and to American Pharmacy.

Trusting that this petition will be granted, we beg to sign ourselves.

Yours very sincerely,
GEO. B. TOPPING,
EDWARD SPEASE,
ERNEST C. MARSHALL,
Committee.

Motion No. 39 (Organization of Columbus Branch, A. Ph. A.) Do you approve of the organization of the Columbus Branch of the American Pharmaceutical Association?

J. W. ENGLAND, Secretary.

415 N. 33d St.

<>

COUNCIL LETTER No. 26.

PHILADELPHIA, PA., June 18, 1914.

To the Members of the Council:

Professor E. Fullerton Cook, Chairman of Section of Pharmacopœias and Formularies, sends the following communication:

"The Section on Pharmacopœias and Formularies of the A. Ph. A. has planned as a feature of the meeting in Detroit a exhibition of the new or modified U. S. P. and N. F. preparations. It is believed that the plan,

as outlined below, will materially assist in familiarizing pharmacists with the new preparations and at the same time check up the formulas to avoid errors which may otherwise creep into the new books.

It is proposed to ask a number of pharmacists to each prepare twelve preparations. The committee will provide uniform bottles and the complete formula will be pasted on each bottle bearing a type-written label, this label to have upon it, title, ingredients, and directions for making. These preparations will then be exhibited at Detroit and those who have made the preparations will be invited to send in suggestions or comments.

I am writing this to you at the suggestion of Professor Beal to ask the Council for permission to give this amount of publicity to the new formulas of the N. F., and also for an appropriation to pay for the necessary bottles, label, type-writing and transportation charges. The Board of Trustees of the U. S. P. have sanctioned the plan for the U. S. P. preparations and appropriated \$50, or such part thereof as may be necessary, for the expenses on the U. S. P. part of the work.

Will you kindly put this matter before the Council so that, if it is approved, I may proceed at once. The expense is estimated to be within \$50."

The appropriation is approved by the Committee on Finance. Do you approve of the appropriation? This will be regarded as *Motion No. 40 (Appropriation of \$50 or less to Section on Pharmacopoeias and Formularies)*.

With reference to the proposition of the Wm. S. Merrell Chemical Co. (Council Letter No. 21, 53), and its offer of assignment of a patent on Antiseptic Leaves to the American Pharmaceutical Association, and President George M. Beringer's comments on the same (Council Letter No. 24, 63), Professor Julius A. Koch, to whom the original communication was addressed, writes as follows:

"I do not think that Mr. Beringer's objections are well founded. The assignment has been made in identically the same form and wording as that used by the Norwich Chemical Co. in their assignment. The Merrell Co. merely asks, that if it is within the province or power of the American Pharmaceutical Association, that their efforts be used to protect the retail pharmacist. This is not contrary to the policy of the Association which has for its object the betterment of Pharmacy.

If you have not as yet received a motion to accept the generous offer of the Wm. S. Merrell Co., Dr. Beal has asked me to present such a motion in his name and I will second the same."

The motion submitted is as follows:

(1) *Resolved*, That the American Pharmaceutical Association accept the complete assignment of the patent rights of the Wm. S.

Merrell Chemical Co., in and to a design patent for a new, original and useful improvement in packages for Antiseptic Poisons, serial number 817,364, as tendered by the Wm. S. Merrell Chemical Co. in their communication to Professor Julius A. Koch, dated May 15, 1914, and presented in Council Letter No. 21.

(2) *Resolved*, That the American Pharmaceutical Association hold such design patent exclusively for the free use of the medical and pharmaceutical professions of the United States, without restrictions, except such as may be necessary to prevent possible abuse through use of the design for non-poisonous substances.

(3) *Resolved*, That the American Pharmaceutical Association hereby tenders to the Wm. S. Merrell Chemical Co. a vote of thanks for their generous and public spirited offer.

The above will be regarded as *Motion No. 41 (Assignment of Patent Rights for Improved Package for Antiseptic Poisons)*.

The following communication has been received from Mr. Martin I. Wilbert:

"In the Bulletin of Pharmacy for June, 1914, Mr. Harry B. Mason publishes a copy of a letter to you in which he makes certain suggestions in regard to prospective changes in the meetings of the American Pharmaceutical Association. In a general way I wish to heartily indorse the suggestions and will endeavor to outline as nearly as possible my thoughts in regard to practical changes that should be made at the present time or in the very near future.

As I see it, there is absolutely no reason why the American Pharmaceutical Association should not conclude its meetings in four days allowing the two additional days of the week for the meetings of the Conference of Faculties and the Association of Boards of Pharmacy. My suggestions for a program would be as follows:

Monday, 9 a. m., Council Meeting.

Monday, 2 p. m., first general session restricted to the annual address of the President and the usual preliminaries for the selection of members of the nominating committee.

Intermission of fifteen minutes for the selection of members of the nominating committee, reconvening the Association for the second general session. At this second general session, the reports of committees should be received and referred to either the Sections of the Association or to the Council.

Monday evening, 8 p. m., meeting of the nominating committee; 9 p. m., reception.

Tuesday, 9-12 a. m., simultaneous sessions of the Sections on Scientific Papers, Education and Legislation, Practical Pharmacy, and Commercial Interests.

Tuesday, 2-5 p. m., simultaneous sessions of all Sections.

Tuesday evening, 8 p. m. to (?) a. m., meeting of the Council.

Wednesday, 9-12 a. m., simultaneous sessions of all the Sections.

Wednesday, 2-5 p. m., simultaneous sessions of all the Sections.

Wednesday evening, 8 p. m. to (?) a. m., meeting of the Council.

Thursday, 9-12 a. m., simultaneous sessions of all Sections.

Thursday p. m., concluding session of the Association, report on the proceedings of the Council, followed by adjournment.

It would, of course, be immaterial whether the meetings opened on Monday, Tuesday or Wednesday, the important matter being to concentrate the meetings and to eliminate the useless frills.

A program along the lines suggested would involve considerable pruning that would, I think, materially improve the proceedings of the Association. It would eliminate, among others, the Section on Pharmacopœias and Formularies, which I believe is quite unnecessary. Personally, I would prefer to restrict the activities of the Association to three Sections and to eliminate the so-called Section on Commercial Interests. The commercial interests of the pharmacist are either practical pharmacy or they are not pharmaceutical at all, and if not pharmaceutical have no room and no place in the American Pharmaceutical Association. The discussion of profitable sidelines, whether of the lunch-counter type, of the chicken-feed variety, or fake jewelry have little or nothing to do with pharmacy and should not be recognized in an organization designed primarily to discuss pharmaceutical problems.

My program would also eliminate the House of Delegates which has no legitimate room or place for existence, and in view of the fact that the Council already contains some thirty-eight or forty members with provisions for a further increase, I am inclined to believe that the latter body is quite sufficiently representative of the membership at large to take care of any business that may be referred to it.

One provision that I would like to see adopted in connection with the work of the Council is the recognition of alternates for members of the Council who are unable to attend the annual sessions. With a provision for alternates all sections of the country in which real live pharmacists can be found would be adequately represented and the members at large could readily intrust any business of the Association to such a representative Council.

This program also eliminates the so-called Women's Section which, as I understand, is not legally a part of the Association at the present time. While there can be absolutely no objection to an official or non-official Women's Auxiliary, there is, as I understand it, no provision in the constitution or by-laws of the Association that provides for election or recognition of non-members of the Association as members of a Section or as officers of a Section.

I most heartily endorse the proposition to

insist that a full and complete program of all the communications to be presented be prepared in advance so that the members present at a meeting will know exactly what they may expect. I would even go further, however, and limit the number of papers to be presented at any one session and insist that time be allowed for discussion. If such a program is prepared and lived up to, I am sure that the members present at a meeting will be in a position to be benefited by attending the Section sessions which offer the most interesting material and the meetings of the Association will tend to the further elimination of unnecessary duplication.

I quite agree with others that meetings of the American Pharmaceutical Association should be devoid of what has been referred to as "gabfests" and should be restricted to the consideration of really worth while material that will be a credit to the Association and make for progress in the sciences of our calling."

J. W. ENGLAND,
Secretary of the Council.

415 N. Thirty-third Street.

The Pharmacist and the Law

PHARMACY LAW OF PORTO RICO.

LEY

PARA ENMENDAR LA SECCION 6 DE LA "LEY AUTORIZANDO LA ORGANIZACION DE UNA JUNTA DE FARMACIA," APROBADA EN 8 DE MARZO DE 1906, Y ENMENDADA 10 DE MARZO DE 1910.

Decretase por a Asamblea Legislativa de Puerto Rico:

Sección 1.—Que la Sección 6 de la "Ley autorizando la organización de una Junta de Farmacia," aprobada en 8 de marzo de 1906 y enmendada en 10 de marzo de 1910, se entienda redactado como sigue:

"Sección 6.—Los individuos que estudien en Puerto Rico la carrera de farmacia deberán presentar antes de recibir su licencia, certificación firmada por un licenciado en farmacia, haciendo constar que ha practicado en su oficina de farmacia por un periodo no menor de dos años. Deberán examinarse de las asignaturas comprendidas en el siguiente plan de estudios:

Primer curso.—Química Inorgánica Física, Higiene, Historia Natural (Botánica, Zoología y Mineralogía).

Segundo curso.—Química Orgánica, Fisiología, Materia Médica o Farmacéutica Ani-

mal y Mineral, Materia Médica o Farmacéutica Vegetal.

Tercer curso.—Práctica de Operaciones Farmacéuticas y Reconocimiento de Drogas, Estudio de la Farmacopea de los Estados Unidos, Toxicología e Incompatibilidades."

Sección 2.—Toda ley o parte de ley que se oponga a la presente queda derogada.

Sección 3.—Esta Ley comenzará a regir desde su aprobación.

Aprobada, 7 de marzo de 1912.

TRANSLATION.

To amend Sec. 6.—This Law authorized the organization of a Council in Pharmacy. Approved on the 8th day of March, 1906, and amended on the 10th day of March, 1910.

"Decreed by the Assembly Legislative of Porto Rico."

Sec. 1.—That Sec. 6—of the Law authorizing the organization of a Council in Pharmacy approved on the 8th day of March, 1906, and amended on the 10th day of March, 1910, that the following methods shall be adopted.

Sec. 6.—Those individuals who study in Porto Rico the profession of Pharmacy shall find it a duty to present, before receiving his license, a certificate signed by a licentiate in whose Pharmacy he has practiced for a period of two years, and he must also pass examinations in the following studies:

First Course.—Inorganic Chemistry, Physics, Hygiene, Natural History, including Botany, Zoology and Mineralogy.

Second Course.—Organic Chemistry, Higher Physics, Chemistry, Materia Medica, Animal, Mineral and Vegetable Pharmacology.

Third Course.—Practice in the operation of Pharmacy and be able to identify the different drugs; also in the study of the Pharmacopoeia of the United States, Toxicology and Incompatibilities.

Sec. 2.—The whole Law or part of the Law that is opposed at present is waiting amendment.

Sec. 3.—This Law begins to govern after being approved.

Approved, March 7, 1912.

THE PORTO RICO COUNCIL OF PHARMACY.

President—Pedro Julia, San Juan.

Secretary—Jose Monclova, Rio Piedras.

Treasurer—Ramon L. Daubon, San Juan.

Members—Clemente Ramirez, Manati; J. Calderon Aponte, Catano.

Meetings:—

January, March, April.

June, September, November.

<>

LIABILITY OF DRUGGIST FOR CLERK'S MISTAKE.

Action was brought for death caused by taking tartar emetic given the deceased in mistake for cream of tartar. The answer denied the authority of the assistant to sell drugs. The defendant, who was a practicing physician, was in partnership with another in the drug business. His time was principally devoted to the practice of his profession, and his partner looked after the drug store. The firm employed a clerk, about 18 years of age, who was not a registered pharmacist. The deceased, with her brother, drove to the store, where, at her request, the brother asked the clerk, who was alone in the store, for 10 cents worth of cream of tartar. The clerk by mistake gave him tartar emetic, wrapping it up in an ordinary paper package, without a label. She drank this dissolved in water, and died in consequence. There was no proof that the deceased's brother, when he entered the store, knew, or had any reason to surmise, that there was any limitation on the clerk's authority. If one enters a store, the court said, and finds a person apparently in charge, in the absence of notice to the contrary, he has a right to presume that such person is authorized to sell any ordinary article of merchandise kept for the purpose of sale, and to rely upon upon his procuring and furnishing the article asked for. It is a matter of common knowledge that there is a class of chemical preparations such as bicarbonate of soda, chloride of lime, copperas, and cream of tartar, which, while in one sense drugs, are in such general use for domestic and other purposes as often to be sold in general stores in the smaller towns, and which require no special skill or knowledge. Even though the clerk disobeyed his instructions, it is a settled principle that a master is liable for the consequences of the negligent conduct of his servant, committed in the course of his employment, although the particular act complained of was unauthorized by the master, and was done in disobedience to his commands.

Judgment for the plaintiff was affirmed.

Moses v. Mathews, Nebraska Supreme Court, 146 N. W. 920.

SALE OF STOCK OF DRUGS—FRAUD— CANCELLATION.

Lewis and Rea entered into a written contract by which Lewis was to trade Rea certain lands and \$2,100 for a stock of drugs. Lewis delivered a deed to one tract of the land, and paid Rea \$1,000 in money, and took possession of the goods. While running the store, and perfecting title to the other lands, Rea fraudulently obtained possession of the stock, and refused to proceed further with the trade. Lewis sued for rescission of the contract, cancellation of his deeds, and a return of the money he had paid. Lewis did not, however, offer in his petition to restore to Rea a small amount of money received by him on the sale of drugs, etc., while he was in possession of the store. It was held that, as Rea had in his hands moneys paid by Lewis on the contract far in excess of the money Lewis had received, it was not vitally necessary that an offer to restore be stated in the petition.

Rea v. Lewis, Oklahoma Supreme Court, 139 Pac. 977.



UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service for the seven days ended May 20, 1914:

Assistant Surgeon-General L. E. Cofer. Granted 3 days' leave of absence from May 20, 1914. May 19, 1914.

Senior Surgeon S. D. Brooks. Detailed to accompany the Health Officer of Los Angeles, Cal., on inspection of Owens river water supply system. May 19, 1914.

Surgeon L. L. Williams. Detailed to attend the meeting of the American Medico-Psychological Association, to be held at Baltimore, Md., May 26-29, 1914. May 16, 1914.

Surgeon C. P. Wertenbaker. At the request of the Secretary of the State Board of Health of Vermont, detailed to attend the meeting of the Vermont Health Officers' Association to be held at Bellows Falls, Vt., May 21, 1914. May 13, 1914.

Surgeon H. S. Cumming. Detailed to attend the meeting of the Oyster Growers' and Dealers' Association of North America at Atlantic City, N. J., May 19-20, 1914. May 12, 1914.

Surgeon Carroll Fox. On request of the

State Board of Health of Minnesota, directed to proceed to that State to make, in co-operation with that board, an investigation of sanitary administration in Minnesota. May 12, 1914.

Passed Assistant Surgeon R. E. Ebersole. Granted 7 days' additional leave of absence from May 21, 1914. May 18, 1914.

Passed Assistant Surgeon H. M. Manning. Granted 10 days' leave of absence from June 3, 1914. May 14, 1914.

Assistant Surgeon D. C. Turnipseed. Granted 7 days' leave of absence enroute to station. May 18, 1914.

Assistant Surgeon M. V. Safford. Directed to proceed to Quincy, Mass., to investigate suspected case of typhus fever. May 18, 1914.

Sanitary Engineer Joseph A Le Prince. Directed to proceed via Washington, D. C., to Erie, Pa., to make an inspection of Presque Isle in respect to the prevention of disease-bearing mosquitoes thence via Washington, D. C., to Raleigh, N. C., for duty in connection with malaria investigations. May 14, 1914.

BOARD CONVENED.

Board of commissioned medical officers convened to meet at the Bureau, on call of the Chairman, to prepare questions for the written examination of Pharmacist C. Stier to determine his fitness for promotion to the grade of Pharmacist of the first class. Detail for the Board: Assistant Surgeon-General W. C. Rucker, Chairman; Passed Assistant Surgeon Hugh de Valin, Recorder. May 18, 1914.

Official:

RUPERT BLUE,
Surgeon-General.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended June 3, 1914:

Assistant Surgeon-General W. C. Rucker. Detailed to attend a meeting of the Surgeons' Association of the Baltimore and Ohio Railroad at Washington, D. C., June 18-20, 1914, and deliver an address on the subject of "Railway Sanitation." May 27, 1914.

Directed to proceed to Charleston, S. C., and deliver an address before the graduating class of the Medical Department of the University of South Carolina, June 4, 1914. May 27, 1914.

Surgeon J. A. Nydegger. Detailed to represent the Service at the annual meeting of the Medical and Chirurgical Faculty of

Maryland at Baltimore, Maryland, April 28-30, 1914. April 25, 1914.

Surgeon M. J. White. Directed, at the request of the State Board of Health of Kansas, to attend the annual conference of health officers to be held at Rosedale, Kansas, during the week beginning June 8, 1914, for the purpose of delivering a series of lectures on public health subjects. May 27, 1914.

Passed Assistant Surgeon W. H. Frost. Granted 1 day's leave of absence, May 31, 1914, under paragraph 193, Service Regulations. May 31, 1914.

Passed Assistant Surgeon E. H. Mullan. Directed to proceed to Baltimore, Md., about June 2, 1914, for the purpose of assisting Surgeon J. A. Nydegger in the examination of 1700 aliens due to arrive about that time. May 28, 1914.

Granted 10 days' leave of absence, on account of sickness, from May 12, 1914. May 26, 1914.

Passed Assistant Surgeon R. A. Herring. Granted 5 days' leave of absence from June 1, 1914. May 26, 1914.

Passed Assistant Surgeon J. R. Hurley. Detailed in addition to other duties, to assume the position of Superintendent of Hygiene and Sanitation Exhibits in the Departments of Education and Social Economy of the Panama-Pacific International Exposition. May 26, 1914.

Assistant Surgeon M. H. Neill. Granted 6 days' leave of absence from May 26, 1914, under paragraph 195, Service Regulations. May 25, 1914.

Assistant Surgeon J. H. Smith, Jr. Directed to report to the Superintendent, School of Instruction, Fort Trumbull, New London, Conn., for duty on Revenue-Cutter "Itasca" during the summer. June 3, 1914.

Assistant Surgeon John Sundwall. Directed to proceed from Lawrence to Rosedale, Kansas, in time to deliver lectures before the Annual School of Health Officers of Kansas, June 8-10, 1914, on the subject of pellagra thence to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. May 27, 1914.

Pharmacist J. V. La Grange. Granted 5 days' leave of absence from May 25, 1914, under paragraph 214, Service Regulations. May 25, 1914.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended June 10, 1914:

Assistant Surgeon-General J. W. Kerr. Detailed to attend the meeting of the Massachusetts Medical Society at Boston, Mass., June 9-10, 1914, for the purpose of presenting an address on the relation of physicians to public health organization and administration. June 6, 1914.

Surgeon P. M. Carrington. Granted 12 days' leave of absence from June 8, 1914. June 3, 1914.

Surgeon G. B. Young. Granted 1 year's leave of absence, without pay, from July 1, 1914. June 6, 1914.

Surgeon B. W. Brown. Directed to proceed to Boston, Mass., and assume charge of the Marine Hospital at that port. June 6, 1914.

Surgeon T. Clark. Directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for the purpose of familiarizing himself with methods followed in making examinations for mental disorders. June 4, 1914.

Surgeon L. L. Lumsden. Upon completion of preliminary sanitary survey in Lawrence County, Indiana, directed to proceed to Mississippi, with the force under his charge, for the purpose of making a similar survey of Union and another county of that State. June 3, 1914.

Surgeon John F. Anderson. Directed to proceed to Wilmington, N. C., and Savannah, Ga., for inspection of Service operations in field investigations of the public health. June 5, 1914.

Surgeon W. C. Billings. Granted 3 days' leave of absence from June 5, 1914, under paragraph 193, Service Regulations. June 4, 1914.

Surgeon J. Goldberger. Relieved from duty as member of board on new "Nomenclature of Diseases." June 5, 1914.

Surgeon J. W. Schreschewsky. Relieved from duty as recorder of board on new "Nomenclature of Diseases." June 5, 1914.

Passed Assistant Surgeon R. H. Creel. Directed, at the request of the Efficiency and Economy Committee of Illinois, to proceed to Springfield and other points in that State to make an investigation of sanitary administration and the laws under which it is conducted. June 6, 1914.

Passed Assistant Surgeon R. E. Ebersole. Granted 7 days' leave of absence from June 3, 1914, under paragraph 195, Service Regulations. June 4, 1914.

Passed Assistant Surgeon A. D. Foster. Upon completion of sanitary inspections in South Carolina, relieved from duty at Marine Hospital, New Orleans, La., and directed to proceed to Washington, D. C., and report to the Bureau for temporary duty. June 2, 1914.

Passed Assistant Surgeon N. Roberts. Directed to proceed to Philadelphia, Pa., and report to Senior Surgeon Fairfax Irwin for temporary duty in fumigation of vessels at that port. June 3, 1914.

Passed Assistant Surgeon E. R. Marshall. Relieved from duty at Honolulu, Hawaii, and directed to proceed to Providence, R. I., and assume charge of the Service at that port.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.



ROBINSON, D. W.,

From Ft. Mills, Corregidor, P. I.

To Sykesville, Maryland.

JACKMAN, WILBUR F.,

From Detroit Coll. of Med., Detroit, Mich.

To 69 Medbury Ave., Detroit, Mich.

CAMPBELL, ANDREW,

From 530 Duquesne Way, Pittsburgh, Pa.

To 530 Fernando St., Pittsburgh, Pa.

TRURY, W. G.,

From Penn. and West St., Wilksburg, Pa.

To Presbyterian Hospital, Pittsburgh, Pa.

BLAKE, H. W.,

From 21 Mass. Ave., Boston, Mass.

To 1096 Commonwealth Ave., Boston, Mass.

MERRELL, CHARLES G.,

From P. O. Box 432, Cincinnati, Ohio,

To 3595 Wilson Ave., Avondale, Cincinnati, Ohio.

BAILEY, FREDERICK,

From 65 Merrimack St., Lowell, Mass.

To Chelmsford, Mass.

HAYWOOD, S. B.,

From 34 Willis St., Detroit, Mich.

To 1091 Second St., Detroit, Mich.

LIEBER, JEWEL C.,

From 1301 Euclid Ave., Massillon, Ohio.

To Srgt. Post Hosp., Ft. Sam Houston, Texas.

MCDANIEL, J. R.,

From 214 Ave.

To 214 Second St., N. Nashville, Tenn.

CLARK, AMOS W.,

From Care Post Master, Manila, P. I.

To Gen. Del., Yale, Ills.

REUM, A. W.,

From 1271 Third Ave., San Francisco, Cal.

To 1291 Stanyan St., San Francisco, Cal.

ARMSTRONG, C. E.,

From Bonne Terre, Mo.

To West Plains, Mo.

LAMAS, WM. R.,

From 8-14 Johnson St., Newark, N. J.

To 364 No. Seventh St., Newark, N. J.

HOWARD, JAMES D.,

From Etawah, Tenn.

To Andrews, No. Carolina.

CHISM, J. S.,

From 155 N. Main St., Wichita, Kans.

To 150 N. Main St., Wichita, Kans.

HARBOLD, JOHN F.,

From York, Pa.

To York, Pa., R. 12.

SEYFERT, PAUL,

From Bradentown, Fla.

To Thiensville, Wis.

POSEY, H. G.,

From P. O. Box 988, San Antonio, Texas.

To 1128 Peniston St., New Orleans, La.

DRUEL, LOUIS A.,

From 2000 No. Park Ave., Chicago, Ill.

To 1229 Wilson Ave., Chicago, Ill.

MAYER, JOSEPH L.,

From 200 Broadway, N. Y.

To 340 West 4th St., N. Y.

REISER, PHILIP,

From 562 Auburn St., Camden, N. Y.

To 588 Carman St., Camden, N. Y.

RICE, HERBERT E.,

From 169 Main St., Nashua, N. H.

To 55 Main St., Nashua, N. H.

BROMME, WILLIAM L., PH. G.,

From Glasgow, Montana.

To Kalispell, Montana, Care Kalispell Drug Company.

CARROLL, B. H.,

From 4734 17th Ave. N. E., Seattle, Wash.

To Colville, Wash.

SHIPE, COLUMBUS A.,

From Annona, Texas.

To San Marcos, Texas.

JOSEPHANS, R.

From 1601 W. North Ave., Chicago, Ill.

To 1606 W. North Ave., Chicago, Ill.

BODEMANN, WILHELM,

From Hyde Park, Chicago, Ill.

To 5018 Lake Park Ave., Chicago, Ill.

DECEASED SINCE MAY 18, 1914.

SKELLY, J. J., New York, N. Y.

RESIGNED SINCE MAY 18, 1914.

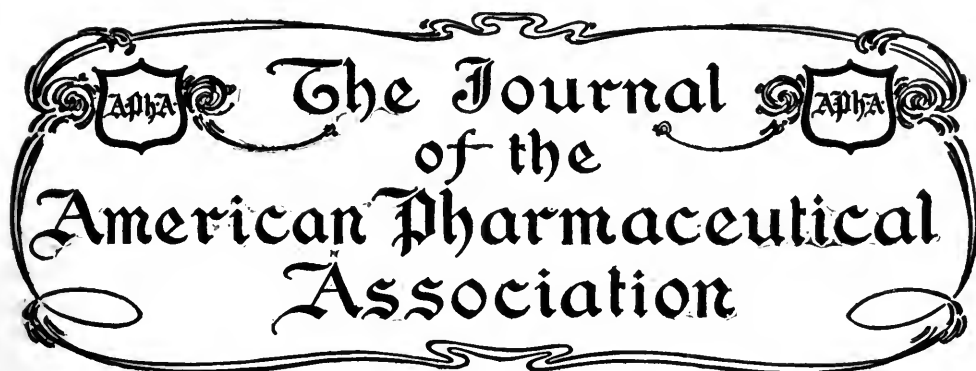
KIMBERLY, CHARLES, Philadelphia, Pa.

WRIGHT, JAMES T., Newport, R. I.

GEORGE MAHLON BERINGER, Ph. M.*
SIXTY-FIRST PRESIDENT
AMERICAN PHARMACEUTICAL ASSOCIATION

* Philadelphia College of Pharmacy.





The Journal of the American Pharmaceutical Association

Volume III

AUGUST, 1914

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THE LEGISLATIVE PROBLEMS OF PHARMACY.*

JAMES H. BEAL, SC. D., LL. D.

Our forefathers placed their trust in an over-ruling Providence; the present generation relies mainly upon the legislature.

Our grandparents believed that the best method of meeting the difficulties of life was by the cultivation of the habits of thrift, economy and self-reliance, and that the proper remedy for social evils was the development of higher standards of citizenship, and an enlarged appreciation of the individual's duty to the state: now we are taught that the various difficulties of human life can be eliminated, and all the ills of society cured, by act of Congress or General Assembly.

The American system of commonwealths was established upon the theory that the best government was that which afforded the citizen the largest field for individual initiative and the most untrammelled opportunity for working out his own ideals of prosperity and happiness. So far have we drifted from this ancient and wholesome doctrine, that we are now attempting to make each citizen a ward of the state, and to guard and direct his every act and ambition, as if he were an irresponsible and heedless infant. We are piling statute upon statute, adding bureau to bureau and official to official, until the liberty of individual action and the responsibility of the citizen, are becoming obscured in a maze of artificial duties and scheduled prohibitions.

For morals we are beginning to substitute the provisions of statute law; and

*An address delivered before the North Carolina Pharmaceutical Association, June 17, 1914.

for the dictates of conscience, the arbitrary rulings of some autocratic bureau-official.

The American people have become possessed of a perfect fury for legislating. No matter what the difficulty, whether of a particular class or of the body politic, whether economic, social or moral, whether the temporary difficulties, arising from the changing forms of industry or commerce, or the permanent difficulties due to the inherent qualities of human nature, the first, and almost the only thought, is to appeal to the law-making bodies for relief.

No member of any legislature can find the time to even read, much less to digest and understand, the provisions of all the measures upon which he is asked to vote, each one of which, if enacted, would seriously affect, in greater or less degree, the liberty and possessions of every citizen of the state.

The modern social-industrial-commercial system constitutes an enormous complex which defies comprehension or analysis. Every new law introduces new wheels and cogs, the ultimate effect of which upon the existing complex, it is impossible to foresee, which often throws "out of gear" some of the most useful parts of the social machine, these dislocations calling for fresh amendments, so that the legislation-mad reformers are continuously chasing themselves around a circle of their own blunders.

Granting that our highly complex society needs more regulation than the comparatively simple social organization of a century ago, it cannot be denied that the annual flood of new laws is far beyond reason or necessity.

The courts are clogged with the consideration of cases involved in an entanglement of obscure and frequently contradictory statutes, and then we prate about "the law's delay" and the "uncertainties of justice," when properly our censure should be directed to our system of machine-made jurisprudence that no finite intelligence can reconcile or understand.

While every occupation and industry is more or less adversely affected by this hasty and ill-considered legislation, our own particular calling happens to be one that offers especial and peculiar opportunities for legislative attacks. Drugs and medicines are things of mystery to the unlearned, who cannot comprehend how the same substance can be either harmless or dangerous, a messenger of health or an agent of destruction, according to the manner of its use; and it is this popular prejudice which makes it so difficult to combat the efforts of bucolic statesmen who seek to bridle us with ridiculous and useless provisions.

The wrong use or misuse of a drug is always more widely advertised than its proper and lawful use. The countless thousands of cases where drugs are properly and beneficially employed are never heard of, while the comparatively few cases of misuse are heralded far and wide until the reading public is lead to believe that such misuses are of constant and regular occurrence, a situation which affords the savior-of-the-race-by-legislation-reformer the opportunity he most delights in, and serves as the excuse for the composition of bills which would either totally prohibit the sale of useful drugs or else impose such restrictions upon their sale as to amount in fact, if not in name, to practical prohibition.

If it were proposed to prohibit the sale of edged tools because they are sometimes the source of injury to careless users or may be employed for homicidal

purposes, the inadvisability of punishing the many for the doubtful protection of the few would be apparent to every one, yet the cases of accidental injuries from drugs or of their homicidal uses are probably much fewer in number than those which follow the general distribution of knives and razors.

Singularly enough, these restrictive measures frequently seem to be aimed especially at the druggist, regardless of how much of the same products may enter the hands of the public through other sources. Some years ago, while comparing the poison laws of the various states, I discovered that some of them applied in terms to druggists only, i. e., that while druggists were subjected to certain restrictions in the sale of poisonous substances, all other dealers were exempt from these requirements. Even now there is pending in Congress a bill which would impose very onerous conditions upon the dispensing of mercury bichloride by licensed physicians and druggists, but which would place no restriction whatever upon its sale by other persons, or in other words, the men whose learning and experience best qualify them to handle the substance with safety to the public, are to be hampered, while unqualified dealers are to be left free to do as they please.

As druggists, we do not pretend to claim that our business interests should be preferred to the public safety, nor do we object to *reasonable* and *efficient* regulations regarding the sale of poisons or dangerous drugs. What we do object to, are the half-baked efforts of hysterical reformers, who are unable to comprehend that the measures which they propose, would interfere needlessly with the proper and legitimate use of such articles, without abating the evils at which they are supposed to be aimed.

Unfortunately for our peace of mind, the signs of the times point to even more attempted drug-legislation in the future than in the past.

Since the enactment of the Federal Food and Drugs Act—for which, by the way, the drug trade was largely responsible—the regulation of the sale of drugs and medicines, has been recognized by the politicians as a legislative “soft snap,” i. e., they have discovered that it is easy to appeal to popular prejudice, by proposing to legislate against some alleged enormous evil resulting from the sale of certain drugs, which alleged evils may be altogether imaginary or else molehills magnified by the sensational press to mountainous proportions.

Their perception that food- and drug-legislation affords a cheap and easy path to glory, has also been stimulated by their discovery that the drug trade has been willing to accept a tremendous amount of punishment, without striking back at its punishers, a kind of prey which the demagogue especially delights to pursue.

For the drug trade, legislation is no longer an academic subject that may be debated pleasantly at the annual convention, and then dismissed until the next meeting, but it is a live and vital topic which demands vigilance and aggressiveness throughout the year, if we are to avoid the gradual imposition of burdens that will, at length, make business conditions intolerable.

We cannot prevent the constant flinging into the legislative hopper of all sorts of meddlesome legislation, but must rely upon our efforts to prevent its enactment or to secure its proper amendment, and in many cases we shall discover that the only appropriate amendment is the classic one “to strike out all after the enacting clause.”

It is time that the drug trade should abandon its usual apologetic attitude when attacked in the legislature or by the sensational press, and demand proof for the asserted necessity for additional restrictive legislation. All drug legislation that does not originate with the State Pharmaceutical Association, or with its legislative committee, should be opposed on general principles. In other words, our attitude should be one of general hostility to all drug legislation proposed by outside interests, until its propounders have demonstrated its absolute necessity, that the demand for it is not based upon exaggerated and sensational reports which have no substantial foundation in fact, and that the restrictions to be imposed will bear *equally upon all* who handle or deal in the same or similar products, and not merely upon the class of dealers who happen to be known as druggists.

Not only must we present strenuous opposition to unnecessary new restrictive drug legislation, but it is equally incumbent upon us to seek the correction of the imperfect and sometimes inconsistent measures, which our past inertness and lack of interest have permitted to be placed upon the statute books.

The Poison Laws.—In some states, in addition to that which is specifically known as the poison law, there may be two or three, or a half a dozen other acts, relating to particular poisonous drugs, overlapping each other in their provisions. In some cases the confusion is so great as to make it impossible to decide which law should apply in a given case, as compliance with one, may make the druggist liable for the violation of another.. These laws should be consolidated and rewritten, and made so specific, that there can be no doubt as to their scope and application.

One consideration frequently overlooked when poison legislation is proposed, is that the bulk of lethal agents employed in the arts and in agriculture, immeasurably exceed the amount of the same or of similar agents handled by the druggist. Where the paint stores sell tons, the druggist sells ounces. If the existing laws make any distinction between lethal agents sold in the drug store and those sold elsewhere, the discrimination should be removed. If the druggist may sell poisons only on physicians' prescriptions, then the paint store and general dealer should be restricted in like manner.

Since almost any drug or chemical that is sufficiently active to serve as an effective therapeutic agent, will also be active enough to injure, if used to excess, there is always room for the fanatical reformer to declare it dangerous, and to propose legislation to prohibit its sale. If some check is not placed upon legislation of this sort, the drug-store shelves will soon be little better than a historical museum of the drugs which we were once permitted to sell.

The Anti-Narcotic Laws.—Closely connected with the poison laws, and frequently forming a part of them, are the laws relating to the sale of habit-forming narcotic drugs. Like the former, they are often a patchwork of overlapping statutes and incomplete. In some directions they may be needlessly restrictive, and in other directions not restrictive enough. Where they do not already do so, they should be amended so as to restrict the handling of these drugs to legitimate channels, i. e., to the licensed pharmacist and physician, and a complete and accurate method for tracing the purchase and sale of the drugs should be provided

In this connection, we should guard against the disposition of those misinformed reformers, who would extend the list of habit-forming drugs to include nearly everything in the Pharmacopœia. Because a man has learned from experience that a particular remedy, most certainly, relieves him from a recurrent ailment or symptom, so that he commonly or "habitually" uses it, in preference to other remedies for that ailment, by no means renders it a habit-forming drug. To call such drugs habit-forming, is a mere play upon the words *habit* and *habitual*. It is doubtful if a drug can properly be called *habit-forming*, unless it is one the repeated use of which induces a craving, which only the drug will satisfy, its repeated use not being to relieve the ailment or symptom for which it was originally taken, but to relieve a condition which the use of the drug itself has created.

It may or may not be good policy to restrict the liberty of the citizen to select his own remedies, but it can scarcely be regarded as a proper policy to place restrictions upon popular remedies, by definitions specially created to suit the particular case, or by the verbal trick of calling them "habit-forming drugs."

Neither does it necessarily follow that the presence of a minute proportion of a habit-forming drug, constitutes a habit-forming drug of the mixture in which it is found. If the proportion of the drug present, is sufficient to create the drug-habit, when the use of the mixture is long continued, or if the amount is sufficient to satisfy a habit already existing, then the combination can properly be placed in the category of habit-forming drugs, otherwise not. The question is one of fact in every instance, and can be answered only by an impartial consideration of the evidence.

Both pharmacy and medicine are interested in legislation respecting the sale of habit-forming drugs, and representatives of both, should participate equally in the framing of such measures, and in appearing before committees of the legislature, to defend or oppose narcotic legislation when necessary. In fact, I might go farther, and say that physicians and pharmacists should coöperate in like manner upon all measures which deal with matters of joint interest to their two professions.

It is undeniable that a certain percentage of both doctors and druggists have been interested in the illegitimate traffic in habit-forming narcotic drugs, but it is monstrously unjust to charge either doctors or druggists with general participation in such traffic. It is only the exceptional physician who is careless in the prescribing or dispensing of these drugs, and only the exceptional pharmacist who desires or encourages the patronage of *habitues*.

But whether responsible or not for narcotic drug evils, both the conscientious physician and the conscientious pharmacist must give up some of his just prerogatives and must submit to some inconveniences in order that the traffic may be brought under proper control.

If the law is so liberal in its provisions as not to inconvenience the legitimate dispenser, it will not restrain those who participate in the illegitimate traffic, and if made sufficiently drastic to insure the detection and punishment of the latter class, it is bound to cause some occasional hardship to those who dispense narcotic drugs legitimately. As is always the case in the restraint of crime, the just

man must give up some of his liberty, in order to supply the means for the discovery and punishment of the criminal.

In this connection, it is well to have in mind the fact that the evils due to the improper use of narcotic drugs, have been enormously exaggerated. On an actual census of the *habitues* in almost any section, the "hundreds of victims" of the yellow press, will dwindle to dozens or even less. In one small community where an agitator asserted that there were at least fifty victims of the drug-habit, careful inquiry among doctors and druggists, developed the existence of two morphine *habitues* and a suspected third, without the discovery of a single user of cocaine. Doubtless the percentage of victims would run higher in some other communities, but, in most cases, we could safely deduct 90 percent from the stories of the sensational press, and still cover all of the cases discoverable by an exact census, and furthermore, in districts where the cases were most numerous, it would be discovered that the drugs were distributed, mainly, by persons who have no connection with either pharmacy or medicine, and whose supplies are obtained from a distance, through underground channels.

As a matter of course, we do not want to be responsible for even a few victims of the drug habit, but pharmacists and physicians should certainly defend themselves from the reckless charges, of wholesale debauchery of the public through habit-forming drugs, that have been disseminated by hysterical reformers and the sensational press.

The General Food and Drug Laws.—The food and drugs acts, or the statutes which fix the definitions and prescribe penalties for the adulteration and misbranding of foods and drugs, are, generally speaking, fairly satisfactory to the drug trade, that is their defects are rather those of detail than of general principles.

Perhaps the greatest defect of the state food and drug laws, is their lack of agreement with each other and with the Federal law of 1906. While following the same general pattern, no two of them are exactly alike in particulars. These differences, especially as to labeling requirements, are a constant annoyance, and occasionally may become a serious menace, to the retailer. The jobber or manufacturer, having labeled his products in accordance with the Federal law, may ship them into any state regardless of state law, but, after they have left the domain of interstate commerce, the products come under the control of the local statutes, and the retailer may be held liable, if they do not conform thereto. When propositions are made to amend these laws, the drug trade should see to it that they are brought more nearly into conformity with the Federal law, and should strongly resist all amendments that would tend to increase their present discrepancies.

Although representatives of the drug trade played a prominent part in the drafting and enactment of the food and drugs acts, one of the things which they evidently failed to foresee, was the importance of making a distinction between actual adulteration and a mere variation from the legal standard, without connivance or guilty intent on the part of the dealer.

The popular understanding of adulteration, is the addition of a cheaper substance to a more expensive one, as the addition of water to milk, or the withdrawal of a valuable constituent, as the removal of cream, both processes being

for the purpose of increasing the profits of the dealer at the expense of the consumer. By definition, however, any variation from the standard constitutes an adulteration, even if the quality of the product be superior to the standard fixed by law. The druggist who should sell genuine imported bay rum, would be guilty of selling an adulterated drug, because the standard of the law happens to be a fictitious bay rum. Thus the druggist may be legally guilty of fraud, when morally innocent, or morally guilty of fraud, and legally innocent. Again, nature frequently produces drugs of alkaloidal strength below the legal standard. The drugs are genuine, though deficient in strength, but if the dealer disposes of them as genuine, he is, legally, guilty of adulteration. Numerous other examples might be cited, where one might be held guilty under the law, when his acts were entirely devoid of evil intent.

Undoubtedly, fixed standards of quality should be established and enforced, but the *definition of the offense* should be altered, so that the dealer in drugs who innocently sells goods which vary from the standard, will be punishable only for his actual fault, and will not be liable to the disgrace of an arrest and conviction, for an act which, in the public mind, always involves the element of moral turpitude.

That this defect has not occasioned more hardship to the drug trade than it has, is due to the fortunate presence in the law of the so-called "variation clause," which permits the sale of articles which vary from the official standards, provided the variation is stated on the label.

If the variation clause should ever be repealed, as has been proposed, the situation would then become one of serious menace to the entire drug trade, for, under such conditions, it would be practically impossible to conduct a drug business without constant technical violations of the law.

Another serious defect of the food and drugs act, is that they fail to provide the means whereby the manufacturer or dealer may ascertain, in advance, that his labels are in accordance with the law, or, rather, that they are in accordance with the administrative officer's interpretation of the law.

In numerous cases, there is so much room for difference of opinion, that no one can state in advance what the decision of the department may be. On more than a few occasions, the manufacturer, after the examination of precedents and the taking of legal advice, has labeled his product in good faith, only to be later haled into court, as a dealer in misbranded goods.

Generally the administrators of the law, when appealed to, will voluntarily give advice as to the labels which they will regard as legal, but they may refuse this advice if they choose, and some of them have done so. Every food and drugs act should, therefore, contain a provision specifically requiring the executors of the law to pass upon the sufficiency of labels submitted for inspection, and prosecutions for alleged misbranding should be restrained, until after dealers have been notified of the insufficiency of their labels and afforded an opportunity for their correction.

Laws Regulating the Practice of Pharmacy.—The general pharmacy laws, or those regulating admission to the practice of pharmacy, are, in most states, in need of a general overhauling. Most of them were in the nature of experiments when passed, and only time could demonstrate their imperfections.

As a rule, these laws provide for two grades of licentiates, a Registered or Licensed Pharmacist, who may conduct or manage a drug store, and a Registered Assistant, who may perform any of the work in a drug store, except to act as the responsible head or manager.

I believe that experience has demonstrated the advisability of at least one other grade of license, namely, that of licensed storekeeper, to be issued to the keepers of general stores, and stores in towns where no registered pharmacist is located, authorizing the holders of such licenses to sell such common household remedies as are specified by the Board of Pharmacy. The license should be issued for a small sum; should be renewed annually, and should specify the drugs and remedies which may be sold by the licensee.

Some druggists have been inclined to oppose the granting of such licenses, on the ground that it is a recognition of the right of unqualified persons to sell drugs. The answer to this objection is, that it is always wise to recognize an existing fact. Unqualified dealers, already, have this right under the law, and we are not likely to live to see a legislature that will take it away from them. The conversion of these dealers into a class of licensees by themselves, is a step towards bringing the sale of drugs by unqualified persons, under the control of the board of pharmacy, and we shall be foolish if we do not accept the opportunity if it is offered to us.

The most important licentiate is, of course, the Registered or Licensed Pharmacist, or the licentiate who is authorized to act as the responsible head of a drug store, either of his own or for another owner. If the responsible head or manager, the man who buys the goods, directs the daily conduct of the store, and determines the general policy of the establishment, is properly qualified in character, by education and experience, the public safety will be well guarded, and the main purpose of the pharmacy law accomplished.

Of late years the proposition to require graduation from a reputable college of pharmacy, before admitting candidates to examination for the license of Registered Pharmacist, or what has come to be known as the "graduation prerequisite," has become a question of importance. Several states, already, have such a requirement in the law, and several others have practically the same requirement, by virtue of a rule of the State Board of Pharmacy.

Naturally such an advance over the requirements once thought necessary, has provoked controversy.

One objection offered to making college graduation a requirement for registration, is, that it would tend to reduce the Board of Pharmacy to a subordinate position and make it subservient to the colleges, is an entirely unwarranted conclusion. Its effect would be exactly the opposite, because the Board would have power to name the requirements of the colleges whose graduates it would admit to its examinations, and the colleges would thus be brought under the direct and permanent control of the Board of Pharmacy.

Another objection which has been urged, is, that it should make no difference to the Board of Pharmacy how or where the candidate obtains his qualifications, provided he has them, and this is an objection the force and cogency of which cannot be denied. The fact remains, however, that there is no place and no method, for a complete and systematic training in the theory and art of pharmacy,

equal to that provided in a properly equipped and properly conducted college or school of pharmacy.

But cannot the Board, by its examination, ascertain whether the candidate has had the requisite systematic training? No, it cannot. Examinations have a useful and necessary place in the educational system, but they have their limitations. Mental growth or education, like physical growth, requires regularly supplied *pabulum* and proper exercise. The examination of a human stomach might determine what the subject had for his last meal, but it would not show that he had received the continued nourishment and exercise necessary to the production of a well-developed and properly-trained human body.

The board-examination may determine what the candidate has in his memory at the time of the examination, but it cannot, except to a very limited extent, ascertain whether this information was gained in such a regular and systematic manner as to render it probable that it has become a part of his permanent mental equipment or whether it is a medley of miscellaneous information gathered haphazard, and retained by a feat of memory.

Experienced educators recognize the fact, that even the final college-examination is not a sufficient test to prove that the candidate for graduation has gained the proper benefit from his college work, and, therefore, the student is tested from day to day and from week to week, and unless his daily and monthly record has reached the required standard, the result of his final examination will not secure him the coveted diploma.

My thesis is, that two kinds of training are necessary for such a complete and well rounded education of the future pharmacist as will make him a safe guardian of the public health, and a creditable representative of his profession, namely, a sufficient period of actual experience in the drug store and the systematic training of a reliable college or school of pharmacy. This statement is made with full recognition of the fact, that there have been many pharmacists who have been conspicuously successful without the benefit of college training, and also that there have been college graduates who have been conspicuous failures. The college cannot supply deficiencies in mind and character: it can only cultivate and train the qualities which are provided by the candidate, but the future pharmacist, who misses this training, will have missed something that would have added completeness and finish to his career, no matter how successful he may otherwise become.

Another argument offered in opposition to the graduation pre-requisite, is, that it would act as a deterrent to many who will prefer to take up some other occupation or line of business, on the ground that the rewards of pharmacy are at present not sufficient to justify the time and expense necessary to secure a college education.

This may be true, but if so, I do not see why the contingency should worry the present race of pharmacists. If no new drug stores should be started within the next quarter of a century, the existing ones would, very likely, be able to supply all the probable demands for drugs and medicines, and then, perhaps, the rewards of pharmacy would be sufficient to justify a college education.

It should be kept in mind that the graduation pre-requisite would not apply to those already qualified to practice pharmacy, but only to future candidates, and

also that it would not apply, either in the present or in the future, to clerks or assistants, but only to those who desired to become managers. Under a pre-requisite law, the non-graduate would have every opportunity to perform the functions of a pharmacist that he has now, except to become the responsible head or manager of a drug store.

The law would also, necessarily, have to allow a reasonable length of time before the graduation requirement went into effect, to permit the full registration of the non-graduates who were previously acting as clerks or assistants. In other words, the law would, in any case, apply only to those who in the future should desire to enter pharmacy, and not to those already within its ranks, whether proprietors or clerks.

This is a matter which each state must settle for itself, and it would be better to proceed too slowly than too quickly, or at least to proceed no more rapidly than is justified by the progress of sentiment among the pharmacists of the state, but it should be kept in mind that, to admit that college training is *desirable* for the preparation of the future pharmacist, is, in effect, an admission that it is to that extent a necessity.

The question is one which has two sides to it, and we should not be too dogmatic either way, but I believe the weight of argument is in favor of the graduation pre-requisite, and that the sooner it is universally adopted, the better it will be, both for the present generation of pharmacists and for those who come after them.

In this fragmentary and somewhat disjointed review, I have aimed to sketch, in a very broad outline, some of the legislative problems to which we must direct attention, and, especially, have I aimed to emphasize the thought that, as a general policy, we should oppose all additional restrictive legislation until convinced of its absolute necessity, either to correct existing laws or to enable us to meet the artificial conditions that these laws have created.

But whether we are to oppose or to support proposed new legislation, our only hope to do so successfully, lies in our ability to concentrate the efforts of a thoroughly united drug trade to that purpose.

The Needed Solidarity of Pharmacy.—One of the greatest needs of the drug trade—*perhaps its very greatest need*—is a more decided craft spirit, or craft consciousness; a clearer realization of the fact that all of those connected with the production, manufacture or distribution of drugs and medicines, constitute a solidarity, in which the interests of every unit radiate to every part, so that an injury to one is an injury to every unit within the circumference,—something like the *esprit de corps* that prompts the soldier to identify himself with the honor of the flag or the reputation of his regiment.

In times not long since, there was no more coherence in the drug trade than in a heap of sand, which changes its contour with every wind that passes over it. There was no fixity of purpose, and but little, if any, spirit of craft loyalty. The actual, if not expressed, motto was that of the trade corsair, "Every fellow for himself, and the devil take the hindmost"—which he usually did—and so successful was he in the capture of the rear guard, that the front ranks began to crowd a little closer together for mutual defense, which has brought about the condition of half-hearted organization that now exists.

Retailers, manufacturers, and wholesalers have all, at times, been ready to sacrifice the interests of each other, and of the members of their own class, for the sake of some temporary personal advantage. It must be confessed, with shame and humiliation, that the reason why the earnest attempts of some proprietors to protect the advertised retail prices of their goods, have not succeeded, has been that there have always been some retailers ready to betray their class by surreptitiously supplying the trade-demoralizing price cutter. During the past year a member of a concern which has been unable to buy certain proprietary articles from their manufacturers, told me he had no difficulty whatever in procuring abundant supplies through retailers who, openly at least, pretend to be supporting the proprietors' plans for price protection.

No policy can absolutely prevent the presence of traitors within the ranks, but a well-developed and constantly-stimulated spirit of Craft Loyalty will discourage treason, and minimize its effects, when it does occur.

The Necessity for United Action.—The experience of the past few years, should have convinced us, that we can hope to make headway against the flood of obnoxious legislation by which we are continually threatened, only by united and unanimous action all along the line, from the largest manufacturer and wholesaler, down to the smallest retail dealer in drugs.

The rivalries and differences, that have at times disturbed the peace between the several divisions of the drug trade, are petty and insignificant, when compared to the larger interests which they have in common, and nowhere are these common interests more in evidence, than in matters of legislation, whether state or national. Unless we can present a united front to the attacks of the sensational reformer, or of the notoriety-seeking administrative official, anxious to magnify the importance of his office by the discovery of mares' nests in the drug business, we can only expect to be beaten in detail.

Neither manufacturers, jobbers nor retailers acting alone, can successfully defend themselves from the destructive legislation of the hysterical reformer, nor from the attacks of the sensational press, which furnishes his ammunition. But each division of the trade can exert a force and influence of its own, and these forces and influences, when united, can be well nigh irresistible.

According to the ancient fable, when the woodman requested permission of the forest, to take a small tree to make a handle for his ax, the intended victim insisted strenuously upon its rights as a member of the community, but the big trees said, "It is only a miserable little sapling, let the woodman have it."

The ax was helved accordingly, and it was not long until the whole forest was prostrated, before the instrument, to the perfecting of which the rights of the insignificant sapling had been sacrificed.

Any branch of the drug trade which consents to the invasion of the just rights of the smallest and most insignificant members, either of its own or of any other branch of the trade, is consenting to a thing that is wrong in principle, and in the end must suffer a part of the penalty.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

THE TABLET INDUSTRY—ITS EVOLUTION AND PRESENT STATUS.

L. F. KEBLER, PH. C., M. D.

Continued from Page 958, July Issue.

Puckner and Clark, and Puckner and Hilpert restricted their observations entirely to the determination of phenol in tablets of bismuth, opium and phenol. It is conceded by all that volatile agents of the phenol type should not be compressed into tablet form and that manufacturers should prepare such commodities only on special request. They should furthermore safeguard their reputation by placing upon the label a statement of the following character: "The amount of phenol declared to be present in each tablet according to label was used in their preparation, but on account of the volatile nature of phenol it is impossible to give any assurance as to the amount present in the finished product and it is supplied with this understanding." The results obtained by these workers are given herein, but they do not form a part of any general conclusion made here relating to tablets, except in so far as it may pertain to tablets containing volatile agents.

TABLE VIII.—*Determination of Phenol in Bismuth, Opium and Phenol Tablets, by Puckner, Clark and Hilpert.*

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Phenol ¹	0.5	0.109	—78.1
do .....	.5	.244	—51.2
do .....	.125	.066	—47.2
do .....	.5	.351	—29.8
do .....	.5	.235	—43.
do .....	.5	.363	—27.4
do .....	.5	.173	—65.4
do .....	.5	.132	—73.6
do .....	.5	.069	—86.2
do .....	.5	.231	—53.8
do .....	.5	.197	—60.6
do .....	.5	.063	—87.4
do ² .....	.5	.1710	—65.8
do .....	.5	.2880	—42.4
do .....	.125	.0794	—36.5
do .....	.5	.2343	—53.1
do .....	.5	.2670	—46.6
do .....	.5	.1159	—76.8

¹Puckner, W. A., and Clark, A. H., J. Am. Med. Asso., 1908, 51: 381.
²Puckner, W. A., and Hilpert, W. S., J. Am. Med. Asso., 1910, 55: 2169

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Phenol ² .....	.5	.1405	—71.9
do .....	.5	.2688	—46.3
do .....	.5	.0614	—87.7
do .....	.5	.1725	—65.5
do .....	.5	.3422	—31.6
do .....	.125	.1035	—16.8
do .....	.5	.2342	—53.2
do .....	.5	.1907	—61.8
do .....	.5	.1243	—75.1
do .....	.5	.1412	—71.8
do .....	.5	.5632	+12.6
do .....	.5	.2073	—58.5

Seel and Friederich made the latest observations recorded in literature. They examined tablets of only three separate drugs and in one instance but two determinations were made. The results by these investigators, recorded in Table 9, are satisfactory. A large majority of the tablets examined contained less than the amount declared, but for all practical purposes they come within the 10 percent maximum variation from the amount declared upon the label.

TABLE IX.—*Results of Analyses of Tablets by Seel and Friederich.*⁴

Product.	Amount declared.	Amount found.	Variation.
	<i>Grams.</i>	<i>Grams.</i>	<i>Percent.</i>
Acetylsalicylic acid	0.5	0.4912	—1.7
do .....	.5	.4712	—5.8
do .....	.5	.5038	+0.8
do .....	.5	.4872	—2.5
do .....	.5	.4408	—11.8
do .....	.5	.498	—0.4
do .....	.5	.533	+6.6
do .....	.5	.498	—0.4
do .....	.5	.491	—1.8
do .....	.5	.4822	—3.5
do .....	.5	.483	—3.4
do .....	.5	.492	—1.6
Pyrazolphenyldimethylsalicylate .....	.5	.447	—10.6
do .....	.5	.490	—2.0
do .....	.5	.5	0.0
Salipyrin .....	.5	.452	—9.6
do	1.0	.923	—7.7

From the results recorded by Liebreich fifteen years ago, and the observations of Seel and Friederich, a 10 percent maximum variation from the declaration upon the label would be satisfactory. But the observations made by other analysts militate against such a restricted standard. In order to obtain more extended data on this point, a large number of tablets of American make were examined and the results are recorded in Table 10. These results represent the average of ten or more tablets.

²Puckner, W. A., and Hilpert, W. S., J. Am. Med. Asso., 1911, 56: 1844.

⁴Seel, Eugen, and Friederich, Albert, Med. Klin., 1911, 7: 888, 928.

TABLE X.—*Results of the Analyses of Tablets made by Various Chemists in the Bureau of Chemistry.*

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Acetanilid	2.	1.836	—8.2
do	2.	1.52	—24.0
do	2.5	2.46	—1.6
do	4.	3.88	—3.
do	5.	4.	—20.
do	2.	1.85	—7.5
do	5.	4.35	—13.
do	3.	2.50	—17.
do	3.	1.86	—38.
do	3.	2.57	—14.3
do	3.	2.37	—21.
do	2.	1.957	—2.1
do	2.	1.90	—5.
do	2.	1.78	—11.0
do	2.	1.996	—2
do	2.	1.605	—19.8
do	1.	0.848	—15.2
do	3.	3.02	+6
do	5.	4.832	—3.4
Acetanilid comp.:			
Acetanilid	3.5	2.563	—26.7
Caffeine, citrated .....	.5	.53	+6.
Acetanilid comp.:			
Acetanilid	2.	1.919	—4.1
Caffeine, citrated .....	.5	.486	—3.
Acetanilid comp. No. 1:			
Acetanilid	2.	2.	00
Caffeine, citrated .....	.5	.447	—10.6
Acetanilid comp. No. 2:			
Acetanilid	2.5	1.954	—21.8
Caffeine, citrated	1.	.782	—21.8
Acetanilid comp. No. 6:			
Acetanilid	2.5	2.27	—9.2
Caffeine, citrated	1.	.949	—5.
Acetanilid comp.:			
Acetanilid	3.	2.25	—25.
Caffeine .....	.5	.35	—30.
Acetanilid comp. (Searle):			
Acetanilid	3.	3.008	+3
Caffeine	1.	.943	—5.7
Acetanilid comp.:			
Acetanilid	1.4	1.414	+1.
Caffeine .....	.2	.201	+5
Acetanilid comp.:			
Acetanilid	3.5	3.372	—3.6
Caffeine, citrated .....	.5	.488	—2.4
Acetanilid comp.:			
Acetanilid	3.5	3.546	+1.3
Caffeine .....	.5	.487	—2.6
Acetanilid comp.:			
Acetanilid	3.5	2.771	—20.8
Caffeine .....	.5	.426	—15.
Acetanilid comp. (Aulde):			
Acetanilid	3.5	3.34	—4.5
Caffeine .....	.5	.518	+3.6
Acetanilid comp.:			
Acetanilid	3.5	2.998	—14.4
Caffeine .....	.25	.422	+69.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Acetanilid comp:			
Acetanilid	2.5	2.54	+1.6
Caffein, citrated.....	.5	.62	+24.
Acetanilid comp. (Kerr):			
Acetanilid	3.	2.301	-23.3
Caffein, citrated.....	.5	.546	+9.
Acetanilid comp:			
Acetanilid	3.5	2.69	-23.
Caffein, citrated.....	.5	.474	-5.
Acetanilid comp:			
Acetanilid	3.0	3.11	+3.6
Caffein, citrated.....	.5	.524	+4.8
Acetanilid comp:			
Acetanilid	3.5	3.104	-11.4
Caffein .....	.5	.474	-5.2
Acetanilid comp:			
Acetanilid	3.5	3.428	-2.1
Caffein, citrated.....	.5	.505	+1.
Acetanilid comp:			
Acetanilid	3.	2.576	-14.1
Caffein, citrated.....	.5	.447	-10.6
Acetanilid comp:			
Acetanilid	3.5	2.7	-23.
Caffein .....	.5	.42	-16.
Acetanilid comp:			
Acetanilid	3.5	3.303	-5.6
Caffein .....	.5	.41	-18.
Acetanilid comp:			
Acetanilid	3.0	2.835	-5.5
Caffein .....	.5	.491	-2.
Acetanilid comp. (Aulde):			
Acetanilid .....	.35	.336	-4.
Caffein, citrated.....	.05	.054	+8.4
Acetanilid comp. (Aulde):			
Acetanilid	3.5	3.28	-6.3
Caffein, citrated.....	.5	.486	-3.
Acetanilid comp., powd.:			
Acetanilid	3.5	3.455	-1.3
Caffein .....	.5	.496	-1.
Acetanilid comp., Special:			
Acetanilid	3.	2.955	-1.5
Caffein, citrated.....	.5	.515	+3.
Acetanilid comp:			
Acetanilid	2.5	2.29	-8.4
Caffein, citrated.....	1.0	.856	-14.4
Acetanilid comp.:			
Acetanilid	2.	1.77	-11.5
Caffein, citrated.....	.5	.432	-13.6
Acetanilid comp.:			
Acetanilid	3.	2.659	-11.4
Caffein	1.	.874	-12.6
Acetanilid comp.:			
Acetanilid	3.	2.743	-8.6
Caffein, citrated.....	.5	.439	-12.
Acetanilid comp.:			
Acetanilid	3.	2.844	-5.2
Caffein, citrated.....	.5	.475	-5.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Acetanilid comp. (Aulde):			
Acetanilid	3.5	3.381	—3.4
Caffein .....	.5	.47	—6.
Acetanilid comp. (Hubbard):			
Acetanilid	3.5	3.235	—7.6
Caffein	1.	.92	—8.
Acetanilid comp., pow. U. S. P.:			
Acetanilid	3.5	3.49	— .3
Caffein, citrated .....	.5	.52	+4.
Acetanilid and codein:			
Acetanilid	3.3	3.27	—1.
Codein .....	.25	.24	—4.
Caffein .....		.46	
Acetanilid	3.5	2.56	—27.
and codein (sulphate) .....	.25	.17	—32.
and caffein, citrated .....	.5	.37	—26.
Acetanilid comp.:			
Acetanilid	3.5	2.896	—17.2
Caffein, citrated .....	.5	.44	—12.
Codein .....	.125	.065	—48.
Acetanilid comp.:			
Acetanilid	3.	3.20	+6.7
Morphin sulphate	1/22	.04	—12.
Acetanilid comp.:			
Acetanilid	2.5	1.849	—26.
Sodium salicylate	1.	.903	—9.7
Acetanilid comp. and codein:			
Codein sulphate .....	.25	.264	+5.6
Acetanilid	3.325	3.366	+1.2
Caffein, citrated .....	.475	.48	+1.
Acetanilid comp. and codein:			
Acetanilid	3.	2.734	—8.9
Caffein, citrated .....	.5	.462	—8.
Codein sulphate .....	.25	.143	—42.8
Acetanilid comp. and codein:			
Acetanilid	3.325	2.554	—23.
Caffein .....	.475	.342	—28.
Codein .....	.25	.158	—36.8
Acetanilid comp. and codein:			
Codein sulphate .....	.25	.227	—9.
Acetanilid	3.	2.813	—6.2
Caffein, citrated	1.	.865	—13.5
Acetanilid comp. with codein:			
Acetanilid	3.	2.98	— .7
Codein .....	.25	.23	—8.
Caffein, citrated .....	.5	.5	000.
Acetanilid comp. with codein:			
Acetanilid	3.5	3.16	—10.
Caffein, citrated .....	.25	.33	+32.
Codein sulphate .....	.25	.20	—20.
Acetanilid and quinin:			
Acetanilid	2.5	2.42	—3.
Quinin sulphate	2.5	2.4	—4.
Acetanilid and			
Sodium bromid	3.5	2.90	—17.
Caffein, citrated .....		.566	
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.45	—1.4
Caffein, citrated .....	.5	.455	—9.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.4	—3.
Caffein .....	.25	.235	—6.
Acetanilid and sodium comp.:			
Acetanilid	2.	1.926	—3.7
Sodium salicylate.....	3.	2.839	—5.4
Acetanilid and sodium comp.:			
Acetanilid	2.5	2.336	—6.5
Caffein, citrated.....	1.	.902	—10.
Acetanilid and sodium comp.:			
Acetanilid	2.5	2.515	+ .6
Caffein, citrated.....	1.	.977	—2.3
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.42	—2.3
Caffein .....	.25	.24	—4.
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.02	—13.
Caffein .....	.5	.51	+2.
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.367	—3.8
Caffein, citrated.....	.5	.487	—3.
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.245	—7.3
Caffein, citrated.....	.5	.494	—1.6
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.249	—7.2
Caffein, citrated.....	.5	.441	—12.
Acetanilid and sodium comp. with codein:			
Acetanilid	3.5	3.232	—7.6
Caffein .....	.25	.236	—5.6
Codein .....	.25	.239	—4.4
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.459	—1.2
Caffein, citrated.....	.5	.510	+2.
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.507	+ .2
Caffein, citrated.....	.5	.53	+6.
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.4	—3.
Caffein, citrated.....	.5	.523	+4.6
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.386	—3.2
Caffein, citrated.....	.5	.493	—1.4
Acetanilid and sodium comp.:			
Acetanilid	2.5	1.966	—21.4
Caffein, citrated.....	1.	.905	—9.5
Acetanilid and sodium comp.:			
Acetanilid	3.5	3.477	— .65
Sodium bicarbonate.....	.9	.867	—4.
Sodium bromid.....	.1	.111	+11.
Caffein .....	.25	.238	—5.
Acetanilid and sodium comp.:			
Acetanilid	3.5	2.898	—17.2
Caffein, citrated.....	.5	.431	—14.
Acetphenetidin	5.	4.547	—9.
do	2.	1.97	—1.5
do	3.	2.31	—23.
do	3.	3.05	+1.6
do	3.	2.6	—13.3
do	5.	4.6	—8.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Acetphenetidin	3.	2.7	—10.
do	3.	2.98	—6
do	2.	2.15	+7.5
do	5.	4.59	—8.2
do	3.	2.84	—5.33
do	3.	3.01	+3
do	3.	2.53	—15.7
do	2.	1.56	—22.
do	5.	4.196	—16.
do	2.	1.819	—9.
do	2.	1.47	—26.
do	5.	4.16	—16.8
do	3.	2.84	—5.33
do	2.	1.80	—10.
Acid salicylic	2.5	1.87	—25.
Morphin (sulphate)	1/12	1/24	—50.
Ammonium salicylate .....	.166	.162	—2.4
do	2.5	2.295	—8.2
do	5.	6.28	+25.
Ammonium salicylate comp.:			
Ammonium salicylate	3.	3.25	+8.
Phenacetin	1.	1.	00.
Caffein .....	.5	.5	00.
Ammonium salicylate comp.:			
Phenacetin	1.	.85	—15.
Salicin	1.5	.989	—40.7
Ammonium salicylate	3.	1.685	—47.2
Caffein .....	.5	.465	—7.
Analgesic comp. with codein:			
Acetphenetidin	1.	1.	00.
Acetanilid	2.	1.96	—2.
Codein sulphate .....	.25	.225	—10.
Sodium salicylate	1.	1.1	+10.
Caffein .....	.5	.49	—2.
Anodyne comp.:			
Acetanilid	3.5	3.516	+5
Caffein .....	.5	.494	—1.
Anodyne comp.:			
Acetanilid	3.5	3.57	+2.
Caffein .....	.5	.495	—1.
Antipyrin	2.	1.87	—6.5
do	3.	2.834	—5.9
do	2.	1.99	—5
do	3.	3.	00.
Antiseptic mercuric chlorid. ....	.82	1.37	+67.
Citric acid .....	.80	.63	—21.
Antiseptic mercuric chlorid. ....	.82	1.882	+130.
Citric acid .....	.87	.893	+2.6
Aspirin	2.	1.93	—3.5
do	5.	5.05	+1.
do	5.	4.9	—2.
do	5.	4.77	—4.6
do	3.	1.76	—41.
do	5.	4.9	—2.
do	5.	4.4	—12.
do	5.	4.6	—8.
do	5.	4.16	—17.
do	3.	2.4	—20.
do	5.	4.9	—2.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Aspirin	5.	4.8	—4.
do	5.	4.4	—12.
do	5.	3.5	—30.
do	5.	3.7	—26.
do	5.	5.	00.
do	5.	5.	00.
do	5.	4.8	—4.
do	5.	4.7	—6.
do	5.	4.95	—1.
do	5.	4.7	—6.
Bismuth subnitrate .....	.1	.22	+120.
and calomel .....	.1	.19	+90.
Caffein .....	.5	.22	—56.
do .....	.5	.22	—56.
do	1.	.8269	—17.3
Caffein, citrated	1.	.80	—20.
do	1.	.47	—53.
do	2.	.69	—65.
do	1.	.92	—8.
do .....	.166	.145	—10.
do	1.	.87	—13.
do	1.	.955	—4.5
do	1.	.47	—53.
do	1.	.986	—1.4
do	1.	.865	—13.5
Calomel	1.	.944	—6.
and sodium bicarbonate	1.	.923	—8.
Calomel	1.	.97	—3.
and sodium bicarbonate	1.	.93	—7.
Calomel	1.	.74	—26.
and sodium bicarbonate .....	.5	.22	—56.
Calomel .....	.5	.6	+20.
and sodium bicarbonate .....	.5	.57	+14.
Calomel	1.	.93	—7.
and sodium bicarbonate	1.	.91	—9.
Calomel	1.	.99	—1.
and sodium bicarbonate	1.	.93	—7.
Calomel	1.	.7	—30.
and sodium bicarbonate	1.	1.01	+1.0
Calomel	1.	1.06	+6.0
and sodium bicarbonate	1.	1.05	+5.0
Calomel	1.	.89	—11.
and sodium bicarbonate	1.	.98	—2.
Calomel	1.	.9	—10.
and sodium bicarbonate	1.	.9	—10.
Calomel	1.	1.01	+1.0
and sodium bicarbonate	1.	.95	—5.
Calomel	1.	1.16	+16.
and sodium bicarbonate	1.	1.23	+23.
Calomel	1.	1.07	+7.0
and sodium bicarbonate	1.	.99	—1.
Calomel .....	.5	.5	0.
and sodium bicarbonate .....	.5	.48	—4.
Calomel	1.	1.	0.
and sodium bicarbonate	1.	1.06	+6.0
Calomel	1.	1.05	+5.0
and sodium bicarbonate	1.	.98	—2.
Calomel	1.	1.11	+11.
and sodium bicarbonate	1.	.95	—5.

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Calomel	1.	.82	—18.
and sodium bicarbonate.....	1.	1.16	+16.
Calomel	1.	1.01	+1.
and sodium bicarbonate.....	1.	.98	—2.
Calomel	1.	1.03	+3.0
and sodium bicarbonate.....	1.	.85	—15.
Calomel	1.	1.015	+1.5
and sodium bicarbonate.....	1.	.98	—2.
Calomel	1.	.99	—1.
do	2.	.97	—51.
do	1.	1.16	+16.
do	1.	1.08	+8.0
do .....	.1	.096	—4.
do	1.	1.07	+7.0
do	1.	1.07	+7.0
do	1.	.89	—11.
do .....	.1	.125	+25.
Codein .....	.5	.489	—22.
do .....	.5	.314	—37.
do .....	.25	1/6	—33.
Corrosive sublimate.....	7.3	7.438	+1.9
do	1.8	2.047	+13.7
do	7.3	7.01	—4.0
do	1.82	1.74	—4.4
do	7.5	7.016	—6.4
do	1.75	1.553	—11.2
do	1.75	1.345	—23.1
do	7.3	8.170	+11.9
do	7.3	7.395	+1.3
do	7.3	7.396	+1.3
do	7.5	7.490	—1.
do	7.5	7.510	+1.
do	1.75	1.634	—6.6
do	7.3	6.974	—4.5
do	7.3	6.360	—12.9
do	7.0	6.897	—1.4
do	1.74	1.840	+5.7
Formin	5.	4.79	—4.2
do	5.	5.032	+4.6
Grip:			
Acetanilid	2.5	2.380	—4.8
Ammonium salicylate.....	2.5	2.397	—4.1
Caffein, citrated.....	.5	.526	+5.
Heroin .....	.1	1/16	—37.
Heroin hydrochlorid.....	1/24	1/30	—20.
do	1/12	.0725	—13.
do	1/24	1/30	—20.
Hexamethylene	5.	4.9	—2.
do	5.	4.95	—1.
Hexamethyleneamin	5.	4.91	—2.
Hexamethylenetetramin	2.	2.25	+12.5
do	5.	4.51	—9.8
do	5.	4.813	—4.
do	5.	5.116	+2.3
do	5.	4.998	—0.4
do	5.	5.043	+86
do	5.	4.958	—8
Migraine:			
Acetanilid	2.	1.85	—7.5
Caffein .....	.25	.27	+8.0

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Migraine:			
Acetanilid	2.5	2.326	—7.
Sodium salicylate.....	1.	.914	—8.6
Migraine:			
Acetanilid	2.5	2.144	—14.2
Sodium salicylate.....	1.	.874	—12.8
Migraine:			
Acetanilid	2.	1.827	—8.6
Caffein, citrated.....	.5	.45	—10.
Migraine No. 1:			
Acetanilid	2.	1.955	—2.25
Caffein, citrated.....	.5	.512	+2.4
Morphin sulphate.....	.25	.225	—10.
do	1/6	.137	—18.
do	1/6	.199	+19.4
Myalgic (Dr. Woodward):			
Acetanilid	2.	1.843	—7.8
Sodium salicylate.....	2.	1.831	—8.4
Caffein .....	.5	.514	+3.
Nux vomica.....	1.	1.1	+10.
do .....	.25	.25	0.
do .....	.1	1/11	—10.
do .....	.25	.145	—41.
do .....	.25	1/6	—33
do .....	.25	.25	0.
do .....	.5	.46	—8.
do .....	.25	.125	—50.
Phenacetin	5.	3.90	—22.
do	3.	2.35	—21.6
do	3.	2.83	—5.6
Quinin sulphate.....	2.	1.76	—12.
do	2.	1.77	—11.5
do	2.	2.04	+2.0
do	2.	1.92	—4.
do	2.	1.94	—3.0
do	2.	1.92	—4.
do	2.	1.88	—6.
do	2.	1.83	—8.5
do	3.	2.92	—2.6
do	3.	2.3	—23.
do	2.	1.97	—1.5
Rheumatic (Dr. Lord):			
Sodium salicylate.....	5.	1.592	—68.
Codein sulphate.....	1/16	None	—100.
Rheumatic No. 4:			
Sodium salicylate.....	7.5	6.47	—13.7
Sodium bicarbonate.....	2.	1.48	—26.0
Rheumatic No. 6:			
Sodium salicylate.....	5.	3.564	—28.7
Codein sulphate.....	1/16	.0298	—52.
Rheumatic No. 6:			
Codein sulphate.....	1/16	.059	—5.6
Sodium salicylate.....	5.	4.779	—4.4
Salol	2.5	2.26	—9.6
do	2.5	2.32	—7.2
do	5.	4.27	—14.
do	2.5	2.32	—10.8
do	1/6	.14	—16.
do	2.5	2.23	—7.
do	5.	4.88	—2.4

TABLE X.—(Continued.)

Product.	Amount declared.	Amount found.	Variation.
	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
Salol	2.5	2.41	—4.
do	2.5	1.80	—28.
do	5.	4.77	—4.6
do	5.	3.80	—24.
do	2.5	1.94	—22.4
do	2.5	2.96	+18.4
do	2.5	2.24	—10.4
do	5.	4.804	—3.9
do	5.	4.66	—6.8
do	2.5	2.288	—8.48
do	2.5	2.522	+1.
do	2.5	2.38	—4.8
do	2.5	2.05	—18.
do	2.5	2.36	—5.6
do	2.5	2.30	—8.
do	5.	4.43	—11.4
Sodium salicylate	3.	1.82	—39.
do	5.	4.59	—8.2
do	3.	3.08	+3.
do	5.	3.445	—31.
do	5.	4.88	—2.4
do	5.	4.85	—3.
do	5.	4.85	—3.
do	5.	4.78	—4.4
do	5.	4.40	—12.
do	5.	3.745	—25.
do	3.	2.91	—3.
do	5.	4.75	—5.
do	5.	4.45	—11.
do	5.	4.24	—15.2
do	5.	4.766	—4.8
do	5.	4.437	—11.2
do	3.	2.60	—13.
do	5.	4.57	—8.6
do	5.	4.855	—2.9
do	5.	3.23	—35.4
do	3.	2.82	—6.
do	5.	4.6	—8.
do	5.	4.871	—2.6
do	5.	4.91	—1.8
Strychnin nitrate	1/50	1/48	+4.
do	1/40	1/49	—18.4
do	1/40	1/41	—2.5
do	1/40	1/47	—15.
do	1/40	1/38	+5.
Strychnin sulphate	1/40	1/28	+42.
do	1/40	1/38	+5.
do	1/40	1/53	—24.
do	1/40	1/56	—29.
do	1/40	1/43	—7.0
do	1/40	1/41	—2.5
do	1/40	1/39	+2.5
do	1/50	1/46.3	+8.
do	1/50	1/58	—14.
do	1/40	1/39	+2.5
do	1/40	1/39.5	+1.
do	1/40	1/37	+8.1
Sulphonethylmethane	5.	4.83	—3.4
Trional	5.	2.72	—45.6
Zinc phenolsulphonate	5.	3.64	—27.4

SUMMARY OF ANALYTICAL RESULTS, EXCEPTING NITROGLYCERIN TABLETS.

Number of samples of tablets examined.....	324
Number of determinations made.....	449
Percentage exceeding 10 percent above or below declaration.....	36.7
Percentage exceeding 12 percent above or below declaration.....	30.9
Percentage exceeding 15 percent above or below declaration.....	24.5
Percentage exceeding 20 percent above or below declaration.....	17.8

	Number	Percentage
Variations below declaration.....	343	76.4
Variations above declaration.....	94	20.9
Products in accord with declaration.....	12	2.7
Variations more than 10 percent below declaration.....	142	31.6
Variations more than 10 percent above declaration.....	23	5.1
Variations more than 15 percent below declaration.....	94	20.9
Variations more than 15 percent above declaration.....	16	3.6
Variations more than 20 percent below declaration.....	69	15.4
Variations more than 25 percent above declaration.....	11	2.4

COMMENTS.

The variations are unexpectedly large both in numbers and amounts. The tablets examined are of relatively simple composition, and, for the most part, contain medicinal agents which can be readily estimated with a fair degree of accuracy. The tablets examined are fairly representative of all manufacturers. In only a few factories were the finished tablets actually examined chemically. The best tablets were found in factories where competent chemical control exists. In fact, no excessive variations were found in several brands so supervised. A careful review of the tablets examined shows, with possibly a few exceptions, that all of the results should have fallen within 10 percent, either above or below, the declaration. To find over one-third exceeding this variation does not substantiate the old-time claims for accuracy and uniformity. Even on a 15 percent basis nearly one-fourth are wanting. There is no reasonable excuse for such deviations, for example, as the presence of twice as much corrosive sublimate as claimed. This simply shows gross carelessness and incompetence. It will also be observed that a much larger number of the results fall below the amounts declared than above. The methods of analyses may contribute to this in a few instances. It is claimed that this is the safest side to err on, but the factor of safety is frequently too liberal, for example, 20 percent or more below claim in simple tablets of acetanilid or acetphenetidin or aspirin savors either of gross carelessness or design. It should be noted that since this investigation was begun more competent control has been provided in a considerable number of establishments, and there are indications of general improvements.

TABLETS CONTAINING VOLATILE OR UNSTABLE AGENTS.

Although the tablets containing volatile or unstable drugs are comparatively small in number, they are sufficiently important to call for careful consideration. Agents coming under this classification are nitroglycerin, phenol, camphor, chloro-

form, ether, ammonium carbonate, various essential oils, etc. Except in a few cases the amount of work done is inadequate to warrant conclusions, but it is well known that medication of this character is difficult to prepare and keep. It is furthermore common knowledge that the fact that the tablets are right at the outset is no proof that they will long remain so. Medical men should not resort to such uncertain medication, as it reflects discredit upon the profession and tends toward drug nihilism. The writer has in his possession tablets containing camphor which is sublimed on the sides of the bottle. They are no longer suitable medicines. In the case of essential oils there is often only sufficient present to impart a flavor. The phenol variability has been pointed out by Puckner and Clark,¹ and Puckner and Hilpert.²

In the present investigation nitroglycerin tablets, for various reasons, received chief consideration. Nitroglycerin is one of the most powerful heart remedies, and is depended upon by physicians in cases of emergencies which are sometimes of a very serious character. It has been reported from time to time that nitroglycerin tablets are of uncertain character, and that even though they are originally made with the proper quantity of nitroglycerin, it is impossible to state or represent how long they will remain so. This uncertainty of nitroglycerin tablets has been charged to the supposed volatility³ of nitroglycerin. With this general knowledge available, whether correct or otherwise, it seems rather strange that some manufacturers should fill orders with nitroglycerin tablets made three or more years previously. Some manufacturers of deficient goods explained the shortage on the ground that the tablets had been on hand three, four or five years at the time the orders were filled. Yet in no instance did there appear any information on the packages to the effect that they were several years old. The packages, however, did bear the declaration that each tablet contained a given quantity of nitroglycerin. If such claims appear, they should be at least approximately correct. Such potent drugs should not be made on the hit or miss basis. A goodly number of the tablets on the market were purchased and examined, with the following results:

Results of Examination of Nitroglycerin Tablets.

Amount claimed.	Amount found	Amount found	Shortage.
<i>Grains.</i>	(Nitrate method.) <i>Grains.</i>	(Nitrite method.) <i>Grains.</i>	<i>Percent.</i>
0.005	0.0010	0.0011	80
.0020	.0017	.0008	91
.010	.010	.0098	0
.020	.015	.014	25
.020	.0050	.0045	75
.010	.004	.004	60
.020	.0012	.0011	94
.020	.008	.0073	60
.020	.009	.008	55
.020	.014	.0135	30
.020	.0096	.0108	46
.020	.0121	.0123	38

¹J. Am. Med. Asso., 1908, 51, 331.

²J. Am. Med. Asso., 1910, 55, 2169.

J. Am. Med. Asso., 1911, 56, 1344.

³H. Hager, Pharm. Centr., 1877, 18, 89.

J. M. Merrick, Am. J. Science and Arts, 1863, 36, 212.

Amount claimed.	Amount found (Nitrate method.)	Amount found (Nitrite method.)	Shortage.
<i>Grains.</i>	<i>Grains.</i>	<i>Grains.</i>	<i>Percent.</i>
.020	.0108	.0117	41
.020	.0115	.0141	29
.020	.006	.006	70
.010	.0006	.0007	93
.010	.0076	.0082	18
.020	.0136	.0122	32
.010	.0093	.0086	7
.010	.0065	.0066	34
.010	.007	.0074	26
.010	.0026	.0026	74
.010	.0085	.009	10
.010	.0066	.006	34
.010	.008	.0083	58
.010	.0055	.0056	44
.020	.0074	.0087	56
.010	.007	.0077	23

It will be noted that the determinations made by two separate and distinct methods gave fairly concordant results. The shortages recorded are based upon the highest results obtained by either of the methods. The deficiencies found are abnormally large. Notwithstanding the general belief (which does not appear to be well founded) that nitroglycerin tablets are prone to deteriorate with age, it is reasonable to expect that they should possess at least 75 percent of the actual value claimed for them. It is furthermore believed that a 25 percent deficiency is excessive. Even on this basis a large majority (78 percent) are wanting. Over 42 percent exceed a 50 percent deficiency. During the interviews it developed that the tablets were not generally analyzed. The 10 percent nitroglycerin alcoholic solution and 10 percent nitroglycerin milk sugar triturations used were apparently accepted as represented in most instances without question. Various experiments were made to determine how rapidly nitroglycerin tends to volatilize at room temperature in a vacuum desiccator. The results seem to indicate that nitroglycerin is not as volatile as is believed by some. Experiments made with nitroglycerin tablets thus far show that some at least are fairly stable. The subject is, however, still under investigation.

It should be stated that after this paper was read, the writer's attention was called to a report of a "Committee of Chemists appointed to investigate the possible deterioration of drug extracts," which report was said to contain useful information on the stability of nitroglycerin tablets. After some correspondence a copy of this private publication, dated December 31, 1908, was received. The results recorded are herewith submitted:

Nitro-Glycerin Tablets.¹

"We give below four samples assayed and re-assayed, and they do not seem to indicate any deterioration to amount to anything, and we know of no case of a nitro-glycerin tablet which failed to act physiologically, no matter how old it was. This seems to point to the fact that nitro-glycerin on milk sugar (which we know to be a good preservative and prevent oxidation quite largely) as it is used by physicians almost altogether, does not deteriorate appreciably with age."

Sample of Feb. 23, '05, of nitro-glycerin tablet, 1-25 grain; assayed May 31, '07, 1-30 grain

Sample of Apr. 17, '06, of nitro-glycerin tablet, 1-100 grain; assayed May 31, '07, 1-150 grain

Sample of Nov. 15, '06, of nitro-glycerin tablet, 1-50 grain; assayed May 31, '07, 1-80 grain

Sample of May 2, '07, of nitro-glycerin tablet, 1-100 grain; assayed May 31, '07, 1-100 grain

—A. R. L. DOHME.

Nitroglycerin.*

			Supposed Content.	Assay.	Age.
Tablet	Triturate	No. 456.....	.0066 grain	.00679 grain	5 years
"	"	No. 122.....	.010 "	.00979 "	1 "
"	"	No. 123.....	.020 "	.0139 "	11 "
"	"	No. 123.....	.020 "	.0264 "	9 "
"	"	No. 123.....	.020 "	.0254 "	7 "
"	"	No. 618.....	.010 "	.007 "	8 "
C. C. Tablet	No. 108.....		.010 "	.0098 "	10 "
"	No. 108.....		.010 "	.0084 "	10 "
"	No. 108.....		.010 "	.0098 "	9 "
G. C. Pill	No. 423.....		.030 "	.029 "	5 "
"	No. 423.....		.030 "	.010 "	8 "
"	No. 423.....		.030 "	.014 "	8 "

—J. M. FRANCIS.

CONCLUSIONS.

1. Tablets are not as uniform and accurate as is generally believed.
2. There is little difference between the uniformity of the larger tablets produced by the single or multiple vertical punch or the rotary machines.
3. The vertical single punch delivers more uniform hypodermic tablets and so-called compressed tablet triturates.
4. There does not appear to have been much advancement in the manufacture of uniform tablets during the past twenty years, even though the machinery has been materially improved.
5. The number of tablets produced from a given quantity of material should not vary to exceed 5 percent from the number calculated.
6. The variation in weight of tablets should not exceed 8 percent, either above or below the average.
7. The variation from the declaration should not exceed 10 percent in the average tablet or tablets of a fairly simple composition.
8. In complex, very small and difficult tablets to manufacture the variation from the declaration may be as great as 15 percent.
9. Volatile agents should not be compressed into tablet form, excepting flavoring agents and possibly nitroglycerin under strict control.
10. The amount of talcum used should not exceed 5 percent.
11. Fillers such as fuller's earth, chalk, gypsum, terra alba, kaolin, etc., should not be used.
12. No insoluble or non-disintegrable tablets should be placed on the market.

METHODS OF ANALYSIS.

INTRODUCTION.

The methods given here have not reached the stage where improvement is impossible. They are offered as a basis for future work, and it is hoped that all interested in this line of analysis will not only assist in trying out and improving these methods but will devise new ones as time and opportunity permit.

The work in this article has been restricted to uncoated tablets. Some of the methods, however, will undoubtedly give satisfactory results not only with uncoated but with many coated tablets as well. Some skill and adaptation may be

*Report of Committee of Chemists, 1908, p. 4.

²Report of Committee of Chemists, 1908, p. 16.

necessary with the latter products. A casual review of the ingredients used medicinally and in giving form to tablets shows that extreme care must be exercised in devising analytical methods which will insure accuracy and reliability. The majority of compressed tablets containing insoluble agents usually contain starch, gummy material and some lubricant. Soluble chemicals are frequently compressed without excipient. Lubricants are, however, often employed. Molded tablets generally contain either sugar of milk or sucrose, or both, as a base. Some disturbing features are liable to creep in with the utmost circumspection. Checking and counter checking must be employed frequently. The chemical reagents used must be carefully tested. In preparing granulations the process may be such as to occlude some of the medicinal agents so that it is very difficult to remove them completely with the ordinary solvents from the powdered material. For example, if in the manufacture of caffeine tablets starch paste is used, some of the caffeine may be dissolved and intermixed with the starch paste which on drying, envelopes the caffeine and thus makes it very difficult to remove. In fact, in some instances it is virtually impossible to remove it completely. Starch and gummy material are great handicaps in formulating simple methods of analysis.

The analyst in the factory has a distinct advantage over the chemist not so connected. The former knows or can ascertain what breakers are ahead and may thus avoid them. Not so fortunate, however, is the chemist who simply has the tablets placed before him for analysis. For example, the factory chemist examines a sample of tablets and finds the results abnormal. He is unable to explain the difficulty, but the perplexity is readily solved when he calls for and receives the working formula. The analyst who has only the tablets to work from must depend upon his own ingenuity to solve and overcome various difficulties and it must be admitted that some of them may never be solved.

GENERAL METHODS.

WEIGHT OF TABLETS.

Weigh separately from ten to twenty-five tablets in order to ascertain the average weight and the variation from the average.

PREPARATION OF SAMPLE.

In a mortar, or other suitable apparatus, finely powder from ten to twenty-five or more tablets, mix thoroughly and introduce the powder into a weighing tube for future use. This procedure is not applicable to tablets containing volatile agents. It is of the utmost importance to powder finely and prepare a uniform sample.

DETERMINATION OF MOISTURE.

The amount of moisture may be determined in tablets containing non-volatile drugs by drying the powder in a vacuum (not less than 25 inches) at a temperature not exceeding 75° C. or in a hot water heated oven, to constant weight. These methods do not always give the same identical results, but they are sufficiently concordant for practical purposes.

DETERMINATION OF ASH.

Ignite a small portion at a dull red heat until the residue is white or gray, cool in a desiccator and weigh. Best results are secured in a well regulated muffled furnace. Flat platinum dishes are frequently used for this purpose. The analyst should, however, never employ a platinum dish for ashing drugs unless he knows there is nothing present which will injure the platinum. It is always safest to use porcelain or silica dishes. Hoskin's electric furnace is well suited for ashing.

ATOMIC WEIGHTS.

The international atomic weights for 1914¹ (oxygen, 16) are used in all calculations excepting methods of analysis in Bulletin No. 107 (revised). For Pharmacopœial articles (Eighth Decennial Revision) the atomic weights recognized by that authority (hydrogen, 1) must be used.

SPECIAL METHODS.²

The methods given below are designed chiefly for determining the active medicinal ingredients. No claims for complete analysis are made, but in some cases the examinations are made as complete as practicable with present experience.

ACETANILID TABLETS.

Acetanilid, Method A: Place from $\frac{1}{2}$ to 1 gram of the finely powdered material on small, double counterpoised filters, one within the other, in a funnel, and treat with successive portions of chloroform until all of the acetanilid is removed. From 40 to 60 cc. are generally sufficient. The solvent must be carefully applied, best from a pipette, not only to the powder directly, but to the sides and upper edges of the filters. Each addition should be allowed to drain before more solvent is used. When exhausted, wash the stem of the funnel with chloroform, collect the filtrate and washings in a tared Jena or non-sol beaker,³ evaporate carefully at a slightly elevated temperature or in a current of air until the solvent is apparently dissipated, add 5 cc. of ether, evaporate, then heat for 15 minutes at about 100° C., cool in a desiccator and weigh.

Comments: The chloroform will remove certain lubricants such as "white oil," cocoa butter, stearic acid, and, if present, will be found with the acetanilid residue. The amounts are, however, usually so small that they may be disregarded for practical purposes. This observation is applicable to other determinations where the same or similar conditions obtain. A Gooch crucible may be used to advantage in place of the filter papers.

Purity of acetanilid: The purity of the acetanilid can be determined by the Pharmacopœial standard for this drug. The most important single observation is the melting temperature. Pure, dry acetanilid melts at from 111° to 113° C. If there is not sufficient material, a larger amount of the powder may be extracted. Occasionally artificially colored tablets are encountered. In such cases the chloroformic residue may be correspondingly colored, but the amount of color dissolved is generally negligible.

¹J. Am. Chem. Soc., 1913, 35: 1809; Drug. Circ., 1914, 58: 28.

²With the collaboration of W. O. Emery, E. C. Merrill, A. G. Murray and S. Palkin.

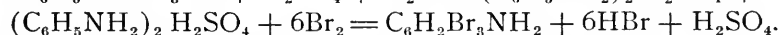
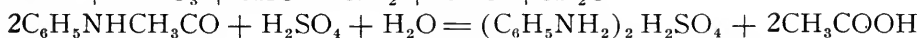
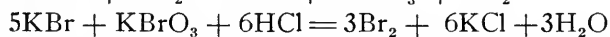
³These beakers should be used in all similar determinations.

Acetanilid, Method B: If the acetanilid should prove impure, proceed by method A above, except collect the filtrate into a 200 cc. Erlenmeyer flask, distill to about 10 cc., add 20 cc. dilute sulphuric acid (10 percent) and digest on steam bath until the liquid is reduced to about 15 cc. and the chloroform is removed, then add 20 cc. of water, continue digestion until solution is reduced to about 15 cc., again add 20 cc. of water, continue digestion until solution is reduced to about 10 cc., finally add 40 cc. water and 15 cc. concentrated hydrochloric acid, and titrate with standard potassium bromid-bromate solution (Koppeschar's solution) until a slight yellowish color persists.

Comments: The first part of this procedure is for the purpose of converting the acetanilid into anilin sulphate and dissipating the acetic acid. The yellowish color is due to a slight excess of bromin. While adding the reagent the flask should be repeatedly rotated to agglutinate the precipitated tribromanilin formed. Should the amount of acetanilid be large and the tribromanilin precipitate too bulky, it may be necessary to dilute the anilin sulphate solution more and even titrate an aliquot part of the solution. If there is any probability of the chloroform dissolving sufficient water to carry appreciable amounts of associated bodies, the chloroform extracts should be collected in a second separatory funnel and washed with 15 or 20 cc. of water, then transferred to the Erlenmeyer flask and proceeded with as directed above. This observation should be borne in mind while working with various mixtures.

Potassium bromid-bromate solution: Dissolve 50 grams of potassium hydroxid in 50 cc. of water, add bromin, at ordinary temperature, to slight excess, dilute to 500 cc., heat to expel excess of bromin, filter, and make up to a liter. The solution is standardized against acetanilid and should be diluted so that each cc. represents about 0.01 gram of acetanilid.

Reactions involved in preparing potassium bromid-bromate solution and in determining the acetanilid by method B:



Residue insoluble in chloroform: The total residue can be ascertained indirectly by deducting the amount of acetanilid obtained from the original weight taken. It may also be determined as follows: (a) Expose filters and contents in a protected place to the atmosphere for 24 hours, then weigh, using outer filter as counterpoise. (b) Heat filters containing the residue at 100° C. for one-half hour, cool in desiccator, and weigh, using outer filter as counterpoise. This gives residue on a moisture-free basis. Suitable calculations must be made to reduce data to uniform basis.

Comments: The residue of compressed acetanilid tablets consists essentially of starch, adhesive matter and inorganic lubricant, but in the case of molded tablets it consists chiefly of milk sugar.

The kind of starch may be determined by means of a microscope. The amount of starch may be estimated by the official method described in Bulletin 107 (revised) Bureau of Chemistry, p. 53, beginning at the point where the insoluble

residue is introduced into the refluxing flask and heated with 200 cc. of water and 20 cc. of hydrochloric acid.

Ash: Proceed as directed by general method for ash. The inorganic matter should consist essentially of talcum, but occasionally some "filler" is met.

ACETANILID COMPOUND.

Tablets bearing this name should contain as medicinal agents, acetanilid, caffeine, and sodium bicarbonate, together with the ingredients usually employed in preparing tablet medication. The caffeine and acetanilid of this mixture may be extracted from a neutral, an alkaline or acid aqueous solution with chloroform.

Caffeine: Place about 1 gram, accurately weighed, into a separatory funnel¹ (A), add 25 cc. chloroform, shake well, add 25 cc. water and sufficient dilute sulphuric acid to render distinctly acid, agitate thoroughly and set aside for the chloroform to separate and clear. Transfer the chloroform to a 200 cc. Erlenmeyer flask through a small, dry filter. Repeat this operation with the same amount of chloroform three or four times, or until exhaustion is complete. Distill the chloroform gradually as the extraction proceeds to about 10 cc. finally. Then add 20 cc. of dilute sulphuric acid and continue distillation until all the chloroform is removed, transfer flask to steam bath and digest mixture until contents of flask are reduced to about 10 cc., add 20 cc. water and continue digestion until liquid amounts to about 10 cc.; cool, transfer to separatory funnel (B) with sufficient water to make about 25 cc. Exhaust with successive portions of chloroform (25 cc.) until all the caffeine is removed. The chloroformic extractions can be evaporated in a tared beaker at a low temperature or the chloroform may be distilled from a flask to about 10 cc., then transferred with washings to a tared beaker and evaporated spontaneously or at a low temperature in a current of air. When apparently dry, cool, add 5 cc. of ether and evaporate carefully to avoid loss of caffeine by crepitation, finally dry at 80° C. for one-half hour, cool in desiccator and weigh.

Comments: Test purity by U. S. P. standard for caffeine. Unless extreme care is exercised the results will be low, due to incomplete extraction, creeping, etc. In this operation the acetanilid is converted into anilin sulphate, which, like many alkaloidal salts, is insoluble in chloroform and other immiscible solvents and, therefore, remains in the solution from which the caffeine has been extracted.

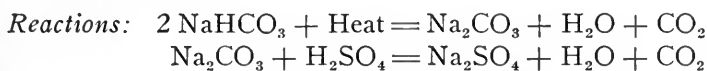
Acetanilid: Transfer aqueous solution in separatory funnel (B) containing the anilin sulphate to an Erlenmeyer flask, wash the separatory funnel (B) and the filter used for filtering chloroformic solution of caffeine above with two successive portions (15 and 10 cc.) of water, and also introduce these washings into the flask. Heat flask containing the anilin sulphate a short time to expel the chloroform, add 15 cc. of concentrated hydrochloric acid, then introduce slowly a standard potassium bromid-bromate solution, with agitation, until a distinct yellow color persists. The amount of acetanilid can readily be determined from the number of cubic centimeters of standard solution used. See comments for acetanilid under acetanilid tablets.

Sodium Bicarbonate, Method A: Introduce into a suitable dish from ½ to 1 gram of the material, incinerate at a dull, red heat, until all organic matter is

¹The joint should be moistened with a drop of water to prevent leakage of chloroform.

destroyed and the residue is white, or nearly so; cool, dissolve the residue in water, add sufficient but a known amount of standard sulphuric acid to decompose the carbonate, then titrate back the excess of acid with standard potassium hydroxid solution, using methyl orange as indicator. Calculate results to sodium bicarbonate.

Comments: If the mixture is heated to fusion any talcum that is present may be disintegrated and the results obtained abnormal. This procedure is applicable only in special cases.



One cubic centimeter of normal sulphuric acid is the equivalent of 0.084 gram of sodium bicarbonate.

Sodium Bicarbonate, Method B: This chemical may be accurately determined by treating the mixture with 20 percent hydrochloric acid and absorbing the carbon dioxid evolved. About 2 grams of the material should be used. A detailed method with illustrated apparatus will be found on pages 169 and 170 of Bulletin 107 (Revised), Methods of Analysis, Bureau of Chemistry.

Comments: This method may be used in all cases where no other method is given.

Talcum, etc.: Introduce into a previously heated, cooled and weighed Gooch crucible provided with an asbestos mat about 1 gram, accurately weighed, of the powder; treat with sufficient warm water at about 40° C. to remove the sodium bicarbonate, etc., wash with 25 cc. alcohol, incinerate to white ash, cool in desiccator and weigh. The powder may be disintegrated in a beaker with water at about 40° C., then transferred to crucible and finished as above.

Comments: This procedure will include not only talcum but other insoluble, inorganic, non-volatile matter which may be added in the form of a filler or otherwise.

This general procedure may be used unless some non-volatile or insoluble (in water or alcohol) inorganic medicinal agent is present and should be applied when no other method is given.

Starch: Weigh into a 200 cc. beaker a suitable quantity, 2½ to 3 grams, of the dry material, add 50 cc. of alcohol, mix thoroughly, allow to stand a short time, transfer to filter and wash with about 200 cc. of lukewarm water, puncture the bottom of the filter, wash the residue into a 500 cc. flask with water, and make the volume up to 200 cc. with water, add 20 cc. of hydrochloric acid, specific gravity 1.125, attach flask to reflux condenser and heat for two and a half hours. Cool and nearly neutralize with sodium hydroxid, make volume up to 250 cc., filter and determine the dextrose in an aliquot part of the filtrate as directed in Methods of Analysis, Bulletin 107 (revised), page 49, section (b).

Comments: This method is of general application for ordinary starch, but is not suited for estimating soluble starch. Table for calculating dextrose will be found in Bulletin 107. Starch is present in virtually all tablets containing insoluble drugs and should be determined by this method.

ACETANILID COMPOUND WITH CITRIC ACID.

Citrated caffein is sometimes used in place of the alkaloid caffein. Some manufacturers seem to forget that there is a difference between the two products and furthermore they do not appear to know that this product should consist approximately of equal parts of caffein and citric acid. All of the ingredients present in these tablets excepting citric acid may be determined by methods given under acetanilid compound.

Citric acid: If there is no disturbing factor present, the acid can be titrated directly, but usually sodium bicarbonate is present in these mixtures and frequently sufficient moisture to induce some reaction with the citric acid forming a little sodium citrate. Several methods have been tried, but the results have not been concordant. Methods tried were: Extraction with absolute alcohol and titration; precipitation as barium citrate in 50 percent alcohol; and dissolving in water, acidulating with dilute hydrochloric acid, filtering, evaporating the filtrate to dryness and eliminating all free hydrochloric acid, then titrating with a standard alkaline solution.

Comments: The amount of citric acid present as citrated caffein can be ascertained approximately from the caffein found. The latter is the basis of the caffein citrate reported in this paper.

ACETANILID COMPOUND WITH CODEIN.

The term "codein" has come through lax usage to mean either the alkaloid, sulphate or phosphate. Strictly speaking, it means the alkaloid only and not any of its derivatives. The amount of sulphate or phosphate of this alkaloid present is usually small.

Caffein and acetanilid: Proceed as directed under acetanilid compound.

Codein: The acidulated solution in the separatory funnel from which the caffein and acetanilid have been extracted is rendered alkaline with potassium hydroxid. The liberated codein is extracted with successive portions of chloroform (15 cc. each), and the chloroformic solution filtered through a dry filter into a tared dish. The chloroform is then evaporated, the residue dried on a steam bath, cooled in a desiccator and weighed.

Comments: This gives anhydrous codein, $C_{14}H_{21}NO_3$. The purity of the codein may be determined by submitting it to the Pharmacopœial test prescribed for this drug. The amount and purity may also be checked by dissolving the codein in an excess of tenth normal sulphuric acid and titrating back the excess of acid with fiftieth normal potassium hydroxid, using methyl red as indicator. One cc. of tenth normal sulphuric acid is the equivalent of 0.031719 gram of crystallized codein, 0.0393 gram codein sulphate and 0.0433 gram codein phosphate.

If the insoluble matter should cause any difficulty, the solution may be filtered, the separatory funnel and filter washed, and all collected into another separatory funnel, then extracted as before directed.

The amount of codein found, if present in the form of sulphate or phosphate, may be checked by determining the amount of sulphate or phosphate present in the mixture, provided no other sulphate or phosphate is present.

ACETANILID COMPOUND WITH QUININ.

The quinin in this mixture is usually present in the form of sulphate. The compound may be analyzed as directed for acetanilid compound with codein.

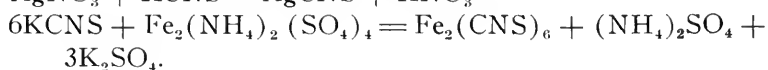
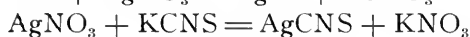
Comments: This procedure gives anhydrous quinin. One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.037826 gram of U. S. P. quinin or 0.0436 gram quinin sulphate.

ACETANILID COMPOUND WITH SODIUM BROMID.

Caffein and acetanilid: Proceed as directed under acetanilid compound for these two chemicals except that the aqueous solution is rendered alkaline with either sodium or potassium hydroxid (free from chlorid) instead of acid.

Sodium bromid: Acidulate the solution remaining after removing the caffein and acetanilid with dilute nitric acid. Dilute to about 100 cc., filter, wash separatory funnel and filter paper with water and collect filtrate and wash in suitable beaker. The volume should finally amount to about 150 cc. Add tenth normal silver nitrate solution in excess to precipitate the bromin as silver bromid. Then add 1 cc. of ferric ammonium sulphate solution (10 percent) and titrate back the excess of silver nitrate with tenth normal solution of potassium thiocyanate. From the amount of tenth normal silver nitrate solution used the quantity of sodium bromid present in the mixture can readily be calculated.

Comments: In case the mixture is of such a character as to permit titration with silver nitrate without filtering, this part of the method may be omitted. One cubic centimeter of tenth normal silver nitrate is the equivalent of 0.010292 gram sodium bromid.



ACETANILID COMPOUND WITH SODIUM SALICYLATE.

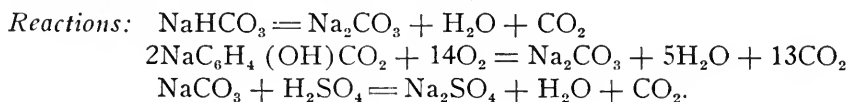
Caffein and acetanilid: Proceed as directed under acetanilid compound with sodium bromid for determining caffein and acetanilid.

Sodium salicylate: Acidulate solution in separatory funnel, from which the caffein and acetanilid have been extracted, with dilute hydrochloric acid, remove the liberated salicylic acid with successive portions of chloroform. Transfer the chloroformic extract containing the salicylic acid into a tared beaker through a filter paper. Evaporate the chloroform at low temperature in a current of air, to avoid loss of any salicylic acid by volatilization. Finally, dry at 80° C., transfer to desiccator, cool, and weigh. From the amount of salicylic acid obtained by this operation the quantity of sodium salicylate in the mixture can be readily calculated.

Comments: The purity and the quantity of the salicylic acid can be determined by titrating the residue with tenth normal potassium hydroxid, using phenolphthalein as indicator. One cubic centimeter of tenth normal potassium hydroxid is the equivalent of 0.0138048 gram of salicylic acid or 0.0160 gram sodium salicylate.

Sodium bicarbonate: Proceed by method B under acetanilid compound.

Sodium bicarbonate and sodium salicylate: The total amounts of sodium bicarbonate and sodium salicylate in this way can be checked by incinerating a given weight of the material at a dull, red heat, dissolving the residue in water and titrating the sodium carbonate formed with standard sulphuric acid, using methyl orange as indicator. The total sodium carbonate so obtained should be equal to the amount of sodium carbonate that can be produced by incinerating the sodium bicarbonate and sodium salicylate.



One cubic centimeter of normal sulphuric acid is the equivalent of 0.084 gram sodium bicarbonate and 0.160 gram sodium salicylate.

ACETPHENETIDIN TABLETS.

Acetphenetidin: This chemical may be determined by Method A for estimating acetanilid in acetanilid tablets. The purity of the acetphenetidin is determined by the standard prescribed for this product by the Pharmacopœia. The melting temperature is from 134° to 135° C.

ACETPHENETIDIN AND CAFFEIN.

Acetphenetidin and caffein: Remove these chemicals from the mixture by the method for extracting acetanilid and caffein under acetanilid compound, transfer chloroformic solution to tared beaker, evaporate at room temperature in current of warm air, treat residue with 5 cc. of ether (which is rapidly dissipated at room temperature, heat to 80° C. for a short time, transfer to desiccator, cool and weigh. This gives the total acetphenetidin and caffein.

Caffein: Determine caffein by method for caffein under acetanilid compound.

Acetphenetidin: Deduct the amount of the caffein found from the combined weight of acetphenetidin and caffein, which gives acetphenetidin.

Comments: Acetphenetidin is not as readily hydrolyzed as acetanilid. For this reason especial care should be exercised to see that all particles of the acetphenetidin are dissolved in the acid solution by repeated rotation of the flask. If hydrolysis is incomplete the acetphenetidin will be extracted with the caffein and vitiate the results.

AMMONIUM CHLORID.

Ammonium chlorid, Method A: Dissolve a suitable amount in 50 cc. of water, acidulate with nitric acid, add an excess of tenth normal silver nitrate and titrate back with tenth normal potassium sulphocyanate, using 1 cc. of ferric ammonium sulphate solution (10 percent) as indicator.

Comments: For parallel reaction see ammonium bromid under acetanilid compound with sodium bromid. One cubic centimeter of tenth normal silver nitrate is the equivalent of 0.00535 gram of ammonium chlorid.

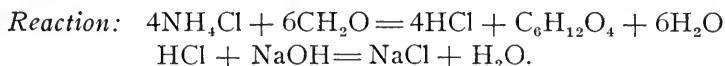
Ammonia gas (NH₃), Method B: Introduce about 1 gram of the material into a 500 cc. Kjeldahl flask, add 200 cc. of water and 15 cc. of a saturated solution of sodium hydroxid, and a few grains of granulated metallic zinc, No. 20, fine. Then distill the mixture until all of the ammonia gas has passed over.

Collect the distillate in a flask containing standard sulphuric acid. Sufficient liquid should be present in the flask receiving the distillate to cover the lower end of the condenser. Titrate back the excess of sulphuric acid, using cochineal as indicator. From the quantity of sulphuric acid consumed the ammonia gas can be readily calculated and from this the ammonium chlorid. The amount of ammonium chlorid obtained by this process should agree with the amount of ammonium chlorid obtained by the chlorid determination.

Comments: One cubic centimeter of normal sulphuric acid is the equivalent of 0.017034 gram of ammonia gas (NH_3) and 0.0535 of ammonium chlorid. In order to guard against any of the caustic alkali being carried over mechanically in the process of distillation, it will be necessary either to introduce a trap or incline the flask. This is a general method to be used for all ammonia compounds unless otherwise directed. The metallic zinc is added to minimize or prevent bumping.



Method C: Introduce 5 cc. of formaldehyde solution (37 percent) into a beaker containing 50 cc. of water, add a few drops of phenolphthalein solution and sufficient sodium hydroxid solution to render this mixture neutral, then add from $\frac{1}{2}$ to 1 gram of the material to be tested, bring the mixture to boiling and titrate acid formed with semi-normal sodium hydroxid solution.



One cubic centimeter of normal sodium hydroxid is the equivalent of 0.0535 gram of ammonium chlorid.

Talcum, etc.: Incinerate a convenient quantity in a suitable crucible.

AMMONIUM CHLORID AND CODEIN.

Ammonium Chlorid: Proceed as under ammonium chlorid.

Codein: Introduce about 1 gram accurately weighed into separatory funnel, dissolve in 25 cc. of water, render alkaline and finish operation as directed for codein under acetanilid compound with codein.

AMMONIUM SALICYLATE.

Salicylic acid: Introduce from $\frac{1}{2}$ to 1 gram, accurately weighed, into a separatory funnel, dissolve in about 25 cc. of water, acidulate with dilute sulphuric acid, and shake out with successive portions of 20 cc. of chloroform. Transfer chloroformic solution into tared beaker, through dry filter paper. Evaporate chloroform at slightly elevated temperature in a current of air. Finally dry the residue at 80°C ., cool in desiccator and weigh.

Comments: From the amount of salicylic acid obtained, calculate the ammonium salicylate. See salicylic acid under acetanilid compound with sodium salicylate. One cubic centimeter of tenth normal potassium hydroxid is the equivalent of 0.0155 gram of ammonium salicylate.

Talcum, etc.: See Ammonium chlorid.

AMMONIUM SALICYLATE COMPOUND.

This mixture usually contains ammonium salicylate, acetphenetidin, sodium bicarbonate and caffeine, together with the usual ingredients employed in the manufacture of tablets.

Acetphenetidin and caffeine: Extract as directed under acetanilid compound with sodium bromid, transfer chloroformic solution to tared beaker and finish by method under acetphenetidin and caffeine.

Ammonium salicylate, Method A: Follow directions for estimating sodium salicylate under acetanilid compound with sodium salicylate, substituting ammonium for sodium.

Method B, Ammonia gas (NH_3): Follow directions under ammonium chlorid.

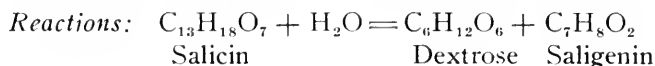
AMMONIUM SALICYLATE COMPOUND WITH SALICIN.

Contains ammonium salicylate, acetphenetidin, caffeine, sodium bicarbonate, salicin, starch, etc. Exhaust about 2 grams, accurately weighed, with warm alcohol, transfer alcoholic extract to a 200 cc. tared beaker, through filter, evaporate in a current of warm air at room temperature or slightly above, heat at about $80^\circ C$. for one-half hour, cool and weigh. This gives the combined weights of ammonium salicylate, acetphenetidin, caffeine and salicin.

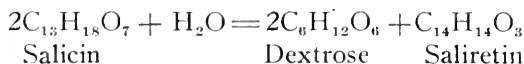
Caffeine and acetphenetidin: Transfer the residue into a separatory funnel with water and chloroform, using water first. The former should not exceed 50 cc. nor the latter 25 cc. Render the mixture alkaline and follow instructions under acetphenetidin and caffeine.

Ammonium salicylate: Acidulate solution from which caffeine and acetphenetidin have been removed with dilute hydrochloric acid and extract with chloroform. Proceed as directed under ammonium salicylate. This removes salicylic acid from the mixture.

Salicin: Transfer mixture from which salicylic acid has been removed to a 200 cc. beaker, wash separatory and filter paper with water, add washings to beaker, digest on steam bath until all chloroform has been dissipated, cool, dilute to about 175 cc., add 20 cc. of concentrated hydrochloric acid and finally make up to 200 cc. Mix thoroughly, transfer to 500 cc. flask, attach to reflux condenser and heat to boiling for two hours. Estimate the dextrose formed by method given in Bulletin No. 107 (Revised), Methods of Analysis, page 49.



or



Either formula may be used to calculate the salicin, from the dextrose formed, in that a given amount of salicin always produces the same quantity of dextrose.

ANALGESIC COMPOUND.

This mixture contains acetanilid, caffeine, sodium bicarbonate, codein sulphate, sodium salicylate, together with the usual excipients.

Caffeine and acetanilid: Place about 1 gram accurately weighed into separa-

tory funnel (A), add 25 cc. of chloroform, shake well, then add 25 cc. of water and enough dilute sulphuric acid to make acid. Agitate thoroughly, set aside to permit the chloroform to separate and clear. Transfer chloroform solution to another separatory funnel (B) through a dry filter. Repeat this operation with successive portions of chloroform until all the caffeine, acetanilid and salicylic acid are removed. Add 20 cc. of water and 5 cc. of normal sodium hydroxid solution, or sufficient to make distinctly alkaline, to the chloroformic solution in separatory funnel (B), agitate well, set aside to let chloroform separate and clear. Draw off chloroform solution into separatory funnel (C). Treat chloroformic solution in separatory (C) with several successive portions of slightly alkaline water until all of the sodium salicylate is removed. Collect all of the alkaline water in separatory funnel (B), wash with 20 cc. of chloroform which is to be transferred to separatory (C). Separatory (C) contains all of the caffeine and acetanilid in solution. Determine these drugs by method under acetanilid compound.

Salicylic acid: Render solution in separatory funnel (B) acid with dilute sulphuric acid, and proceed as directed under ammonium salicylate.

Codein: Render solution in separatory funnel (A) alkaline with potassium hydroxid solution, and follow directions for codein under acetanilid compound with codein.

ANODYNE COMPOUND.

The active ingredients are acetanilid, caffeine and sodium bicarbonate. Analyze as directed under acetanilid compound.

ANTIPYRIN TABLETS.

Proceed as directed for acetanilid, Method A, under acetanilid tablets.

Purity of antipyrin: The purity of the antipyrin can be determined by the standard prescribed by the Pharmacopœia. It should melt between 111° and 113° C.

ANTISEPTIC TABLETS.

The chief active agent in these tablets is corrosive sublimate. The term "antiseptic" is generally applied to mercuric chlorid mixed with citric acid, or ammonium chlorid or sodium chlorid. These chemicals increase the solubility of the mercurial compound and render it more useful as an antiseptic.

Mercuric Chlorid, Method A: In a 200 cc. beaker dissolve about $\frac{1}{2}$ gram, accurately weighed, in 100 cc. of water, acidulate with hydrochloric acid, heat to boiling, and precipitate with washed hydrogen sulphid gas. Transfer the precipitate to an ignited tared Gooch crucible, wash thoroughly with hot water and finally with alcohol; dissipate the alcohol from the Gooch crucible and wash the precipitate with repeated small portions of carbon bisulphid until all of the free sulphur is removed, dry at 100° C, cool and weigh as mercuric sulphid. From these data calculate the mercuric chlorid.

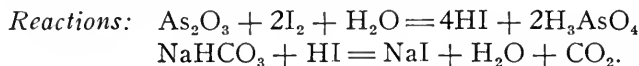
Comments: Methods B and C under Corrosive Sublimate tablets may also be applicable but they have not been tried.

Citric acid: Introduce 1 gram into a suitable beaker, add 25 cc. of water, an excess of neutral sodium chlorid, about 6 grams, dissolve and titrate directly with a standard potassium hydroxid solution, using phenolphthalein as indicator.

Comments: For determining ammonium chlorid or sodium chlorid see Cor-

rosive Sublimate with these ingredients. The added coloring matter frequently present in antiseptic tablets may interfere somewhat with the method. One cubic centimeter of tenth normal potassium hydroxid solution is the equivalent of 0.07003 gram of crystallized citric acid.

Arsenic trioxid: Treat a suitable amount of the powdered material with tenth normal sodium hydroxid solution to remove the arsenical compound, neutralize the solution with hydrochloric acid, add sodium bicarbonate, and treat immediately with tenth normal iodine solution.



One cubic centimeter of tenth normal iodine solution is the equivalent of 0.004948 gram of arsenic trioxid.

ASPIRIN TABLETS.

Follow directions for acetanilid (Method A) under acetanilid compound.

ATROPIN SULPHATE.

Atropin: Dissolve $\frac{1}{2}$ gram in water, render alkaline with ammonium hydroxid and extract with a mixture of ether, 1 part, chloroform, 2 parts. Transfer immiscible mixture containing the atropin to a tared beaker, evaporate at room temperature in a current of warm air. Finally heat at 100° C. for a few minutes, transfer to desiccator, cool and weigh.

Comments: Atropin sulphate tablets should be freely soluble in water. The lubricant usually employed for this form of medication is boric acid.

BISMUTH SUBNITRATE.

Bismuth oxid, Method A: Ignite in a small, fused silica evaporating dish 2 grams accurately weighed of bismuth subnitrate at a dull, red temperature until all nitrous vapors cease to be evolved and all organic matter is destroyed. Cool, add a few drops of nitric acid to convert any metallic bismuth into nitrate, heat gently to evaporate excess of acid and ignite as before. Transfer evaporating dish to desiccator, cool and weigh. Deduct weight of talcum (below) which leaves amount of bismuth oxid.

Bismuth oxid, Method B: By determining the nitrogen present the amount of bismuth subnitrate can be approximately estimated. Methods for determining nitrogen in nitrate bearing substances will be found in Methods of Analysis, Bulletin 107 (Revised), pages 7 to 9, inclusive.

Talcum, etc.: Weigh 3 grams of powdered material into a suitable beaker, add 25 cc. of 20 percent nitric acid, mix thoroughly, warm to 40° C., set aside for about one hour, and during the interim agitate from time to time, then transfer to a tared previously heated Gooch crucible provided with a nitric acid treated mat of asbestos, using a little 20 percent nitric acid. Wash residue with a little nitric acid of same strength, then with dilute (10 percent) nitric acid and finish with water. Dry residue, ignite to a white or nearly white ash, cool and weigh.

Comments: Bismuth subnitrate varies somewhat in composition. It should, however, yield not less than 80 percent of pure bismuth oxid.

BISMUTH SUBNITRATE AND CALOMEL.

Bismuth subnitrate: Determine this chemical by a method given under bismuth subnitrate.

Calomel: Introduce about 2 grams accurately weighed into a 200 cc. flask, add 50 cc. of water and 25 cc. of approximately normal potassium hydroxid. Attach flask to reflux condenser and heat for about one-half hour, filter, wash residue with water and collect filtrate and washings in beaker, acidulate contents with nitric acid, add an excess of silver nitrate to precipitate the chlorid, titrate back excess of silver nitrate with tenth normal solution of potassium sulphocyanate, using about 1 cc. of ferric ammonium sulphate, 10 percent as indicator. One cubic centimeter of tenth normal silver nitrate is the equivalent of 0.023606 gram of calomel.

Comments: If there is an excessive amount of starch present the method becomes very difficult, if not impossible, of operation.

CAFFEIN ALKALOID.

Caffein: Proceed as directed for acetanilid (Method A) under acetanilid tablets.

After evaporating the chloroform solution to apparent dryness, add 5 cc. ether, evaporate carefully, finally dry at 80° C. for one-half hour, cool in desiccator and weigh.

CAFFEIN CITRATED.

Caffein: Proceed as directed under acetanilid compound for estimating caffein, except that chloroform solution is carefully evaporated to dryness and the procedure concluded as under caffein alkaloid.

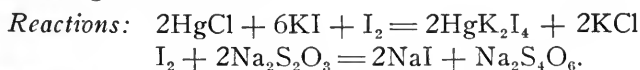
Citric acid: Introduce about 2 grams, accurately weighed, into a beaker, dissolve in 25 cc. of water, and determine the amount of citric acid by means of tenth normal potassium hydroxid solution, using phenolphthalein as indicator. See citric acid antiseptic tablets.

CALOMEL AND SODIUM BICARBONATE.

Calomel, Method A: Introduce into a beaker about 1 gram, accurately weighed, disintegrate with about 50 cc. of water, add 5 grams of potassium iodid, agitate the mixture for a short time, then add an excess of standard tenth normal iodine solution. Allow the solution to stand for about 15 minutes, then determine the excess of iodine with a standard tenth normal solution of sodium thiosulphate, using starch paste as indicator.

Comments: In order to insure against possible error, run a control, using the same amount of potassium iodid and iodine solution as in the procedure above. The iodine solution and the potassium iodid may be added in reverse order and it is claimed by some with better results.

One cubic centimeter of tenth normal iodine solution is the equivalent of 0.023606 gram of calomel.

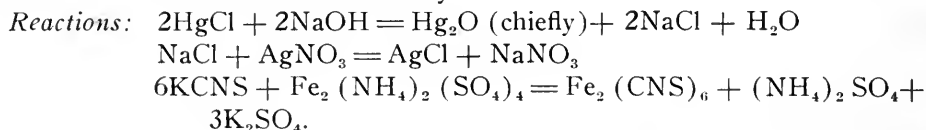


Method B: Introduce into a 200 cc. beaker about 1 gram, accurately weighed, of the mixture, treat with warm water (not above 60° C.) and assist in disin-

tegrating the tablets by means of a stirring rod, allow the mixture to stand for about one-half hour, then filter and collect the calomel on a tared, previously ignited, porcelain Gooch crucible, provided with an asbestos mat, wash with water and finally with alcohol, then dry at 100° C., cool in a desiccator and weigh. Heat the Gooch crucible in a Bunsen flame sufficiently to completely volatilize the calomel. The difference between the two weights represents the calomel.

Method C: Introduce about $\frac{1}{2}$ gram, accurately weighed, into a 100 cc. beaker, add 20 cc. of water and about 10 cc. of normal sodium hydroxid solution, transfer to steam bath and heat for about one hour. This procedure will disintegrate the calomel, forming insoluble mercury compounds, chiefly mercurous oxid, and sodium chlorid. After the reaction is complete dilute to 50 cc., filter through a Gooch crucible, and wash thoroughly with hot water. Acidulate the filtrate with nitric acid, add standard tenth normal solution of silver nitrate to excess and 1 cc. of ferric ammonium sulphate solution, then titrate back the excess of silver nitrate, with tenth normal potassium thiocyanate.

Comments: If desired, the silver chlorid may be collected in a Gooch crucible and determined in the usual way. From the data above the amount of calomel can be readily calculated. If the mixture contains starch or a gummy substance this method will not work satisfactorily.



One cubic centimeter of tenth normal silver nitrate is the equivalent of 0.023606 gram of mercurous chlorid.

Sodium bicarbonate: Titrate a given weight with normal sulphuric acid, using methyl orange as indicator if no disturbing agents are present. One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.084 gram of sodium bicarbonate.

CALOMEL AND LACTOSE.

Calomel: Proceed as directed under calomel and sodium bicarbonate.

Lactose: Introduce about 1 gram, accurately weighed, into a 100 cc. glass-stoppered flask or cylinder, add about 50 cc. of water, agitate thoroughly to disintegrate, and finally make up to 100 cc. Mix thoroughly and filter; reject the first 20 cc. of the filtrate. Proceed from this point as directed on pages 241-2 of Methods of Analysis, Bureau of Chemistry, Bulletin No. 107 (revised).

CINCHONIDIN.

Cinchonidin: Introduce 1 gram of the finely powdered material into a separatory funnel, add 50 cc. of water, and acidulate with dilute sulphuric acid, add 25 cc. of chloroform, render alkaline with sodium hydroxid, agitate thoroughly, set aside for the chloroform to separate and then proceed as directed for codein under "Acetanilid Compound with Codein."

Comments: If the insoluble matter interferes with the process, filter the acidulated solution, then render alkaline, add chloroform and continue as above. The purity of the cinchonidin and many other alkaloids can be determined by dissolving in a little neutral alcohol, adding a slight excess of tenth normal sul-

phuric acid and titrating back excess of acid by means of fiftieth normal potassium hydroxid, using methyl red as indicator. Tenth normal factor for cinchonidin is 0.0294196.

CINCHONIDIN SULPHATE.

Follow directions under cinchonidin.

COCAIN AND COCAIN HYDROCHLORID.

Follow directions under cinchonidin. Tenth normal factor for cocain is 0.0303178; for cocain hydrochlorid 0.03396.

CODEIN AND CODEIN SULPHATE.

Follow directions under cinchonidin. Tenth normal factor for codein, 0.031719; for codein sulphate, 0.0393.

CORROSIVE SUBLIMATE TABLETS.

This chemical is generally mixed with such ingredients as sodium chlorid, ammonium chlorid, and citric acid, but it is also put in tablet form by means of lactose. In the latter case the term "tablet triturate" is usually applied. Mercuric chlorid tablets are frequently colored artificially.

Mercuric chlorid: Estimate by Method A under antiseptic tablets, and as follows:

Method B: Introduce 1 gram accurately weighed into a 250 cc. flask, dissolve in 25 cc. water, add $2\frac{1}{2}$ grams of potassium iodid (dissolved in 5 cc. of water), 30 cc. of normal caustic alkali or sufficient to make alkaline and 3 cc. of a 37 percent formaldehyde solution, mix thoroughly and set aside for 10 minutes with occasional shaking, then add 10 cc. or sufficient to make acid, 36 percent acetic acid, diluted with an equal volume of water, mix well, finally add 50 cc. of tenth normal iodine solution, stopper flask and shake vigorously for two minutes, then occasionally until the mercury is dissolved. Estimate excess of iodine with tenth normal sodium thiosulphate solution, using starch as indicator. Deduct the excess of iodine from the total amount of iodine used which gives the amount of iodine combined with the mercury.

Comments: In an alkaline medium formaldehyde reduces the mercury in the corrosive sublimate to the metallic state. The following equation shows the reaction between the metallic mercury and iodine:



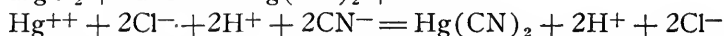
Each cubic centimeter of tenth normal iodine solution is the equivalent of 0.01385 of mercuric chlorid.

Method C: Dissolve about 1 gram of the substance, equivalent to about $\frac{1}{2}$ gram of mercuric chlorid, accurately weighed, in 75 cc. of water and render neutral, if not already so, to methyl orange, litmus or some other suitable indicator, add 10 cc. of 2 percent hydrocyanic acid solution, also made neutral to the indicator to be used. Estimate the amount of hydrochloric acid liberated by titrating with fifth normal sodium hydroxid solution.

Comments: The method depends upon the formation of an undissociated molecule of mercuric cyanid and the liberation of hydrochloric acid. The acidity of the hydrocyanic acid solution to the particular indicator to be used can be

determined and subtracted from subsequent operations instead of making this determination for each titration. The indicator to be used depends on the nature of the coloring matter present, if any.

Reactions: $\text{HgCl}_2 + 2\text{HCN} = \text{Hg}(\text{CN})_2 + 2\text{HCl}$ or



Each cubic centimeter of fifth normal sodium hydroxid is the equivalent of 0.02715 gram of mercuric chlorid.

CORROSIVE SUBLIMATE AND AMMONIUM CHLORID.

Mercuric chlorid: Proceed as directed for determining this chemical by methods under antiseptic tablets and corrosive sublimate tablets.

Ammonia Gas (NH_3): Place about 1 gram accurately weighed into a 500 cc. Kjeldahl flask, dissolve in 200 cc. water, add 25 cc. of potassium sulphid solution (40 grams of commercial potassium sulphid dissolved in 1 liter of water)¹ or sufficient to precipitate all of the mercury. Render alkaline with sodium hydroxid and proceed from this point as directed by Method B under ammonium chlorid.

CORROSIVE SUBLIMATE AND SODIUM CHLORID.

Mercuric chlorid: Proceed by Method, A, B or C under corrosive sublimate tablets.

Method D: Into a tared porcelain evaporating dish weigh about 1 gram of the substance, previously dried at 100° C., heat in a muffle furnace at a dull, red temperature until all of the corrosive sublimate is volatilized, transfer dish to desiccator, cool and weigh. The loss represents mercuric chlorid and organic coloring matter, if present.

Sodium Chlorid, Method A: The residue left in the evaporating dish by Method D above represents the sodium chlorid.

Method B: Dissolve the residue left by Method D above in 50 cc. of water, acidulate with nitric acid and add an excess of tenth normal silver nitrate solution. Titrate back excess of silver nitrate with potassium sulphocyanid, using 1 cc. of 10 percent ferric ammonium sulphate solution as indicator.

Comments: If the amount of sodium chlorid should require too much silver nitrate solution, the residue can be dissolved in a suitable volume of water and an aliquot taken for the determination.

One cubic centimeter of tenth normal silver nitrate solution is the equivalent of 0.005846 gram of sodium chlorid.

HEROIN HYDROCHLORID.

Proceed as directed under cinchonidin.

HEROIN AND PHENACETIN.

Phenacetin: Introduce from 1/2 to 1 gram of the material into a separatory funnel, add 25 cc. of chloroform, agitate well, then add 25 cc. of water, and sufficient dilute sulphuric acid to acidulate, repeatedly agitate so as to bring about complete solution of the water-soluble material, then set aside to permit the chloroform to clear and separate. Transfer the chloroformic solution to tared

¹See Methods of Analysis, Bull. 107 (revised), p. 6.

beaker. Repeat the operation until all the phenacetin is removed from the mixture. Finish by Method A under acetanilid tablets.

Heroin: Render the solution from which the phenacetin has been removed alkaline with potassium hydroxid and proceed as directed under cinchonidin. One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.03692 gram of diacetyl morphin or 0.040566 gram diacetyl morphin hydrochlorid.

HEXAMETHYLENAMIN.

This chemical is usually compressed without the addition of any foreign material, and it is therefore generally necessary only to accurately weigh the tablets in order to determine whether or not they are of proper weight.

It is desirable, however, to examine the product by the Pharmacopœial test. If it should be found that foreign material is present, such as talcum, starch, etc., the powdered material can readily be extracted with chloroform, the chloroformic extract collected in a tared beaker, evaporated, dried, cooled and weighed.

Nitrogen: By determining the percent of nitrogen the amount of hexamethylenamin and its purity can readily be ascertained. The nitrogen may be estimated by Kjeldahl or Gunning method, in Methods of Analysis, Bulletin of Bureau of Chemistry No. 107 (revised), pages 6 and 7, respectively. Hexamethylenamin contains 39.99 percent of nitrogen.

MIGRAIN TABLETS.

Under this name various mixtures are met with. A common one consists of acetanilid, caffein and sodium bicarbonate. Analyze by methods prescribed under acetanilid compound.

A second mixture encountered consists of acetanilid, caffein, sodium bicarbonate and sodium salicylate. This combination may be analyzed by procedure outlined under acetanilid compound with sodium salicylate.

MORPHIN SULPHATE.

This chemical is usually compressed with lactose. Boric acid is commonly used as lubricant. The amount of morphin may be determined either directly or indirectly as follows:

Morphin, Method A: Dissolve from $\frac{1}{2}$ to 1 gram in 25 cc. of water in a suitable vessel, render alkaline with ammonium hydroxid, agitate well and allow to stand one-half hour, transfer to funnel with a small plug of cotton in throat. The precipitated morphin will be collected on the cotton. Wash the morphin sufficiently with cool water to remove all of the ammonia, then transfer the morphin and cotton to a porcelain evaporating dish, using from 25 to 50 cc. of alcohol (neutral), depending on the amount of morphin, add a slight excess of tenth normal sulphuric acid to convert the morphin into morphin sulphate, allow to stand a short time, then titrate back excess of acid with fiftieth normal potassium hydroxid, using methyl red as indicator. One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.03032 gram of morphin, or 0.0379 gram of morphin sulphate.

Method B: Estimate the amount of sulphate present in a definite quantity of morphin tablets by precipitating with barium chlorid in the usual manner. From

the amount of barium sulphate obtained, the amount of morphin sulphate can be readily calculated.

Method C: Determine nitrogen by Kjeldahl or Kjeldahl-Gunning methods, pages 5 and 7, respectively, Methods of Analysis, Bulletin No. 107. The nitrogen may also be estimated by Kjeldahl-Gunning-Arnold method. (U. S. Department of Agriculture, Bureau of Chemistry Circular 108, p. 15, 1912.)

Comments: The latter process is shorter than either of the other two. It is identical with the official Kjeldahl method except that 10 grams of crystallized potassium sulphate are added as in the Gunning method, omitting the potassium permanganate.

Lactose: Proceed as directed for this carbohydrate under calomel and lactose.

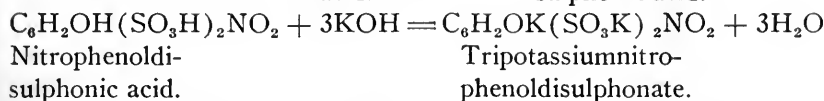
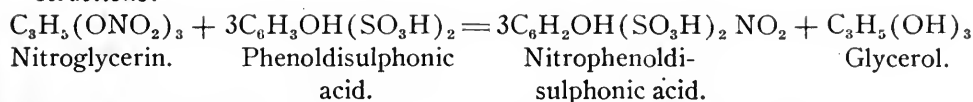
NITROGLYCERIN TABLETS.

Preparation of the sample: Crush 25 tablets under 10 cc. of ether. A 25 cc. cylindrical graduate makes a convenient container and a stout glass rod is used to crush the tablets. Rinse the rod with a little ether, allow the insoluble material to settle, and decant the solution into a 50 cc. graduated flask. No special care need be taken to prevent a little insoluble material from going into the flask. Wash the residue repeatedly with 5 cc. portions of ether and decant the washings into the flask until it has been filled to the mark. Insert stopper and mix well.

Nitrate Method: Place 20 cc. of the ethereal solution in a carefully dried and tared 50 cc. beaker. (A second aliquot of 10 cc. may be used as a check.) Evaporate the solvent in a vacuum desiccator charged with sulphuric acid. Apply the vacuum gradually, to prevent ebullition. Leave the beaker in the vacuum 30 minutes after the ether has evaporated. Weigh and calculate the ether extract per tablet. Treat the residue with 2 cc. phenoldisulphonic acid reagent, rotating the beaker in such a way that the reagent comes in contact with the entire inner surface. After 10 minutes add water and wash into a 100 cc. flask. (If a check analysis, as suggested, was made, wash this into a 50 cc. flask. Dilute to the mark and place 10 cc., representing 1 tablet, in a 100 cc. flask, add about 50 cc. water and a few drops more potassium hydroxid solution (20 percent) than is required to neutralize the acid. (Do not use sodium hydroxid.) Dilute to the mark and compare the color with that produced by a standard nitrate solution similarly treated. Use any convenient colorimeter or Nessler tubes.

Reagents and standards: Phenoldisulphonic acid reagent.—Dissolve 25 grams of pure white phenol in 150 cc. of concentrated sulphuric acid, add 75 cc. of fuming sulphuric acid (13 percent SO_3), stir well, and heat for two hours at about 100 degrees.

Standard Solution.—Dissolve 0.7217 gram potassium nitrate in 1 liter of water. Evaporate 10 cc. of this solution just to dryness on the steam bath. Cool and treat the residue with 2 cc. phenoldisulphonic acid reagent, observing the precautions noted above and using a glass rod if necessary to aid the solution of the residue. After 5 or 10 minutes dilute to 250 cc. Each cubic centimeter of this solution contains 0.004 milligram of nitrogen. Add an excess of potassium hydroxid solution to an aliquot of this solution and dilute to 100 cc. It is advisable to prepare a standard of approximately the same color as the unknown. Nitro-glycerin is 5.4 times nitrate nitrogen.

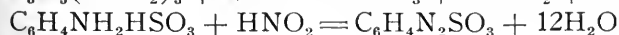
Reactions:

Nitrite or modified Hay method: Place 5 cc. of the ethereal solution in a 50 cc. beaker, dilute with 5 or 10 cc. alcohol and add about 5 cc. of ½ percent. alcoholic potassium hydroxid. Cover with a watch glass and allow to stand 10 minutes. Place on steam bath, allow to boil, remove the watch glass, and when most of the liquid is evaporated add about 25 cc. water and leave on steam bath until about half the liquid has evaporated or until the odor of alcohol can no longer be detected. Cool and dilute to 250 cc. Each cubic centimeter of this solution represents 0.01 of a tablet. Introduce an aliquot representing 0.02 to 0.04 milligram of nitroglycerin into a 100 cc. graduated flask, dilute with sufficient water to make the volume 90 to 95 cc., add 1 drop concentrated hydrochloric acid, then 2 cc. sulphanilic acid solution and 2 cc. naphthylamine hydrochlorid solution. Complete the volume with water. Prepare at the same time and in the same way standards containing known amounts of sodium nitrite. Stopper the flasks and mix well. Compare the colors after 30 minutes. Nitroglycerin is calculated by multiplying the nitrogen found by 8.

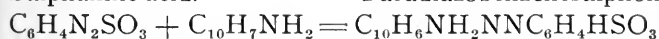
Reagents and standards: Sulphanilic acid solution.—Dissolve 1 gram in 100 cc. hot water.

Naphthylamine hydrochlorid solution.—Under a hood boil 0.5 gram of the salt with 100 cc. water for 10 minutes, keeping the volume constant. Filter and keep in a glass stoppered bottle.

Standard solution of sodium nitrite.—To a cold solution of about 2 grams of sodium or potassium nitrite in 50 cc. of water, add a solution of silver nitrate as long as a precipitate appears. Decant the liquid and thoroughly wash the precipitate with cold water. Dissolve in boiling water. On cooling the silver nitrite is precipitated. Dry the crystals in the dark at the ordinary temperature (preferably in a vacuum). Weigh out 220 milligrams of the dry silver nitrite, dissolve in hot water and decompose with a slight excess of sodium chlorid. When the solution becomes clear, dilute to 1 liter. Dilute 5 cc. of this solution to 1 liter. This second dilution is the standard to be used. It contains 0.0001 milligram of nitrite nitrogen per cubic centimeter.

Essential reactions:

Sulphanilic acid. Paradiazobenzenesulphonic acid.



Alpha Azoalphamidonaphthalene-
Naphthylamine. parazobenzenesulphonic acid.

Comments: Only nitrite-free water should be used in the estimation by this method.

NUX VOMICA TABLETS.

Total alkaloids: Introduce 5 grams of the material into a 200 cc. graduated cylinder, add 100 cc. of chloroform-ether mixture (1-4 by volume), agitate well and repeatedly for one-half hour, add 5 cc. of ammonia water, or sufficient to render alkaline, agitate repeatedly for 1 hour, then make up to 150 cc., agitate well, set aside for the insoluble matter to settle and the chloroform-ether mixture to clear, then decant or pipette off an aliquot part (for example, 100 cc.) and transfer to separatory funnel. Acidulate chloroform-ether solution with dilute sulphuric acid and add enough water to make about 25 cc. aqueous solution, agitate well, allow to separate and draw off the watery portion into another separatory. Repeat this operation two or three times with about 20 cc. of water and collect in separatory funnel. Render the acid solution in second separatory funnel alkaline with ammonia water, extract with three successive portions of 20 cc. of chloroform, collect chloroformic solution in another separatory, wash with 25 cc. of water, transfer the chloroform into tared beaker, evaporate on steam bath at low temperature. Rinse separatory funnel with a small portion of chloroform and transfer to beaker. When chloroform is dissipated add about 5 cc. of ether, evaporate and dry at 100° C. for one-half hour, cool and weigh.

Strychnin: Destroy brucin in dried residue by adding 6 cc. of 35 percent nitric acid, mixing well and allowing the mixture to stand at ordinary temperature for 10 minutes.

Take up residue with water and transfer to separatory funnel with several small portions of water, render alkaline with ammonia water, and proceed as directed for total alkaloids.

Comments: The amount of strychnin and its purity may now be determined by taking the alkaloid up in a little (neutral) alcohol, adding a slight excess of tenth normal sulphuric acid and titrating back excess of acid with fiftieth normal potassium hydroxid, using methyl red as indicator.

One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.0334 gram of strychnin.

Brucin: Determine by subtracting strychnin from total alkaloids.

PHENACETIN TABLETS.

Analyze by methods under acetanilid tablets. Determine phenacetin by Method A.

PHENOLPHTHALEIN.

Determine by Method A under acetanilid tablets, using alcohol, however, in place of chloroform.

Comments: This chemical is now found in all forms of mixtures. A little organic acid is sometimes used to prevent the tablets from turning reddish.

POTASSIUM BICARBONATE.

Potassium bicarbonate is generally compressed without any excipient; in such cases titration may be made directly; otherwise, extract a suitable quantity of the powder with water, filter, wash and titrate the aqueous solution with standard sulphuric acid, using methyl orange as indicator.

One cubic centimeter tenth normal acid is the equivalent of 0.01001 gram of potassium bicarbonate.

POTASSIUM IODID.

Titrate direct, or, when foreign matter is present, extract a convenient quantity with water, wash residue, collect filtrate and washings in beaker, acidulate with nitric acid, add an excess of silver nitrate to precipitate the iodine, then titrate back with a tenth normal solution of potassium sulphocyanate, using about 1 cc. ferric ammonium sulphate, 10 percent solution, as indicator.

Reaction: $KI + AgNO_3 = AgI + KNO_3$.

One cubic centimeter of silver nitrate is the equivalent of 0.016602 gram of potassium iodide.

POTASSIUM PERMANGANATE.

Extract a suitable quantity with water, acidulate with sulphuric acid, warm to about 60° C., and titrate with a tenth normal oxalic acid solution.

Reactions: $2KMnO_4 + 5H_2C_2O_4 + 3H_2SO_4 = K_2SO_4 + 2MnSO_4 + 10CO_2 + 8H_2O$.

One cubic centimeter of tenth normal oxalic acid is the equivalent of 0.00316 gram of potassium permanganate.

QUININ BISULPHATE AND QUININ SULPHATE.

Proceed as directed under cinchonidine.

One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.0378 gram of crystalline quinine, 0.0436 gram of quinine sulphate and 0.0548 gram of quinine bisulphate.

RHEUMATIC TABLETS.

One mixture was found to consist of sodium salicylate, and sodium bicarbonate, together with excipients.

Salicylic acid: Proceed as directed for salicylic acid under ammonium salicylate.

Sodium bicarbonate, talcum, etc.: Proceed as directed under acetanilide compound.

A second mixture was found to contain sodium salicylate, sodium bicarbonate and codeine sulphate.

Salicylic acid: Proceed as directed for determining salicylic acid under ammonium salicylate.

Codeine sulphate: Codeine sulphate will be left in the solution from which the salicylic acid has been extracted. This can be removed by rendering the solution alkaline, thus liberating the codeine which may now be extracted from the mixture by chloroform. The remainder of the procedure is given under Acetanilide Compound with Codeine.

SALICIN TABLETS.

Exhaust a suitable quantity of the powdered material by Method A, under acetanilide tablets, substituting, however, alcohol for chloroform.

SALOL TABLETS.

This article may be analyzed by methods under acetanilide tablets. Salol is determined by Method A, using ether in place of chloroform. Considerable care must be exercised in dissipating the solvent so that none of the salol is lost. The best course to follow is to permit the ether to evaporate at room temperature in a current of warmed air, then introduce the beaker into a vacuum desiccator and allow it to remain for 24 hours before weighing.

SALOPHEN TABLETS.

Determine by Method A under acetanilid tablets.

SANTONIN AND CALOMEL.

Santonin: Determine by Method A under acetanilid tablets.

Calomel: Determine this chemical in residue left after extracting the santonin with chloroform by Method A given under calomel and sodium bicarbonate.

SODIUM SALICYLATE TABLETS.

Salicylic acid: Proceed as directed under ammonium salicylate for determining salicylic acid.

Sodium salicylate: Ignite a given weight of the material, extract the residue with water and titrate with tenth normal sulphuric acid, using methyl orange as indicator.

One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.0160 gram of sodium salicylate.

SODIUM BICARBONATE.

Determine by method given under potassium bicarbonate. The normal factor for sodium bicarbonate is 0.084.

SODIUM BROMID.

Determine by method given under potassium iodid. Tenth normal factor for sodium bromid is 0.010292.

STRONTIUM BROMID.

Determine by method given under potassium iodid. The tenth normal factor for strontium bromid is 0.01778.

STRYCHNIN SULPHATE.

Introduce about 1 gram of the powdered tablets into separatory funnel, dissolve in 25 cc. of water rendered alkaline and remove the strychnin with three or more successive portions of chloroform. The chloroform solutions are collected in a tared beaker and evaporated to dryness. The residue is allowed to cool, 5 cc. of ether added, the ether dissipated and the residue dried at 100° C. for 15 minutes.

Comments: Care should be exercised in drying so that no loss will occur by decrepitation of the strychnin. The purity and amount of strychnin present may be determined by dissolving the residue in neutral alcohol, adding an excess of tenth normal sulphuric acid, and titrating back excess of acid with fiftieth normal potassium hydroxid, using methyl red as indicator. One cubic centimeter of tenth normal sulphuric acid is the equivalent of 0.0334 gram of strychnin and 0.0428 gram strychnin sulphate.

SALOPHEN.

Exhaust from $\frac{1}{2}$ to 1 gram of the powdered material with alcohol, as directed under acetanilid tablets, transfer alcoholic filtrate into tared beaker, evaporate the alcohol and heat the residue for 15 minutes at 100° C., transfer beaker to desiccator, cool and weigh.

Comments: The purity of salophen can be determined by ascertaining its melting temperature which varies from 187° to 188° C.

TRIONAL.

Proceed as directed under salophen.

Comments: The melting point of trional is 76° C.

VERONAL.

Proceed as directed under salophen, using, however, acetone as solvent.

Comment: Melting point, 188° C.

ZINC PHENOLSULPHONATE.

Zinc oxid: Exhaust from ½ to 1 gram of powdered material with alcohol, as directed under acetanilid tablets, collect filtrate in tared evaporating dish, dissipate the alcohol, incinerate the residue in a muffle at a dull, red heat until a white or nearly white residue is left. Cool dish in desiccator and weigh residue as zinc oxid.

Comments: Uneffloresced zinc phenolsulphonate leaves 14.6 percent of its weight as zinc oxid on ignition.

Reaction: $\text{Zn}(\text{C}_6\text{H}_4(\text{OH})\text{SO}_3) + 14\text{O}_2 = \text{ZnO} + 12\text{CO}_2 + 2\text{SO}_3 + 5\text{H}_2\text{O}$.

Residue insoluble in alcohol: See residue insoluble in chloroform under acetanilid tablets. By deducting the amount of residue so obtained from the total amount of material originally taken the quantity of alcohol-soluble material (zinc phenolsulphocarbolate, chiefly), is obtained.

THE COST OF RODENTS.

Rats, mice, flies, mosquitoes, and the various form of body parasites have always been held in contempt and disgust, and always and everywhere have been regarded as vermin. Growing knowledge of the important role played by these lower forms of animal life in the transmission of disease is ample justification for this feeling. They are exceedingly expensive.

The Journal of the American Medical Association comments on a recent article in The Farm and Fireside, which discusses the amount of damage done in this country by rats, and estimates that there are in the United States at least 300,000,000 of these animals, alike destructive to property and dangerous to health. Rats are said to destroy \$100,000,000 worth of grain every year in this country, or enough to feed one hen for every man, woman and child in the nation. The annual cost of rats to the nation is estimated at \$360,000,000.

In addition, the rat population of the country forms a fertile field for the dissemination of bubonic plague, which only needs a starting point in any of our seaports to spread throughout the country and cause the loss of thousands of lives.

In the same issue of The Farm and Fireside, but in a different department, appears an article on the cattle tick, in which it is estimated that the difference between the market value of an animal free from this parasite and one infested with it is about \$8 a cow, and that the cattle tick is today costing the stockmen of the country \$1,000,000,000 each decade, or \$100,000,000 each year.

The discovery and development of bacteriology showed that man had been carrying on for centuries an unconscious struggle with the lower forms of vegetable life. Recent additions to knowledge of the habits and characteristics of vermin show that an equally relentless struggle has been going on between man and the lower forms of animal life.

Contributed and Selected

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

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PART V—FIRST PROOF.

A fifth installment of the Abstract of proposed new descriptions and standards and of changes in descriptions and standards is herewith submitted.

This Abstract embraces most of the Biological Products and Volatile Oils. Where no reference is made to rubrics, tests or assays, it is understood that the material facts remain the same as in the *United States Pharmacopœia*, Eighth Revision.

Other Abstracts will be submitted later. Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, Longport, New Jersey, before September 1, 1914.

BIOLOGICAL PRODUCTS.

Glandulæ Suprarenales Siccæ.—The suprarenal glands of such animals as are used for food by man, cleaned, dried, freed from fat, and powdered, and yielding not less than 0.4 percent. nor more than 0.6 percent. of epinephrine. Added requirement: Not more than 7 percent. of moisture. *Assay*: Add 0.005 Gm. of finely powdered manganese dioxide and 10 Cc. of distilled water to 0.010 Gm. of Desiccated Suprarenal Glands; thoroughly shake the mixture several times during one hour and filter. Compare the color of the filtrate in a test-tube or in any convenient manner, with the color of standard solutions made as follows: Mix 1.85 Cc. of cobaltous chloride T. S. with 0.95 Cc. of gold chloride T. S. and 7.2 Cc. of distilled water; the color corresponds to 0.2 percent. of epinephrine in the filtrate obtained above; 2.95 Cc. of cobaltous chloride T. S. with 1.25 Cc. of gold chloride T. S. and 5.8 Cc. of distilled water corresponds in color to 0.4 percent. of epinephrine; 4.05 Cc. of cobaltous chloride T. S. with 1.35 Cc. of gold chloride T. S. and 4.6 Cc. of distilled water corresponds in color to 0.6 percent. of epinephrine; 5.15 Cc. of cobaltous chloride T. S. with 1.55 Cc. of gold chloride T. S. and 3 Cc. of distilled water corresponds in color to 0.8 percent. of epinephrine. The percentages of epinephrine indicated by the above color standards are based upon the maceration of 0.010 Gm. of the Desiccated Suprarenal Glands in 10 Cc. of distilled water as directed above and filtering. In samples containing more than 0.8 percent. of epinephrine, 0.005 Gm. of the Desiccated Suprarenal

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Glands may be taken, in which case the percentage stated above, as indicated by the color standards, should be doubled. The standard color solutions keep unchanged indefinitely if sealed in test-tubes. The former test with ferric chloride T. S. is omitted.

Note.—The test solutions required above are made as follows:

Cobaltous Chloride T. S.—Two Gm. of Cobaltous Chloride dissolved with the aid of 1 Cc. of hydrochloric acid in sufficient distilled water to measure 100 Cc.

Gold Chloride T. S.—An aqueous solution of Gold Chloride containing 0.1 Gm. of gold in each 100 Cc. of solution, determined by analysis.

Glandulae Thyroideae Siccæ.—The Thyroid Glands of such animals as are used for food by man, freed from connective tissue and fat, dried and powdered and yielding not less than 0.17 percent. nor more than 0.23 percent. of iodine in thyroid combination. Iodine in inorganic or any other form of combination than that peculiar to the thyroid must be absent. Added requirement: Not more than 6 percent. of moisture. Ash changed from 6 percent. to 5 percent. Assay for iodine replacing former test for iodine compounds: Mix 1 Gm. of Desiccated Thyroid Glands in a nickel crucible of about 125 Cc. capacity, with 15 Gm. of a mixture composed of 138 parts by weight of anhydrous potassium carbonate, 106 parts of anhydrous sodium carbonate and 75 parts of potassium nitrate. Spread an additional 5 Gm. of this fusion mixture evenly over the surface. Heat the crucible over a Bunsen flame until no further carbonization is observed, cool it and dissolve the residue in about 150 Cc. of distilled water, warming to hasten solution. Transfer this solution to an Erlenmeyer flask of about 500 Cc. capacity, and add approximately 50 Cc. of a fresh solution of chlorinated soda. Now treat the mixture with enough phosphoric acid, diluted with an equal volume of distilled water, to produce an appreciable yellow tint of free chlorine, then add 10 Cc. more of the phosphoric acid diluted with an equal volume of distilled water and boil the contents of the flask for one-half hour or until the volume has been reduced to about 150 Cc. Cool the liquid, add 10 Cc. of an aqueous solution of potassium iodide (1 in 100) and titrate the liberated iodine with two-hundredth normal sodium thiosulphate V. S., starch paste being used as indicator just before the end of the reaction.

Serum Antidiphthericum.—Added description: "With sometimes a slight granular sediment." Definition and description otherwise as in U. S. P. VIII. The serum must come from healthy animals; must be sterile; must be free from toxin or bacterial products; and must not contain an excessive amount of preservative (0.5 percent. phenol, or 0.4 percent. cresol when such are used); and the total solids should not exceed 20 percent. Serum of a lower potency than 250 units per cubic centimeter is not to be sold. Only Serums may be sold as have been prepared and propagated in establishments licensed by the Secretary of the Treasury of the United States. The law requires that each container of Serum sold by licensed establishments shall bear upon the label, in addition to the name of the Serum, the name, address and license number of the manufacturer, and the date beyond which the contents cannot be expected to yield its specific results. The label should also contain the laboratory number of the Serum, the name and the percentage by volume of the antiseptic used (if such

be used) and the total number of antitoxic units claimed for the contents of the container.

Serum Antidiphthericum Purificatum.—A solution in physiological solution of sodium chloride of certain antitoxic proteins obtained from the blood serum or plasma of a horse, actively immunized against diphtheria toxin. After the serum or plasma from the immunized horse has been collected, the non-antitoxic proteins are removed by precipitation with ammonium sulphate and by dissolving the precipitate in saturated sodium chloride solution, the salts being then removed by dialysis. After dialysis is complete, sufficient sodium chloride is added to make an 0.8 percent. solution. Preserve in sealed glass containers in a dark place, at a temperature between 4.5° and 15° C. A transparent or slightly opalescent liquid, with sometimes a slight granular or ropy sediment, odorless, or having an odor due to the presence of the antiseptic used as a preservative. The liquid is sometimes more or less viscous. The serum must come from healthy animals; must be sterile; must be free from toxin or bacterial products and must not contain an excessive amount of preservative (0.5 percent. phenol or 0.4 percent. cresol, when such are used); and the total solids should not exceed 20 percent. Serum of a lower potency than 250 units per cubic centimeter is not to be sold. Other requirements as under Serum Antidiphthericum.

Serum Antidiphthericum Siccum.—Dried Diphtheria Antitoxin is obtained by the evaporation of either Antidiphtheric Serum or Purified Antidiphtheric Serum in a vacuum, over sulphuric acid, or by passing over it a current of warm air freed from bacteria. Preserve in amber-colored glass containers free from air in a dark place, at a temperature between 4.5° and 15° C. The Dried Serum occurs either in the form of orange or yellowish flakes or small lumps, or as a yellowish-white powder, without odor. The serum is readily soluble in nine parts of distilled water. The solution is opalescent and slightly viscous. For use the Serum should be dissolved under the most rigid asepsis, preferably in the original container. Dried Antidiphtheric Serum does not lose in potency, as does the liquid Serum. Other requirements as under Serum Antidiphthericum.

Serum Antitetanicum.—A fluid separated from the coagulated blood of a horse, *Equus Caballus Linne'*, highly actively immunized against tetanus toxin. Preserve in sealed glass containers in a dark place, at a temperature between 4.5° and 15° C. A yellowish or yellowish-brown transparent or slightly turbid liquid with sometimes a slight granular sediment, odorless, or having an odor due to the presence of the antiseptic used as a preservative. Antitetanic Serum gradually loses its potency, the loss being greater at higher than at lower temperatures. The Serum must come from healthy animals; must be sterile; must be free from toxin or bacterial products; and must not contain an excessive amount of preservative (0.5 percent. phenol, or 0.4 percent. cresol, when such are used); and the total solids should not exceed 20 percent. Only such Serums may be sold as have been prepared and propagated in establishments licensed by the Secretary of the Treasury of the United States. The law requires that each container of Serum sold by licensed establishments shall bear upon the label, in addition to the name of the Serum, the name, address, and license number of the manufacturer, and the date beyond which the contents cannot be expected to yield its

specific results. The label should also contain the laboratory number of the Serum, the name and the percentage by volume of the antiseptic used (if such be used) and the total number of antitoxic units claimed for the contents of the container. The standard of strength, expressed in units of antitoxic power, shall be that established by the United States Public Health and Marine Hospital Service.

Serum Antitetanicum Purificatum.—A solution in physiological solution of sodium chloride of certain antitoxic proteins obtained from the blood serum or plasma of a horse, *Equus Caballus* Linné, and actively immunized against tetanus toxin. After the Serum or plasma from the immunized horse has been collected, the non-antitoxic proteins are removed by precipitation with ammonium sulphate and dissolving the precipitate in saturated sodium chloride solution, the salts being then removed by dialysis. After dialysis is complete, sufficient sodium chloride is added to make an 0.8 percent. solution. It should be kept in sealed glass containers in a dark place, at a temperature between 4.5° and 15° C. A transparent or slightly opalescent liquid, with sometimes a slight granular or ropy sediment, odorless, or having an odor due to the presence of the antiseptic used as a preservative. The liquid is sometimes more or less viscous. The Serum must come from healthy animals; must be sterile; must be free from toxin or bacterial products; and must not contain an excessive amount of preservative (0.5 percent. phenol or 0.4 percent. cresol, when such are used), and the total solids should not exceed 20 percent. Other requirements as under Serum Antitetanicum.

Serum Antitetanicum Siccum.—Dried Tetanus Antitoxin is obtained by the evaporation of either Antitetanic Serum or Purified Antitetanic Serum in a vacuum, over sulphuric acid, or by passing over it a current of warm air freed from bacteria. It should be kept in amber-colored glass containers free from air in a dark place at a temperature between 4.5° and 15° C. The Dried Serum is either in the form of orange or yellowish flakes or small lumps, or a yellowish-white powder, without odor. The Serum is readily soluble in nine parts of distilled water. The solution is opalescent and slightly viscous. For use the Serum should be dissolved under the most rigid asepsis, preferably in the original container. Dried Antitetanic Serum does not lose in potency, as the liquid Serum does. It is sometimes used as a dusting powder or for local application to infected wounds. Other requirements as under Serum Antitetanicum.

Virus Vaccinicum.—The pustules of vaccinia or cowpox removed, under aseptic conditions, from vaccinated animals of the bovine species. It should be kept in a dark place, at a temperature between 4.5° and 15° C. The vaccine pulp should be thoroughly rubbed up in a mortar or passed through a special grinder, strained to remove coarse particles, and made into a smooth emulsion with a glycerin solution. Vaccine Virus gradually loses in potency, the loss being more rapid at high temperatures than at low temperatures. Only such Vaccine Virus may be sold as has been prepared in establishments licensed by the Secretary of the Treasury of the United States. It is required by the law and the regulations now in force that the following requirements be observed. No Vaccine shall be used from any animal having a communicable disease, or suspected of having a com-

municable disease, other than vaccinia; animals used for propagating Vaccine Virus must be under daily veterinary examination for a period of not less than seven days before vaccination, and as soon as the vaccine pulp is removed a necropsy shall be made on each animal and permanent records kept of the same. Each and every lot of Vaccine Virus shall be examined to determine its freedom from pathogenic micro-organisms and a special examination must be made of each lot to determine the absence of tetanus spores or toxin, and permanent records must be kept of these examinations. The Virus must be marketed in sterile containers that comply with the requirements of the law and the regulations established by the United States Government mentioned above. Each package of Vaccine Virus shall bear upon the label the name, address and license number of the manufacturer and the date beyond which the contents cannot be expected to yield their specific results. The label should also contain the laboratory number of the Virus.

VOLATILE OILS.

The following article replaces the U. S. P. VIII text for Oil of Sweet Birch, Oil of Gaultheria and Methyl Salicylate.

Methylis Salicylas.—A product yielding, when assayed by the process given below, not less than 98 percent. of methyl salicylate ($\text{CH}_3\text{C}_7\text{H}_5\text{O}_3=152.06$). It is produced synthetically or obtained by distillation from *Betula lenta* Linné (Fam. Betulaceæ) or from *Gaultheria procumbens* Linné (Fam. Ericaceæ) and the source from which it is derived in every case must be stated on the label. Preserve it in well-stoppered, amber-colored bottles, in a cool place, protected from light. It is a colorless, yellowish or reddish liquid, having the characteristic odor and taste of Gaultheria. Specific gravity at 25° C.: Synthetic 1.180 to 1.185; when from Sweet Birch or Gaultheria 1.172 to 1.180. Boiling Point: 218° to 221° C. Synthetic Methyl Salicylate, or that from Sweet Birch, is optically inactive; when obtained from Gaultheria, it is slightly laevogyrate, not exceeding -1.5° in a 100 mm. tube at 25° C. Sparingly soluble in water; soluble in all proportions in alcohol and glacial acetic acid. It is soluble in 6 volumes of 70 percent. alcohol at 25° C. with not more than a slight cloudiness. The alcoholic solution is neutral or slightly acid to moistened litmus paper. A deep violet color will be produced by shaking a drop of Methyl Salicylate with about 5 Cc. of distilled water and adding a drop of ferric chloride T. S. Add 10 Cc. of potassium hydroxide T. S. to 1 Cc. of Methyl Salicylate, contained in a capacious test-tube, and agitate the mixture. A clear, colorless or faintly yellowish solution results, without the separation of any oily drops either on the surface or at the bottom of the liquid (other volatile oils or petroleum). It does not respond to the Volatile Oil Heavy Metals Test. *Assay for Methyl Salicylate*: Introduce about 2 Cc. of Methyl Salicylate into a tared flask, note the exact weight, add 50 Cc. of half-normal alcoholic potassium hydroxide V. S., connect the flask with a reflux condenser and heat the mixture on a water-bath during two hours. Then add a few drops of phenolphthalein T. S. and titrate the excess of alkali with half-normal hydrochloric acid V. S., noting the amount required. This shows, when calculated from the weight of the sample originally taken, not less than 98 percent. of methyl salicylate.

Oleum Amygdalæ Amaræ.—A volatile oil obtained by maceration and distillation from the ripe kernel of *Prunus Amygdalus* Stokes var. *amara* DeCandolle (Fam. Rosacæ), and from other kernels containing amygdalin, the source from which it is derived in every case to be stated on the label; yielding not less than 85 percent. of benzaldehyde and not less than 2 percent. nor more than 4 percent. of hydrocyanic acid. This Oil is intended for medicinal use; it is not to be used for flavoring foods. Specific gravity changed from "1.045 to 1.060" to "from 1.038 to 1.060" at 25° C. Added requirement: Refractive index: 1.5428 to 1.5439 at 20° C. "Optically inactive" changed to "optically inactive or dextrogyrate, not exceeding +0° 10' in a 100 mm. tube at 25° C." Soluble in "equal volume of 70 percent. alcohol" changed to "dissolves, forming a clear solution, in 2 volumes of 70 percent. alcohol." The test for presence of hydrocyanic acid and the flame test for chlorinated products omitted. Added test: Add 10 drops of the Oil to a little alcohol, introduce a small amount of zinc dust and 2 Cc. of acetic acid and boil the mixture for a short time; no odor of phenyl isonitrile should develop after rendering it strongly alkaline with potassium hydroxide T. S., adding a drop of chloroform and heating (nitro-benzene). *Assay for Benzaldehyde*: Dissolve 3 Gm. of phenylhydrazine (not darker in color than pale yellow) in 50 Cc. of alcohol and titrate 25 Cc. of the solution with half-normal hydrochloric acid V. S., using methyl orange T. S. as indicator, to a distinct change in color. To about 1 Gm. of Oil of Bitter Almond, accurately weighed, add 25 Cc. of the phenylhydrazine solution just prepared and titrate the mixture after thirty minutes with half-normal hydrochloric acid V. S. as just described. The difference between the number of cubic centimeters of half-normal hydrochloric acid V. S. required in the two titrations, multiplied by 0.053 will show the weight of benzaldehyde present. Always freshly prepare the phenylhydrazine solution when required for the assay. *Assay for Hydrocyanic Acid*: Dissolve 15 Gm. of crystallized magnesium sulphate in enough distilled water to measure 100 Cc., add 5 Cc. of this solution to 40 Cc. of distilled water, 5 Cc. of half-normal sodium hydroxide V. S. and two drops of potassium chromate T. S. and titrate the solution with tenth-normal silver nitrate V. S., to the production of a permanent reddish tint. Pour this mixture into a 100 Cc. flask containing about 1 Gm. of Oil of Bitter Almond, accurately weighed, and titrate again with tenth-normal silver nitrate V. S. until a red tint, which does not disappear on shaking, is reproduced.

Oleum Anisi.—A volatile oil distilled from the ripe fruit of *Pimpinella Anisum* Linné (Fam. Umbelliferae), or from the ripe fruit of *Illicium anisatum* Linné (Fam. Magnoliaceæ), conforming in name to the plant from which it is derived. Specific gravity: Changed from "0.975 to 0.988" to "from 0.978 to 0.988 at 25° C." Added: Refractive index: 1.5440 to 1.5600 at 20° C. "Laevogyrate up to -2°" changed to "optical rotation varies from +1° to -2° in a 100 mm. tube at 25° C. (oil of fennel)." "Soluble in an equal volume of alcohol, forming a clear solution, also in 5 volumes of 90 percent. alcohol" changed to "soluble with not more than a slight cloudiness in 3 volumes of 90 percent. alcohol." Cool the oil in determining congealing point to 12° C. instead of 6° C. It does not respond to the Volatile Oil Heavy Metals Test as follows:

Volatile Oil Heavy Metals Test.—Shake 10 Cc. of the oil with an equal volume of distilled water and pass hydrogen sulphide through the mixture until it is saturated; no darkening in color will be produced in either the oil or the water (lead or copper).

Oleum Aurantii Corticis.—Obtained by expression from the fresh peel of *Citrus Aurantium sinensis* Gallezio (Fam. Rutaceæ) and its varieties. Added: Refractive index: 1.4723 to 1.4737 at 20° C. Dextrogyrate—"not less than 95°" changed to "not less than 94°." Added test: Introduce 50 Cc. of Oil of Orange Peel into a 200 Cc. three-bulb Ladenburg flask of approximately the following dimensions: The lower or main bulb 6 cm. in diameter with the smaller condensing bulbs 3.5 cm., 3.0 cm. and 2.5 cm. in diameter, respectively; with the distance from the bottom of the flask to the side arm 20 cm. Distil the Oil at the rate of one drop per second until 5 Cc. has been obtained. The angle of rotation of the first 10 percent. of the distillate thus obtained is equal to or slightly greater than that of the original sample. The refractive index of this first 10 percent. of distillate is not less than 0.0008, nor more than 0.0015 lower than that of the original sample at 20° C. Nitrosolimonene test for added Oil of Turpentine omitted.

Oleum Cadinum.—Added specific gravity: 0.980 to 1.055 at 25° C. "Completely soluble in ether" changed to "Completely soluble in 3 volumes of ether, amyl alcohol, chloroform, glacial acetic acid, or oil of turpentine, but only partly soluble in petroleum benzin." Added tests: One part of the Oil of Cade shaken with 20 parts of warmed distilled water and filtered, yields a filtrate which gives with a few drops of ferric chloride solution (1 in 1000) a red coloration. Portions of this aqueous filtrate reduce silver nitrate in the cold and Fehling's solution on heating. An aqueous filtrate from a mixture with Oil of Cade (1 in 20) produces no red coloration on the addition of a few drops of aniline (wood tar products); another portion of the aqueous filtrate is not colored by the addition of potassium chromate T. S. (coal tar products). Agitate 1 Cc. of Oil of Cade with 15 Cc. of purified petroleum benzin, filter the benzin solution, add an equal volume of copper acetate solution (1 in 20), shake the mixture and then allow it to separate. On adding an equal volume of ether to the separated benzin solution, it produces no intensely green coloration and does not become colored more than from a light yellow to brown (rosin and rosin oil).

Oleum Cajuputi.—Distilled from the fresh leaves and twigs of several varieties of *Melaleuca Leucadendron* Linné, especially the var. *Cajuputi* Roxburgh and the var. *minor* Smith (Fam. Murtaceæ). Rubric and assay for cineol content omitted. "Colorless or greenish liquid" changed to "colorless or yellowish liquid." Specific gravity changed from "0.915 to 0.925" to "from 0.912 to 0.925 at 25° C." Laevogyrate—"not exceeding —2°" changed to "not exceeding —4° in a 100 mm. tube at 25° C." Added test: It does not respond to the Volatile Oil Heavy Metals Test.

Oleum Cari.—Yielding not less than 50 percent., by volume, of carvone, "Soluble in an equal volume of alcohol, also in from 3 to 10 volumes of 80 percent. alcohol" changed to "soluble in 8 volumes of 80 percent. alcohol. Assay for Carvone: Introduce 10 Cc. of the Oil into a 200 Cc. flask, with a

long, graduated neck, by means of a graduated pipette, add 50 Cc. of a saturated solution of sodium sulphite, which has been carefully neutralized by means of acetic acid containing a few drops of phenolphthalein T. S., heat the mixture in a bath containing boiling water and shake the flask repeatedly, neutralizing the mixture from time to time by the addition of a few drops of diluted acetic acid. When no coloration appears, upon the addition of a few more drops of phenolphthalein T. S. and heating for fifteen minutes, bring the residual oil into the neck of the flask by the further addition of the sodium sulphite solution and ascertain its volume. The difference in volume between this residue and the volume of the original oil (10 Cc. multiplied by 10), is equivalent to the percentage by volume of the carvone present.

Oleum Caryophylli.—Distilled from the flower-buds of *Eugenia Aromatica* (Linné) O. Kuntze *Jambosa Caryophyllus* (Sprengel) Niedenzu (Fam. Myrtaceæ). Rubric changed from "80 percent." to "82 percent." of eugenol. Specific gravity: Changed from "1.040 to 1.060" to "from 1.038 to 1.060 at 25° C." Added test: Slightly laevogyrate, not exceeding $-1^{\circ} 10'$ in a 100 mm. tube at 25° C. Tests with potassium hydroxide solution or ammonia water and with ferric chloride T. S. omitted. In the assay the mixture of 50 Cc. of potassium hydroxide T. S. and 10 Cc. of oil, after shaking it for five minutes, is heated on a water-bath for ten minutes to complete the reaction.

Oleum Chenopodii.—Distilled from *Chenopodium ambrosioides anthelminticum* Linné (Fam. Chenopodiaceæ). Added tests: Specific gravity: 0.955 to 0.980 at 25° C. It is laevogyrate, varying between -4° and -10° in a 100 mm. tube at 25° C. It is soluble in 8 volumes of 70 percent. alcohol.

Oleum Cinnamomi.—Distilled from the young twigs of *Cinnamomum Cassia* (Nees) Blume (Fam. Lauraceæ), rectified by steam distillation. Rubric changed from "75 percent." to "80 percent." of cinnamic aldehyde. Specific gravity changed from "1.045 to 1.055" to "from 1.045 to 1.063 at 25° C." "Almost optically inactive" changed to "optical rotation varies from $+1^{\circ}$ to -1° in a 100 mm. tube at 25° C." Hydrogen sulphide test replaced by "It does not respond to the Volatile Oil Heavy Metals Test." Lead acetate test for rosin replaced by the following: Shake 2 Cc. of the Oil in a test-tube with from 5 to 10 Cc. of purified petroleum benzin and decant the latter. This liquid is colorless and does not give a green color upon shaking with an equal volume of copper acetate solution (1 in 1000) (rosin). *Assay for Cinnamic Aldehyde*: Assay as for carvone under *Oleum Cari*.

Oleum Coriandri.—Specific gravity: Changed from "0.863 to 0.878" to "from 0.863 to 0.875 at 25° C." Optical rotation changed from " $+7^{\circ}$ to $+14^{\circ}$ " to " $+8^{\circ}$ to $+13^{\circ}$ in a 100 mm. tube at 25° C." It is soluble in 3 volumes of 70 percent. alcohol. Solubility in 80 and 90 percent. alcohol omitted.

Oleum Cubebæ.—Optical rotation changed from " -25° to -40° " to "from -20° to -40° in a 100 mm. tube at 25° C."

Oleum Eucalypti.—Distilled from the fresh leaves of *Eucalyptus Globulus* Labillardière (Fam. Myrtaceæ) or from other species of *Eucalyptus*. Rubric changed from "50 percent." to "not less than 70 percent." of eucalyptol. "Soluble in all proportions in alcohol; also soluble in 3 volumes of 70 percent. alcohol"

changed to "soluble in 4 volumes of 70 percent. alcohol." Optical rotation omitted. *Assay for Eucalyptol* (replacing former assay): Introduce 10 Cc. of the Oil into a 100 Cc. flask with a long, graduated neck (cassia flask) by means of a graduated pipette, add enough of an aqueous solution of resorcinol (1 in 2) to fill the flask about four-fifths full. Shake the mixture thoroughly for five minutes and then bring the residual oil into the neck of the flask by the further addition of the same strength resorcinol solution, rotating or gently tapping the flask, if necessary, to cause the oil to rise to the surface. When the resorcinol solution has become clear (usually after standing for several hours) ascertain the volume of the residual oil. The difference in volume between this residue and the volume of the original Oil (10 Cc.) multiplied by 10, is equivalent to the percentage, by volume, of the eucalyptol present. When Oils are rich in eucalyptol, dilute the 10 Cc. taken for the assay with an equal volume of oil of turpentine, before applying the test, to avoid crystallization in the resorcinol solution.

Oleum Fœniculi.—Distilled from the ripe fruit collected from cultivated varieties of *Fœniculum vulgare* Miller (Fam. Umbelliferae). Added test: Optical rotation varies from $+12^{\circ}$ to $+24^{\circ}$ in a 100 mm. tube at 25° C. "Soluble in an equal volume of alcohol; also soluble in 10 volumes or less of 80 percent. alcohol" changed to "soluble in 8 volumes of 80 percent. alcohol and 1 volume of 90 percent. alcohol." Congealing point changed from "not below 5° C." to "not below 3° C." Proceed as directed under *Oleum Anisi*, cooling the Oil to 0° C.

Oleum Hedeomæ.—Distilled from the flowering plant of *Hedeoma pulegioides* (Linné) Persoon (Fam. Labiatae). Optical rotation changed from $+18^{\circ}$ to $+22^{\circ}$ to "from $+17^{\circ}$ to $+28^{\circ}$ in a 100 mm. tube at 25° C." Added to solubility requirement, "forming a solution showing not more than a slightly acid reaction with litmus."

Oleum Juniperi.—Distilled from the ripe fruit of *Juniperis communis* Linné (Fam. Pinaceae). Specific gravity changed from "0.860 to 0.880" to "from 0.854 to 0.879 at 25° C." Added tests: The optical rotation varies from 0° to -15° , in a 100 mm. tube at 25° C. It is soluble in 4 volumes of alcohol with not more than a slight cloudiness.

Oleum Lavandulae.—Distilled from the fresh flowering tops of *Lavandula vera* DeCandolle (*Lavandula officinalis* Chaix, *Lavandula spica* Linné) (Fam. Labiatae). Specific gravity changed from "0.875 to 0.910" to "from 0.875 to 0.888 at 25° C." Added tests: The optical rotation varies from -1° to -10° in a 100 mm. tube at 25° C. Shake 20 Cc. of the Oil with 40 Cc. of 5 percent. alcohol and when the mixture has cleared withdraw 30 Cc. of the alcoholic solution. Neutralize this with half-normal potassium hydroxide V. S., using phenolphthalein T. S. as indicator, then add 5 Cc. of half-normal potassium hydroxide V. S., and heat the mixture on a water-bath under a reflux condenser during one hour. Not less than 4.7 Cc. of half-normal hydrochloric acid V. S. is required for neutralization after saponification.

Oleum Limonis.—Obtained by expression from the fresh, ripe peel of *Citrus medica* Linné variety *Limonum* (Risso) Hooker filius (Fam. Rutaceae). Added test: Refractive index: 1.4744 to 1.4755 at 20° C. Optical rotation changed from "not less than $+58^{\circ}$ " to "from $+57^{\circ}$ to $+64^{\circ}$ in a 100 mm. tube at 25° C." Added test: The angle of rotation of the first 10 percent. of the Oil, obtained by

distillation, as described under *Oleum Aurantii Corticis*, is not more than 5° less than that of the original Oil. The refractive index of this first 10 percent. of distillate is not less than 0.0020 nor more than 0.0027 lower than that of the original oil at 20° C. *Assay for Citral*: (Replacing former assay.) Introduce about 15 Cc. of Oil of Lemon into a tared 300 Cc. flask, by means of a pipette, and note the exact weight; add 10 Cc. of a solution of phenylhydrazine (not darker in color than pale yellow) in alcohol (1 in 10), and allow it to stand for one-half hour at room temperature. Then add a few drops of methyl-orange T. S. and neutralize the liquid exactly by the cautious addition of half-normal hydrochloric acid V. S. If difficulty is experienced in detecting the end point of the reaction, carry the titration until the solution is distinctly acid, transfer it to a separatory funnel and draw off the alcoholic portion. Now wash the Oil with distilled water, adding the washings to the alcoholic solution, and titrate the latter with half-normal potassium hydroxide V. S. Carry out a blank test identical with the foregoing except that the Oil of Lemon is omitted, and note the amount of half-normal hydrochloric acid V. S. consumed. Subtract the number of cubic centimeters of half-normal potassium hydroxide V. S. from the number of cubic centimeters of half-normal hydrochloric acid V. S. used in the original test and this result from the corresponding number of cubic centimeters required in the blank test; each cubic centimeter of this difference corresponds to 0.076 Gm. of aldehydes, calculated as citral.

Oleum Menthae Piperita.—Distilled from the flowering plant of *Mentha piperita* Linné (Fam. Labiatae), rectified by steam distillation. Ester content in rubric changed from "6 percent." to "not less than 5 percent." Laevogyrate changed from " -20° to -33° " to "from -20° to -35° in a 100 mm. tube at 25° C." Solubility in alcohol and reaction to litmus omitted, and "no separation of oil globules" added to solubility in 70 percent. alcohol statement. Modified test: Distil about 1 Cc. from 25 Cc. of the Oil and pour the distillate on an aqueous solution of mercuric chloride (1 in 25); a white film does not form at the zone of contact within one minute (dimethyl sulphide—found in non-rectified oils). *Assay for Esters and Total Menthol*: Ten Cc. of the original oil is taken for the menthol assay instead of the washed residual oil from the menthyl acetate assay; otherwise the assay remains unchanged.

Oleum Menthae Viridis.—Distilled from the flowering plant of *Mentha spicata* Linné (*Mentha viridis* Linné) (Fam. Labiatae). Added rubric: Yielding not less than 40 percent., by volume, of carvone. Laevogyrate changed from " -35° to -48° " to "from -35° to -50° in a 100 mm. tube at 25° C." *Assay for Carvone*: Assay as directed for carvone under *Oleum Cari*.

Oleum Myristica.—Specific gravity changed from "0.884 to 0.924" to "from 0.859 to 0.924 at 25° C." Added test: Optical rotation varies from $+14^{\circ}$ to $+30^{\circ}$ in a 100 mm. tube at 25° C. Modified test: Evaporate 3 Gm. of the Oil on a water-bath; not more than 0.06 Gm. of residue should remain.

Oleum Picis Liquidæ.—Specific gravity changed from "about 0.892" to "from 1.012 to 1.065 at 25° C." It is soluble in alcohol, the solution showing an acid reaction with litmus.

Oleum Pimentæ.—Specific gravity changed from "1.028 to 1.048" to "from

1.018 to 1.048 at 25° C." Added test: Its optical rotation varies from 0° to —4° in a 100 mm. tube at 25° C. "Miscible in all proportions in 90 percent. alcohol" changed to "soluble in an equal volume of 90 percent. alcohol." *Assay for Eugenol*: Assay as directed under *Oleum Caryophylli*.

Oleum Pini Pumilionis.—A volatile oil distilled with steam from the fresh leaves of *Pinus montana* Miller (*Pinus Pumilio* Haenke) (Fam. Pinaceæ). It is a colorless or faintly yellowish colored oil having a pleasant, aromatic odor, and a bitter and pungent taste. Specific gravity: 0.853 to 0.869 at 25° C. No portion of the Oil distils below 170° C.

Oleum Rosmarini.—Solubility in 90 percent. alcohol omitted. *Assay for Ester and Total Borneol*: Assay as directed under *Oleum Menthæ Piperitæ*, the Oil of Rosemary factors remaining unchanged.

Oleum Santali.—Optical rotation changed from "—16° to —20°" to "from —15° to —20° in a 100 mm. tube at 25° C." Soluble in 5 volumes of 70 percent. alcohol, forming a solution having a slightly acid reaction with litmus. Solubility in alcohol omitted. *Assay for Santalol*: Assay as directed under *Oleum Menthæ Piperitæ*, using the factors under Oil of Santal, but changing "11.026" to "10.926."

Oleum Sassafras.—Distilled from the root of *Sassafras variifolium* (Salisbury) O. Kuntze (Fam. Lauraceæ). Specific gravity changed from "1.065 to 1.075" to "from 1.065 to 1.077 at 25° C." Optical rotation changed from "not more than +4°" to "from +3° to +4° in a 100 mm. tube at 25° C." Added test: Soluble in 2 volumes of 90 percent. alcohol, forming a solution neutral to litmus.

Oleum Sinapis Volatile.—A product yielding, when assayed by the process given below, not less than 92 percent. of allyl iso-thiocyanate ($\text{CSNC}_3\text{H}_5 = 99.12$). It is produced synthetically or obtained from the seed of *Brassica nigra* (Linné) Koch (Fam. Cruciferae) (freed from fatty oil) by maceration with water and subsequent distillation, and must conform in name to the source from which it is derived. Added test: Optically inactive. Modified tests: The Oil completely distils between 148° and 154° C., and both the first and last portions have nearly the same specific gravity as the original Oil (alcohol, chloroform, petroleum, and fatty oils). The addition of a drop of ferric chloride T. S. to the Oil, diluted with several volumes of alcohol, does not produce a blue coloration (phenols). *Assay for Allyl Iso-thiocyanate*: Connect the flask with a reflux condenser when heating the mixture as directed in the assay for one hour—otherwise the process remains unchanged.

Oleum Terebinthinæ Rectificatum.—The freshly distilled Oil is to be dried by shaking it with anhydrous calcium chloride, and filtering. Specific gravity changed from "0.860 to 0.865" to "from 0.856 to 0.865 at 25° C." "No weighable residue on evaporation of 10 Cc." changed to "not more than 0.010 Gm. of residue."

Oleum Thymi.—Distilled from the flowering plant of *Thymus vulgaris* Linné (Fam. Labiatae). Specific gravity changed from "0.900 to 0.930" to "from 0.894 to 0.929 at 25° C." Optical rotation—"not more than —3°" omitted. "Soluble in half its volume of alcohol and in 1 volume of 80 percent. alcohol" omitted; "soluble in 2 volumes of 80 percent. alcohol" retained. The test with ferric chloride to show a greenish-brown color omitted. *Assay for Phenols*: The assay is to be conducted in a flask with a long, graduated neck instead of in a burette.

BICHLORIDE OF MERCURY TABLETS AND BICHLORIDE TABLET LEGISLATION.*

GEORGE M. BERINGER, PH. M.

In presenting a paper on such a hackneyed subject as Bichloride of Mercury Tablets and Bichloride Tablet Legislation, I am well aware that I may be trying your patience on a subject that you may perhaps consider as threadbare. My association with and study of this subject, however, convinces me that this is not a dead subject, but that it contains several problems directly associated with the duties of the druggist and which pharmacists themselves, in a very large measure, must decide.

The extensive use of corrosive sublimate in this form has justified the decision of the Committee of Revision of the U. S. P. to introduce an official formula, and by this means to endeavor to provide additional safeguards to life in their use. The articles that have appeared in the medical, pharmaceutical and lay press, as well as the discussion in the committee, demonstrate that this is a live subject and associated with it are several questions still to be settled.

In the official recognition of the tablet of mercuric chloride, the U. S. P. is only following the example of most of the pharmacopœias that have been revised in recent years. A study of the foreign formulas and a comparison of these, and likewise of the commonly used American formulas, is interesting.

In American practice, either Wilson's formula, containing a mixture of mercuric chloride and ammonium chloride, or Bernay's formula, containing mercuric chloride and citric acid, have been almost exclusively used. In Europe the formula proposed by Angerer, for *Pastilla Hydrargyri Bichlorati*, has been the type followed. His formula is the following:

PASTILLI HYDRARGYRI BICHLORATI.

Mercury bichloride.

Sodium chloride.....aa 0.5 Kg.

Eosin 1.0 Gm.

Mix the salts and color the mixture with the eosin dissolved in water. Allow the mixture to dry in the air and compress into portions, weighing one or two grammes each.

The German Pharmacopœia IV (1900), and, again in the fifth edition (1910), adopts the title "*Pastilli Hydrargyri Bichlorati*" and directs that, from a mixture of equal parts of mercuric chloride and sodium chloride colored with a red coal tar dye, are to be made cylinders twice as long as thick and weighing 1 or 2 gm. each. Sublimate pastilles must be dispensed in sealed bottles labelled "Poison," and each pastille must be wrapped in black paper on which is printed, in white, the word "Poison" and the content of mercuric chloride stated in grammes.

The Swedish Pharmacopœia (1901) under the title of "*Pastilli Chloreti Hydrargyrici*" directed that "Sublimate pastilles" should be hard cylinders or prisms, weighing either 1 or 2 gm. each, and composed of equal parts of mercuric

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chloride and sodium chloride and colored red by an aniline dye. It, likewise, introduced the requirement, that each tablet must be wrapped in black paper, on which was printed in white the word "Poison."

The Austrian Pharmacopœia (1906), under the title "Pastilli Hydrargyri Bichlorati Corrosivi," directed that equal parts of mercuric chloride and sodium chloride should be triturated to a thorough mixture and colored with a solution of eosin and compressed in pastilles weighing 1 gm. to 2 gm. The pastilles are directed to be dispensed in glass bottles, under a poison-label, and the pastilles are to be singly wrapped in black paper with the word "Poison" imprinted in white.

The Swiss Pharmacopœia, (1907), adopted as a title "Hydrargyrum Bichloratum Compressum," and, as a synonym, "Pastilli Sublimati." The formula is mercuric chloride 666 gm., sodium chloride 333 gm., eriocyanin, A, 1 gm., mixed and compressed into tablets weighing 37.5 cg., 75 cg. and 1.5 gm., and containing, respectively each 25 cg., 50 cg. and 1 gm. of corrosive sublimate. It directs that each tablet must be wrapped in black paper on which is printed, in white, the weight of the sublimate contained, the word "Poison" and a death's-head design.

The British Pharmaceutical Codex, in the first edition of 1907, and likewise in the 1911 edition, gave formulas for a series of these tablets. Under the name of "Solvellæ Hydrargyri Perchloridi,—Soluble Mercuric Chloride Tablets," and, as synonymous, "Antiseptic Perchloride, or Corrosive Sublimate Tablets,"—it directed a mixture of equal parts of mercuric chloride and sodium chloride colored with methyl violet, to be compressed into tablets containing 8.75 grains of the mercuric chloride, so that one dissolved in the imperial pint (20 fl. oz.) of water, will make a one-tenth percent (1 in 1000) solution of mercuric chloride. Under the title "Solvellæ Hydrargyri Perchloridi Fortes," or "Strong Soluble Mercuric Chloride Tablets," a tablet of the same percentage of essential ingredients, but double the weight, was directed, so that one tablet dissolved in twenty fluid ounces of water makes one-fifth percent (1 in 500) of mercuric chloride. Other formulas are given for a "mild" and for a "small" soluble mercuric chloride tablets, yielding, when dissolved as directed, solutions containing 1 in 4000 and 1 in 4500, the latter being especially recommended as suitable for ophthalmic purposes.

The French Pharmacopœia (1908), presented a new style of formula for use of mercuric chloride in antiseptic solution. Its formula for "*Papier au Chlorure Mercurique*" or "*Charta hydrargyri bichlorati*" directs that 5 gm. each of mercuric chloride and sodium chloride be dissolved in a sufficient quantity of distilled water to obtain a volume of 20 cc. Filter paper, purified by treating with water containing one part of hydrochloric acid to the thousand, washing with pure water and drying, is then saturated with the mercuric chloride solution, so that each rectangular surface, 5 cm. by 10 cm., shall imbibe 1 cc. of the solution and represent 25 cg. of mercuric chloride. The superscription "Corrosive Sublimate, twenty-five centigrammes," is directed to be printed with indigo-carmin, thus producing, when immersed in the proper volume of water, a blue solution. The paper is to be protected from light and moisture, and the container is to be labeled in indelible red letters "Poison."

These specifications of the *Pharmacopée Française*, official in that country since July 17, 1908, yields a product essentially the same as the corrosive sublimate leaflets now being made by an American manufacturer, who claims originality and the right to a patent thereon as a new and novel invention.

The Italian Pharmacopœia (1909), gives the title "*Pastiglie di Cloruro Mercurico*," with the Latin synonym, "*Pastilli Bichlorureti Hydrargyri*." The formula is mercuric chloride and sodium chloride equal parts, colored with an aqueous solution of eosin, and compressed into circular pastilles of 1 or 2 gm. in weight.

It is to be noted that most of the foreign pharmacopœias, have, simply, followed in their titles the nomenclature proposed by Angerer, and designate these tablets as "*Pastilles*." In the same pharmacopœias, the title "*pastilli*" is frequently applied to mild remedial agents dispensed in the form of confections or lozenges. It is certainly an unfortunate designation and a dangerous classification that would include such a toxic form along with worm-lozenges, cough-troches, peppermint-drops, etc. It is still more to be regretted that it has been proposed to adopt this same title in the U. S. P. IX. The use of the word "*pastille*" in this connection is not in accordance with the English usage of this word. As defined in the dictionaries, the word "*pastille*" refers to several forms of substances of an entirely different character and dissimilar use.

The Century Dictionary defines "*pastille*" or "*pastil*"—

"1—a small roll of aromatic paste, composed of gum benzoin, sandal wood, spices, charcoal powder, etc., designed to be burned as a fumigator.

"2—a kind a sugared confection, usually of a strong flavor, of a round flat shape, like peppermint drops.

"3—in art: (a) a thin round cake of watercolor; (b) the method of painting with watercolors prepared as pastils or a drawing produced by them.

"4—In pyrotechny: a paper case filled with a burning composition intended to cause rotation of a wheel."

Neither of these definitions would comprise a mercuric chloride tablet of the shape described, or its intended use. In medicine and pharmacy, this title had already been pre-empted and used to a considerable extent for medicated confections, and its adoption, for such a toxic official preparation, is an exceedingly dangerous experiment. It was probably for this reason that the Pharmacopœia Helvetica adopted as its title, "*Hydrargyrum Bichloratum Compressum*," and the British Pharmaceutical Codex, "*Solvellæ*." The "*Solvellæ*" of the Codex, are compressed tablets or discs intended to be dissolved in water for external or local use. The attempt at classification here made, is a step in the right direction. The title coined, however, does not include the toxic character of the product, and, moreover, is subject to the criticism that it has the appearance of an attempt to imitate the trade-marked name of a certain brand of tablets extensively used in England.

The necessity is for a distinct title that will clearly differentiate between the medicinal tablets used so extensively for internal administration, and poisonous tablets intended for external use. The safeguarding of life is the first and principal consideration, and this warrants the coining of a new title, that shall distinguish the latter as a separate and distinct class. For this purpose, I propose *Toxibellæ* as a distinctive class title, and as the official title for these

tablets, *Toxitabellæ Hydrargyri Chloridi Corrosivi*, and as the English, *Poison Tablets of Corrosive Mercuric Chloride*.

The foreign formulas follow the formula of Angerer, in directing equal parts of mercuric chloride and sodium chloride. The American manufacturers generally claim on their labels to adhere to the Wilson formula. Tablets containing the proportion of ammonium chloride directed in this latter formula, are prone to change on keeping. They deliquesce in humid atmospheres and the solubility also lessens with age. For these reasons, some of the manufacturers have already substituted sodium chloride for part of the ammonium chloride. One manufacturer advises that he has found preferable a mixture of corrosive sublimate 7.3 parts, ammonium chloride 2.7 parts, sodium chloride 5 parts. The entire replacement of the ammonium chloride by sodium chloride will doubtless yield a more stable and soluble tablet, and this change should be adopted in the pharmacopœial formula.

The coloring of bichloride of mercury antiseptic tablets, was originally proposed, not only to make them distinct in color from other tablets of the same shape and size, but the primal idea was to obtain a solution that would have a distinct color and not be mistaken and administered for harmless medications or for water. Such accidents had occurred and to prevent their recurrence, Angerer proposed, as an additional safeguard, that solutions of corrosive sublimate should be colored. It has been difficult to select a red dye that would possess sufficient tinctorial-strength, so that only a minute quantity of the coloring agent would be required, and at the same time would be permanent and not altered by the action of the chemicals nor fade on keeping. This problem has confronted the manufacturers and has been the subject of considerable experimentation on the part of the writer.

Eosin, in the quantity proposed, yields a tablet that is distinctly pink, but when in solution (1 in 1000) it does not show a distinct color. This practical difficulty with the red dyes, their variable shades, and, moreover, the fact that confections are frequently of this color and liquid medicines are likewise, commonly, some shade of red, has led to the use of other colors. The British Pharmaceutical Codex directs methyl violet, which, in this combination, gives a blue-purple solution. The Swiss Pharmacopœia orders eriocyanin A, the sodium salt of a suphlonated dye of the triphenyl-methane-carbinol type, that colors silk and wool a bright blue, and is only slightly affected by 10 percent. hydrochloric acid. The French Codex directs Indigo-Carmine for this purpose.

A number of the manufacturers are already giving preference to the blue tablets. One of these manufacturers writes: "Green and red-colored tablets are not at all satisfactory. I believe that you will agree with me that a somber blue would prove the most desirable. Confections are made in red, green, yellow, white and every conceivable color, but the blue is not attractive and, therefore, would in all probability prove the safest."

On the question of coloring for mercuric chloride, Dr. A. G. Rosengarten, whose firm prepares large quantities of mixed salts, already colored for the manufacturers, writes me:

"The only satisfactory color that we have found is blue dye, called indigo-

carmine. We have not yet found a satisfactory red or green dye, but I can highly recommend indigo carmine for consistent results, and a definite weight of that dye added to a definite weight of corrosive sublimate mixture, will produce definite results. I cannot say the same about the other dyes, and I think it will be most desirable to confine the dyes for corrosive sublimate mixture to the one color, blue, and the one dye, indigo-carmine."

My own experiments confirm these statements as to the availability of indigo-carmine for this purpose. 2.5 mg. per tablet is sufficient to color 500 Cc. of water a distinct blue. If a more intense color be desired, this can be increased up to 5 mg. and the quantity to be specified in the formula for 100 tablets should not exceed .5 gm. In my experiments with red dyes, iod-eosin and alizarin carmine (sodium alizarin sulphonate) appear to have given the best results, with the Wilson type, but the color of the solutions is not as bright a red as might be desired. With the Bernay formula, containing citric acid, methylorange has shown the best results.

The official tablet should be adjusted to the basis of one tablet to 500 Cc. of water, yielding a 1 in 1000 solution, instead of one tablet to the pint, as has been the custom. This will necessitate only a slight increase in the weight.

The shape to be adopted for the official "Bichloride Tablets" is one of the questions that is being considered. When these tablets were introduced, the manufacturers, quite naturally, used the moulds already in use, and so the unfortunate mistake was made of manufacturing these poisonous tablets of the round or disc shape; the same shape and size as were used for innocuous medicinal tablets and confections. Fatal accidents, attributable in part to the shape, have demonstrated that it is imperative that this dangerous practice should be discontinued. Toxic tablets of the bichloride of mercury antiseptic type, should be made in a unique shape, one that has not been used for any other purpose, and the use of such a shape or form should be restricted, by legal enactments, to toxic tablets intended for external use.

In recent years, the ingenuity of the American manufacturer has been exercised to obtain a distinctive shape that should characterize and distinguish his brand of "antiseptic tablets." As a result, we now have such shapes as the triangle, diamond, square, cube, keystone, and clover leaf, exploited as proprietary forms of antiseptic tablets. Every one of these shapes has been commonly used in confections and their official recognition and continuance for bichloride antiseptic medication would be a repetition of the original fatal error as to the shape of such tablets. The manufacturers of these shapes are each clamoring for the recognition of his particular shape.

The influence of these commercial interests has been exerted to prevent legislative action that would designate an appropriate shape, or judicial consideration that would permit judgment to crystallize in favor of an official shape, that would insure the greatest amount of protection to life. After all, the question of "safety first" is the paramount question.

Of all the proposals for a shape for bichloride of mercury tablets, the coffin shape suggested by Mr. F. M. Apple in his paper before the Pennsylvania Pharmaceutical Association seems to be best. This has already been adopted by at least four manufacturers, and its general adoption has only been prevented by

the commercial interests back of other designs. Commercial instincts and financial advantage, and not the broad humanitarian principle of what is best to protect life, have been the causes actuating the opposition to legislation and to the official recognition of the best suggestion yet offered.

The German Pharmacopœia has been quoted, as an authority to be followed in fixing the U. S. P. standard. I believe that we should appropriate from the foreign pharmacopœias all that our experience and judgment prove to be correct and in accordance with American practice. In this instance, I cannot approve of following the *dictum* of the German Pharmacopœia. I have a sample of the official German Corrosive Sublimate tablets that have been in my possession since last March. These are not uniform in color and fading has commenced to take place. The shape is in conformity with that of the Ph. Gr., twice as long as broad, and the manufacturer to show this, and possibly to permit of economy, in using only half a tablet at a time, has made them with a ridge across the centre. This makes them resemble forms of the pink, linked phenolphthalein, and other proprietary, laxative wafers, that are so extensively used in this country. It would be difficult to conceive of a more dangerous experiment, than to officially recognize such a shape for bichloride tablets. It would be on a par with the adoption of the Italian Pharmacopœial standard of the round tablet, which we are now ready to condemn. There is no uniformity in the European pharmacopœias regarding these tablets, and so the argument, for the adoption of an international standard, falls flat. The solution of these tablets, when made of a strength of 1 to 1000, as commonly used, is of so delicate a pink tint as to be barely perceptible.

So far as I know, no American manufacturer has yet placed on the market, a bichloride of mercury tablet copied after that of the German Pharmacopœia. As this formula has been published for more than fourteen years, this is noteworthy, and may be construed as an evidence of the good judgment of our manufacturers. To now insist, that the U. S. Pharmacopœia should adopt and make legal, a shape that has not met favor in American practice, is a unique proposition that lacks the popular approval that is essential to its effectiveness.

The importance of throwing every safeguard possible around the sale and handling of such poisonous substances, is now thoroughly recognized. The newspapers have given wide publicity to the deaths, either suicidal or accidental, occurring from bichloride tablets. The evils resulting from the overzealous newspaper, which gives its readers all the details of the method by which some poor unfortunate has gone on the long voyage, have been discussed and decried, yet nevertheless it continues its course with little or no abatement.

A number of State legislatures, in session during the past year, have had under consideration, laws that would restrict the handling of such poison tablets, and which would define their shape, color and label, and further prohibit the use of the prescribed shape for any other purpose. There are, at least, three bills, on the same subject, now pending in Congress. It is certain that we may expect legislation before long on this entire matter, and it is eminently proper that the drug trade should take an active interest in solving a question of public safety that is so closely associated with our business. Unfortunately, the atti-

tude assumed by some of the druggists is that of thoughtless indifference. The argument advanced by others is that such legislation is only a passing sentimental fad and that it can have no influence on the protection of life. This is so fallacious, that it can not long continue to prevent legislation.

It was never expected that any legislation would prevent a person of morbid mind from committing suicide. This is not the purpose of the proposed legislative enactments, but it is contended that, in prescribing a distinctive shape for these poison tablets, they could under no circumstances be mistaken, either in the day or night, for harmless medications. If a distinctive shape had been supplied the Macon, Ga., banker and the Brooklyn business-man, whose deaths, beyond question, were accidental poisonings, at least these lives could have been spared. The necessity for a distinctive shape for Bichloride of Mercury Tablets is well shown by the compilation appearing in Public Health Report No. 46, by Martin I. Wilbert of the United States Public Health Service. In this compilation, Mr. Wilbert shows that, at that time, in the current price-lists of five leading pharmaceutical manufacturers, there were sixteen different formulas and varying sizes of poison bichloride tablets, five different shapes, five different colors, and only three, out of the sixteen, were then made of any other shape than the ordinary round tablet used for internal medication, such as headache and cold tablets. Could any stronger evidence of the necessity for restrictive legislation and a distinctive shape for these poison tablets, be presented, than this compilation in a government bulletin, which shows the present dangerous and unsatisfactory method of marketing these tablets?

The influence of certain manufacturers on proposed legislation, is shown in the act passed by the last session of the Maryland Legislature. Instead of specifying in the act a distinctive shape or color, the value of the legislation enacted is largely nullified by the amended form in which the bill was passed. This law provides that "tablets containing more than 1/10 grain of Mercury Bichloride, must be of either triangular, diamond, square, oblong or other irregular shape, and their color must be either blue, purple, or green, with the word "Poison" imprinted or embossed on each tablet." Further, these tablets can only be sold, dispensed or given away, in bottles, upon one side of which the word "Poison" has been blown, and with a label with the word "Poison" placed on the face of the bottle.

The restrictions regarding the package and labeling, are such as are commonly employed by all of the manufacturers, but the very needed protection *to the consumer*, has been lost sight of, by the overpowering commercial-spirit that prevented the selection of a distinctive shape for the tablets. Any one of a number of shapes, is equivalent to no shape, and the very indefiniteness of the act as passed destroys its value as a measure for the safety of the public.

MAGNESIA MAGMA—MILK OF MAGNESIA, N. F.

SAMUEL T. HENSEL, PH. G.

While the formula for Magnesia Magma (Milk of Magnesia, N. F.) is calculated upon the basis of chemical equivalence, that is to say, the magnesium sulphate and sodium hydroxide are in molecular proportion; yet owing to the method of procedure given in the National Formulary, the resulting precipitate forms a semi-translucent, viscous mass, difficult to pour from a bottle, and far from being the snow-white cream which it is intended to obtain.

President George M. Beringer, published an article, about a year and a half ago, in the *Journal of the A. Ph. A.*, in which he laid down the fundamental principles necessary for success in the manipulation of this process and I am indebted to his article, for the success I have had in the manufacture of this preparation.

The principal features of Mr. Beringer's process are as follows:

First—That the solutions of magnesia sulphate and sodium hydroxide must be brought to the boiling point before mixing.

Second—That the solutions should be mixed in reverse order to that given in the National Formulary; the magnesium sulphate solution being slowly added in a fine stream, with continued stirring, to the solution of sodium hydroxide.

Third—That the sodium hydroxide must be in excess to the extent of 10%.

Fourth—Distilled water is directed.

My experience in the manufacture of this preparation has led me to make two changes in the process, first, with respect to the percentage of sodium hydroxide used, and second, as to the nature of the water employed for the purpose of washing the precipitate.

In the course of my experience, I first observed that the amount of the precipitate obtained, was not constant. The cause of this I traced to a variation in the strength of the sodium hydroxide that I was using, this being the product of three different manufacturers.

I then found that in order to wash the precipitate with distilled water until the supernatant liquid should no longer become cloudy upon the addition of a drop of T. S. Barium Chloride, would increase the cost of production to such a point as to make its use prohibitive.

I, therefore, increased the amount of sodium hydroxide to 12%, and on some occasions to 15%, and also adopted the use of water supplied by our artesian well, which is of exceptional excellence, and which furnishes one of the best potable waters to be found anywhere.

The foregoing reasons have therefore prompted me to make the following modifications.

First—Owing to the variations in yield of precipitate obtained by the use of different samples of sodium hydroxide, I have increased the amount indicated by the theoretical molecular formula, from 12 to 15%. This ensures that when

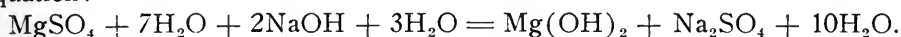
the residual product is reduced to a volume of 1000 Cc., as directed by the National Formulary, each fluid ounce will contain 24 grs. of magnesium hydroxide $\text{Mg}(\text{OH})_2$.

Second—Artesian water is used for washing the precipitate to the amount that each gallon of magma is washed with about twenty-eight gallons of water.

In preparing the solutions necessary for one gallon of magma the magnesium sulphate is first dissolved in one gallon of water, the solution filtered and then boiled. The sodium hydroxide is dissolved in 6 pints of water, and this solution filtered and boiled. The solution of magnesium sulphate is then poured, in a thin stream, and with constant stirring, into the solution of sodium hydroxide, and the resulting mixture boiled vigorously for 15 minutes or more. There is no danger of over-heating the mixture, for the reason that the magnesium element can be exposed to a far greater degree of heat than can be imparted by boiling, without injury.

After the mass has been thoroughly boiled, the mixture of the solutions is diluted with water to 5 gallons, and allowed to stand for twenty-four hours, or until subsidence has taken place to about the one gallon level, which should be previously marked on the container. The exact level is unimportant, however, as my experience demonstrates that the quantity indicated above, will reach its maximum level in twenty-four hours. The supernatant liquid is then carefully drawn off by means of a rubber tube syphon; fresh water is added, and the washing continued in this manner for the requisite time.

The reaction which takes place in this process is represented by the following equation:



The following equation indicates that the molecular quantities of the N. F. are theoretically correct, but the peculiarities of mass-action were evidently not considered; these however, are governed by concentration, temperature and various other influences, which can only be overcome by experience in operative work.

	Grams	Combined Mol. Wt.	Water
$\text{Mg SO}_4 + 7\text{H}_2\text{O}$	250	244.69	+ 3 H_2O
	—	=	—
2NaOH	81	79.52	

A striking illustration of chemical action bearing upon this subject is revealed during the preparation of zinc iodide ZnI_2 . If we take the atomic weight of metallic zinc 64.9, and mix it with the combining atomic weight of iodine 125.9×2 , introducing these two substances into a flask together with a half fluid ounce of distilled water, there will be an immediate re-action, shown by the color which will deepen and become more and more intense as the re-action proceed; followed in a few minutes by an appreciable increase in temperature, up to a certain point, when the heat of the re-action is suddenly enormously increased, and a portion of the iodine is volatilized, as is indicated by the violet-colored vapor which is evolved; the whole mixture in the meantime, becoming involved in violent ebullition. The temperature then gradually subsides, the mass be-

comes cold, chemical action ceases, and no amount of subsequent agitation will discharge the color of the iodine, although it is still in the presence of uncombined metallic zinc.

The cause of the suspension of chemical reaction in the above mixture is due to three conditions, namely, concentration of the solution, diminution of the area of the surface of the metallic zinc, and absence of heat.

If, on the other hand, we employ a considerable excess of metallic zinc, using the atomic weight of iodine as before, the very largely increased area of zinc-surface exposed to the action of the iodine, enables combination to proceed regardless of concentration, up to the point of the complete discharge of the iodine color, thus indicating complete chemical union of the two elements.

In the case of Magnesia Magma, for the same reason, chemical equivalents should not be used; but we must have an excess of sodium hydroxide, in order that the magnesium sulphate may be completely decomposed. This is evident from the amount of that salt found in the supernatant liquid when less than an excess of sodium hydroxide is employed.

URINE ANALYSIS; QUANTITATIVE ESTIMATION OF GLUCOSE.

JOSEPH L. MAYER.

Any one who has occasion to make many quantitative determinations of sugar in urine, is aware of the necessity of having a rapid, accurate and easily applied method of analysis.

Shortly after the publication of Benedict's paper, "The Detection and Estimation of Glucose in Urine" I began experimenting with the object of ascertaining the accuracy of the method.

The sugar in a sample of urine was determined volumetrically by employing the following modification of Benedict's method, which I suggested in a paper read at the last annual meeting of the American Pharmaceutical Association (Journal A. Ph. A., May, 1914, page 687).

Into a 100 cc. Erlenmeyer flask, with cord wrapped around the neck to prevent burning the fingers, pour 25 cc. of accurately measured Benedict's Quantitative Solution, add a few grammes of crystallized sodium carbonate and place on the hot plate. When the solution is boiling, gradually add the sugar solution from a burette, with sufficient slowness to allow the reaction to proceed, putting the flask back on the hot plate until disappearance of color.

The sugar in this same sample, was then determined gravimetrically, by the following method of Defren-O'Sullivan (Leach, Food Inspection and Analysis, 2nd edition, page 564):

Mix 15 cc. of Fehling's Copper Solution with 15 cc. of the Tartrate Solution in a quarter liter Erlenmeyer flask and add 50 cc. distilled water, place the flask and its contents in a boiling water bath and allow them to remain five minutes, then run rapidly from a burette into the hot liquor in the flask, 25 cc. of the sugar solution to be tested (which should contain not more than one-half percent

*Read before the New York State Pharmaceutical Association, June 23, 1914.

of reducing sugar). Allow the flask to remain in the boiling water-bath, just fifteen minutes after the addition of the sugar solution, remove, and with the aid of a vacuum, filter the contents rapidly into a platinum or porcelain Gooch Crucible containing a layer of prepared asbestos-fiber about 1 gm. thick, the Gooch, with the asbestos, having been previously ignited, cooled, and weighed. The cuprous oxide precipitate, is thoroughly washed with boiling distilled water until the water ceases to be alkaline.

(The asbestos should be of the long-fibered variety and should be especially prepared as follows: Boil first with nitric acid (sp. gr. 1.05 to 1.75) washing out the acid with hot water, then boil with a 25 percent solution of sodium hydroxide, and finally wash out the alkali with hot water. Keep asbestos in a wide-mouthed flask or bottle, and transfer it to the Gooch, by shaking it up in the water and pouring it quickly into the crucible while under suction.)

Dry the Gooch with its contents, in the oven, and finally heat to dull redness for fifteen minutes, during which the red cuprous-oxide is converted into the black cupric-oxide. After oxidation as above, the crucible is transferred to desiccator, cooled, and quickly weighed. From the milligrams of cupric oxide, calculate the milligrams of dextrose from table accompanying the method.

The results by both methods were as follows:

Gravimetric	2.806% sugar
Volumetric	2.777% sugar
<hr/>	
	.029% difference

Another sample of urine tested by the same methods contained, by the

Gravimetric method....	6.34 % sugar
Volumetric method.....	6.29 % sugar
<hr/>	
	.05 % difference

These results clearly indicate that the volumetric method of Benedict modified as above, while rapid and easily applied, is capable of yielding just as accurate results as the longer gravimetric method.

I am now conducting a series of experiments, to determine the relative accuracy of all the methods commonly used to quantitatively determine glucose in urine, and hope in the near future to publish the results of same.

THE SIXTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION.

M. I. WILBERT, PH. M., WASHINGTON, D. C.

The 1914 meeting of the American Medical Association was held in Atlantic City June 22-26 and 3,958 members registered as present at the convention. This registration is reported to have been considerably larger than that of any of the previous sessions of the Association in Atlantic City. The work of the House of Delegates and its committees, and the proceedings of the several Sections of the Association are reported at length in the Journal of the American Medical Association for July 4, 1914, v. 63, p. 73-130. The scientific papers, because of the restrictions imposed by the House of Delegates at the Minneapolis meeting, were fewer in number than in former years but the subject matter dis-

cussed was correspondingly good, the programs for the several Sections being generally well carried out.

The Section on Pharmacology and Therapeutics had as usual a program containing many papers of pharmaceutical interest. Delegates from the American Pharmaceutical Association were recognized and Prof. Joseph P. Remington, the Chairman of this Delegation, in extending the felicitations of the organization he represented, said:

"The American Pharmaceutical Association brings greetings to the American Medical Association. It is meet and proper that two National bodies should exchange greetings for however they may differ in function and scope, they are united in principle in the one great object of promoting the health of the Nation in combating disease.

"It is gratifying to know that the Pharmacopœia is practically completed so far as the bulk of the work is concerned. The printing of the Appendix with the Tables, Reagents and Volumetric Solutions will be sent to the printer this week, for this part of the book must be printed first, in order that members may have it for reference in checking up the text of the book.

"During the past year a number of older remedies have been deleted and new remedies admitted. The Committee on Scope, which reports upon proposed admissions and deletions, have finished their work but there are still a few questions which can be settled after the printing is started. One of these questions is the form of so-called Bichloride Tablets. As is well known, the enormous use of these Tablets is a menace to the future growth and prosperity of the Nation. The Pharmacopœia cannot check the use of these Tablets, but it can at least direct the form for their use which will tend to prevent accidental administration.

"The American Pharmaceutical Association during the past year has used its influence in every possible way to control and limit the use of habit-forming drugs.

"The body which I have the honor to represent, asks the assistance of your body to aid in framing wise laws which will make it difficult for 'dopesters' to continue their habits, and to limit the use of these drugs to the legitimate use of properly educated physicians.

"In educational matters Pharmacy has progressed by raising the standard of education of those entering Pharmacy, and enlarging the curricula of the colleges. May we not hope that Medicine and Pharmacy will be more closely linked in the future, and that crimination and recrimination will cease, or take the form of constructive criticism, with the intention of remedying the evils and correcting abuses, and inculcating harmony between the two professions."

Referring more particularly to the probable scope of the U. S. P. IX, the following table represents its status at the present time:

Number of articles in text of U. S. P. VIII.....	958
U. S. P. VIII articles deleted in Revision	237
U. S. P. articles retained in Revision.....	721
Number of new articles admitted to U. S. P. IX.....	67
Total number of articles in tentative list of U. S. P. IX.....	788

On motion of Dr. Murray Galt Motter, of Washington, D. C., the Section on Pharmacology and Therapeutics of the American Medical Association, adopted the following resolution which was referred to the House of Delegates, and endorsed by that body, thus becoming officially recognized as the opinion of the American Medical Association:

"WHEREAS, The Pharmacopœia of the United States of America should be, above all, a book designed to protect the public health and prevent the exploitation of the sick and afflicted for profit; now, therefore be it

"*Resolved*, That the members of the Section on Pharmacology and Therapeutics of the American Medical Association, request the House of Delegates to urge upon the Revision Committee, to make official in the Pharmacopœia of the United States 'corrosive mercuric chloride pastilles' so that physicians may not be compelled to prescribe this remedy under a proprietary name; be it further

"*Resolved*, That this Section endorses the form and description of corrosive mercuric chloride pastilles, as described in the German Pharmacopœia, namely, of cylindrical shape, twice as long as thick, wrapped individually in paper bearing the name of the medicament 'corrosive mercuric chloride pastilles' and the word 'poison' in suitable and striking letters; be it further

"*Resolved*, That a copy of this resolution be forwarded by the Secretary of the American Medical Association to the President and to each of the officers of the United States Pharmacopœial Convention and also to the Chairman and to each member of the Committee of Revision of the Pharmacopœia of the United States."

Of the many papers presented in the Section on Pharmacology and Therapeutics the following contributions were of more immediate interest to pharmacy:

Dr. John F. Anderson, the Chairman of the Section on Pharmacology and Therapeutics, in his address, discussed some unhealthy tendencies in therapeutics and referred more particularly to the ill-advised use of certain biologic products such as the Friedman vaccine for tuberculosis, and crotalin in the treatment of epilepsy. In summing up this paper, he suggested that, while advances in therapeutics are necessary and clinical trials must be made, these trials should be with adequate controls of otherwise treated cases, and under circumstances in which every stage can be watched and the various clinical and laboratory observations be made a matter of unbiased record and the best interests of the patients thus safeguarded. It is difficult to secure these conditions outside of a well-equipped hospital. Until a new method of treatment has received abundant confirmation of this sort it is unjust—to use no stronger word—to apply it promiscuously to patients who are not under constant observation and are not amenable to instant emergency relief.

In a paper on "The Medical Treatment of Chronic Intestinal Stasis," W. A. Bastedo, of New York, discussed the uses and limitations of many of the aperients and cathartics. In commenting on the now widely-used paraffine oil, he called attention to a series of ten samples, not one of which complied strictly with the requirements of the Pharmacopœia, and also stated that, in writing prescriptions for paraffin oil or liquid petrolatum, it is unfortunately true that it is practically necessary to specify some established brand, as the material supplied in retail drug-stores very seldom, if ever, complies with the requirements of the Pharmacopœia.

In a paper on Active Immunization in Diphtheria by toxin-antitoxin mixtures, William H. Park, of New York, reported on recent progress in the prophylaxis of diphtheria, and reviewed the present-day knowledge regarding immunization, and the possible recognition of immunization by skin reaction.

In a paper on the use of diphtheria antitoxin in the treatment of diphtheria, Samuel S. Woody, of Philadelphia, recommended the administration of much larger doses than are used at present, and stated that the number of antitoxin units to be administered, should be in keeping with the stage of the disease. He said that, as a prophylactic diphtheria antitoxin was uncertain, and in a great measure unsatisfactory in its results, and that to be efficacious in the treatment of diphtheria, antitoxin must be given at the earliest possible moment and in large doses.

In addition to the resolution endorsing the inclusion of pastilles of corrosive mercuric chloride in the Pharmacopœia of the United States, the House of Delegates also adopted the following recommendation of pharmaceutical interest, suggested by the Council on Medical Education and endorsed by the reference committee:

"Your committee also recommends that the Council be instructed to urge all medical colleges to adopt the nomenclature of the Pharmacopœia of 1910 and to use the metric system in their teaching."

The scientific exhibit was of unusual interest and the work displayed was not alone excellent, but much of it was of immediate practical value to the profession. The commercial exhibit attracted considerable attention, and was unusually free from objectionable features in the way of proprietary and semi-proprietary preparations not recognized by the Council on Pharmacy and Chemistry.

The officials for the Section on Pharmacology and Therapeutics for the coming year, are: Chairman, R. H. Hatcher; Vice-Chairman, J. Ray Arneil; Secretary, M. I. Wilbert; Delegate, John F. Anderson, and Alternate, Ray E. Wilbur.

At the opening meeting of the Association on Tuesday morning, Dr. Victor C. Vaughan, of Ann Arbor, Michigan, was installed as President, and at the concluding session of the House of Delegates, on Thursday afternoon, Dr. Wm. L. Rodman, of Philadelphia, was selected as the president-elect and San Francisco chosen as the place of meeting for 1915.

BEEF IN 1740.

A writer in the Yale Review who notes that in 1740 beef could be bought in Boston at twelve cents a pound seems to imply that that price was all it was worth. "Invariably a steak for dinner was heralded by the vigorous pounding with the potato masher wielded by the stalwart arm of the cook." The meat, in fact, often came, he tells us, from the carcass of "a cow that no longer gave milk or a bull that had lost its bloom." Still there were many Englishmen in Boston in the eighteenth century, and they must have been able to obtain somewhere roast beef that was worthy of their exacting palates.

ADDRESS TO THE GRADUATING CLASSES OF THE COLLEGE OF
PHYSICIANS AND SURGEONS, SAN FRANCISCO, JUNE 4, 1914.*

R. CADWALLADER, A. M., M. D., PROFESSOR OF OBSTETRICS AND ASSOCIATE PROFESSOR
OF ABDOMINAL SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS OF
SAN FRANCISCO.

It has been twenty-one years since I took my degree in medicine and twenty-five since I first began its study. During this time more radical changes have taken place than in any equal period of recorded history. I began my work in a rural community, in competition with men far older than I, who were typical old-school practitioners. Bridging then, as I do the past, pre-aseptic days with the present aseptic school, it seems natural for me on such an occasion as this to grow reminiscent. Allow me therefore to picture to you the physician of the past, then point out a few of the peculiarities of the present and, with the aid of both the past and the present, forecast the type of man who will be successful in the future.

The doctor of the old school is almost an extinct species. A few yet remain on the outskirts of civilization. They have been shot at so often that they have become very retiring and shy. Like the buffalo and the grizzly bear, the encroachments of modern life have pushed them to the background where a few forgotten specimens eke out a precarious existence, although their race is run.

He was as a rule an ambitious farmer boy with a mastery of Ray's Fourth Part Arithmetic, McGuffey's Sixth Reader and Webster's blue-backed speller. He entered into an understanding with the nearest doctor and became his friend, pupil, attendant, hostler, and general factotum for a term of apprenticeship. He boiled down the home-made drafts, mixed the salves, assisted at bone-settings, read the four volume library consisting of Gray's *Anatomy*, Megg's *Obstetrics*, Flint's *Practice*, Gross's *Surgery*, and possibly Dalton's *Physiology*, and had his powers of observation stimulated and quickened under the tuition of his chief. After a few years he went to the nearest city for two winter-courses of six months' each, in some medical college, where he saw operations, did some dissecting and followed the bed-side teaching of a few prominent men. This was in those days thought to be a very thorough course. He then returned home, by agreement took over a lot of the practice of his preceptor, often married the latter's daughter, and the two men remained in close intimacy for years.

His practice was rural and scattered over many miles of country. Calls were made by horse and cart, or on horseback, according as the state of the roads permitted and all his drugs were carried in saddle-bags. Few, very few, ever remained in the cities or wished to do so. The growth of urban population is recent in our history. In my boyhood I saw the trains of prairie schooners that settled Kansas and from my father's place the unconfined range stretched westward to the Rocky Mountains.

*From the Pacific Medical Journal.

For at least twenty miles in all directions, often for a hundred, he alone was the dependence of the community in accident and sickness. He had to be familiar with every road, by-path, gate and ford in all that region, not only by day but in the darkest night, in rain, sleet, hail, snow, slush and mud. Swollen streams had to be forded, avoided, or swam. He had to know the possibilities of getting through and take the shortest practicable route to and from the home of sickness. No white-handed, soft-nurtured man could endure these hardships. His clothing was not of broadcloth and he never owned a silk hat or became addicted to cigarettes. He dressed in rough clothing and wore boots.

As he sprang from the people, so he went back to the people—to his own family, friends and neighbors and he had their welfare close to heart. His was a genuine love for them as well as for his life-work. The community instinctively recognized this and turned to him naturally for sympathy and help in sickness and distress, nor turned in vain. It was some such man, known and appreciated, that gave McLaren his inspiration for the character of William McClure.

Entering therefore into the closest relationships of life with his families, the physician of the past could, and usually did, wield a tremendous influence for weal or woe. The preacher, the doctor and the schoolmaster were the educated men of the hamlet. Magazines were nearly unknown and always very expensive, the literature obtainable was mainly limited to the omnipresent *Bible* and *Pilgrim's Progress*. This was not perhaps a loss, when we consider the mass of worse than trash now flooding the country. Newspapers were not in general circulation. Politics was taught from the stump, and by debates; seldom if ever were speeches deliberately read.

The doctor then was a power. His name was used to frighten bad children by threats of his mammoth doses of nauseous drugs, and his example was held up to all as a model of grace to emulate.

Such an education and life led to an exceptional cultivation of the observant faculties. His hospital-training was nothing to speak of and he had for years to keep learning until the early habit thus formed became a rule of his life. Right here is the secret of true progress—constant application and addition to the sum of knowledge by observation.

For nursing the sick he had to depend upon the neighbors when the family became tired out. It was thought to be a duty to sit up with the sick. I have known men and women to work hard all day and stay up all night with a neighbor, neglecting their own work and families, even when the afflicted was an enemy. They would have been much surprised had such acts been favorably commented upon. They did it—nay, thank God, they do it still—in numberless places. I have seen a life-long enemy who had quarreled and lawed many years, lay all this aside when his opponent's crushed body had to be taken over country-roads to the railroad, and beyond, for more skilful treatment. I have seen him stop his pressing work, go with all his hired men to shovel dirt over the jutting rocks and smooth the wheel tracks for the passage of a man to whom he would not have spoken a week before. Beneath the petty jealousies of life, beneath the anger and misunderstandings there are depths of feeling in our people that link them to the angels.

What these volunteer nurses lacked in training they made up in willingness, in cheerful service of any kind, in a life-long knowledge of the patient's whims and fancies. Often the women would slip over at such times and do all the housework for a day, get out a washing or do the ironing, send in the cooked food for weeks—all that the mother might have the time to hang over the bedside of a dying child. The beauty of this is that it is not uncommon or any credit taken for it—it was done regularly, quietly and for the transient stranger in his canvas-covered wagon as well.

The therapeutic agents used by the old doctor were never compounded with much regard to taste. There was a popular idea that to be effective the medication must be black and bitter. I have had to add a little quinine to many a prescription before the patient felt that he was getting what his illness needed. No small dose was ever thought to be as powerful as a draught. Tincture *Asafoetida* in teacupful doses was what was expected in hysteria and is not bad treatment to-day if coupled with a casual remark that the dose will be repeated in ten minutes if the patient does not feel better. One favorite in the spring was something like this: ten cents worth each of orris, powdered rhubarb, and dandelion roots, quinine, senna leaves, the bile from a fresh ox-gall in a quart of the very best whiskey—to be well shaken each time and the dose a wineglassful before meals. In most cases it worked beautifully, by lessening the appetite considerably.

A mild laxative which the children were expected to take was a tablespoonful of sorghum molasses stirred stiff with sulphur. To thin their blood in the spring, considered very indispensable, a teaspoonful of cream tartar was given. Sassafras tea was used exclusively for about forty penitential days every spring, and goose-grease, skunk-oil and turpentine held honored places in every cupboard. Straight galenicals alone were used and given absolutely empirically in the cases that experience had taught that they produced results.

The doctor was also the dentist. He never wasted valuable time in filling teeth but pulled every one that ached. Nor did he have an elaborate array of universal forceps. The old men had a hook and tackle that went over a tooth and flipped it out when operated by a ratchet. The men just preceding my time, had one or two pair of forceps and a shoemaker's awl for stumps, and generally got it out. Even bullet-moulds or pliers were impressed at times.

This old-school physician was not a specialist, far from it. Nor do I know exactly what a specialist is myself. Sometimes it seems as if he were a man who, while not knowing any more than any one else of some subject, knows nothing of any other. They were familiar with, and treated everything from abscess to zoster—they certainly had a broad vision. Statistics are not available, but I doubt whether the death-rate was very much higher then than now. The better treatment of to-day is offset by the poorer food, more unhygienic surroundings and the greater stress of life.

The principal evil he had to combat was the utter ignorance of the people on all sanitary and health measures. Superstition still lingers in many forms, but is not comparable with what was acted upon in those days. Potatoes had to be planted and butcherings done, by the moon, veterinary-surgery by the sign, and every

house had one or more almanacs behind the kitchen stove, each with its St. Sebastian-like figure on the front page.

Medicines were thought to be antidotal. The right dose "knocked out" the disease which was an entity. Cancer, for example, was a foreign body with long decapodia-like tentacles that dug into the victim and sapped his vitality. Patent medicines and Thompsonian remedies were implicitly believed in and taken by everybody in dozen-bottle lots. There was always a mad-stone, just in the next county, that sucked the poison from the mad dog's bite. When it had got it all, it would then drop off, and could be purified and made ready for the next case by boiling it in fresh milk; the milk turning green and often reported as killing a hog which carelessly had drank it up. Boils were thought to be good for a man, as removing bad humors from the blood. These were the days of blisters, bleeding, cupping and purging.

The doctor gathered many of his own medicines and boiled them down, on his office-stove, into drafts or poultices. He prepared his own surgical-dressings and held the sutures *in his mouth* until ready to put them in.

When I began my practice it was alongside of just such men as I have described. One of these used to wear home-made clothes of jeans, and his wife put in a row of four or five watch pockets, in which he carried calomel, gamboge, jalap and leptandrin. No matter what the complaint, the first demand was to see the tongue. Then he would take a pinch from each pocket, place in the palm of the left hand, and, with the aid of saliva, roll up a pill to be taken at once. I know the trials, the joys and the exposure of a country practitioner. That experience I would not exchange for any equal years since, so valuable were the lessons it taught me. It was hard to endure them, but now I know the meaning of that couplet, "*Forsan et haec olim meminise juvabit.*" (Perchance even these things it will be delightful to remember.) But for you, Oh! past generation, with all your faults, I have nothing but profound respect. Those men, certainly, had the golden triad of self-reliance, observation and sympathy for the suffering all around them.

The physician of to-day is a far better educated man. As a rule, he has one or more years of college-training added to a four years' course in a high-school and then four annual courses of professional training of nine months each. Often to this is added a year of internship or study abroad. Nor is he any too well *crammed* then, when he gets out. Instead of four years of medical study on a broad basis, we teachers waste at least one year in scientific studies that must be known, but which could better be taught before the real study of medicine is begun. By the time the young man is through with our modern six or seven years' work he is heartily sick of it all. Nor is the student crowded from the start as he should be. Any teacher knows that the whole four years could well be done in three, if continual and industrious study were enforced from the beginning. This long course means a decision too early in life, by a boy, immature, and unable accurately to decide what his bent really is. Too often the determination is made by parents, and results in another physician the more, who is temperamentally and mentally in friction with his calling.

The old-school doctor started his study because of a genuine love for the work

and at a mature age. He therefore learned faster, applied himself better, and his two short years were no doubt the equal of any two of to-day. Could I have the determining voice I would require better preparation, not longer in years of study, but in the subjects taken. Physics, chemistry, biology, etc., should all be mastered before the real work begins. It matters not where these are gained whether in a high school or a full college course, although a full college course is to be desired. He ought to be able to read one foreign language certainly. The trouble with our preliminary work is the inherited mediæval, scholastic ideal that sees no value in anything useful. Were the proper arrangement made the boy could get all this in a high-school. The requirement for entering a medical-school ought to be based on the subjects not on an arbitrary number of hours spent in what is often worthless as a preparation. I would not have him go directly to the medical college, but engage for a year or two in some employment, until his real desire to devote himself to medicine became a result of deliberate choice. We teachers can tell, every time when we get a student who has buffeted the world for a few years before starting medicine. He knows what he is there for, he is there to fit himself for a real life of which he knows something, and he is wasting no time in getting it. He is the man who keeps steadily at work, to whom graduation is not some far off point, with an unknown vista beyond. To such a man three years of medical study is sufficient, if to it a required year of internship is superimposed. If such a man begins his work at twenty-six or twenty-seven, it is soon enough, for medicine requires a maturity of mind seldom acquired earlier.

Our present schools are tending to paid instructors. Now a paid instructor never will or can be an enthusiast in any but one narrow field. He cannot know the medical requirements if he excels and limits himself to one line. He must spend his time in the repeated and wearying grind of hammering in basic principles, or else he must devote himself exclusively, as the majority do, in so-called research-work after the plan of our German *confreres* to the glory of his college but of little help to the students in it. In either event he is a failure. Such a man generally overshoots his audience or trains them into emulating him and his methods, until the student graduates a fine laboratory-man, but unfitted to do the world's work or see anything beyond the patient's excreta. The student in laboratory-work is constantly stimulating his dexterity, and exalting routine above mentality. Too much of it is narcotic in action. The right dose should be a stimulant to observation and thought. Just now it seems as if the pendulum had swung ridiculously far to the laboratory. Just now, also, there is a spasm of reform in medical teaching because of a growing feeling that we are not turning out men able to cope with the fads of half educated ignorance, the faith-curists, the unchristian and unscientific heresies so popular. If we fail in contact with these, the solution does not lie in increasing our already too great tendency to the recluse, or monastic type of education but in broadening out and getting into closer contact with the world and its needs, its heart-throbs, its sins, its joys and its alleviable misery.

This old world is a queer mixture of good and bad,—in body, mind and spirit,—throbbing for surcease. Only those in sympathy with it can treat it rightly,

"only those who sail the sea understand its mystery," and yet it is a good world, full of kindness, love and heavenly gleams of charity and it is constantly growing better—not worse.

The modern physician is an urban dweller. Few graduates plan to go back and live in a small community all their lives. The least they will do is to locate in a county seat. City life and larger population have lead to specialization. This is good, when it comes to a man of mature years, after considerable practice, naturally, and because of peculiar fitness for the work. But to see a callow youth, just out of school, drop from sight for a few months, return and at once announce himself as a surgeon or other specialist, is a sight for tears and pity. It is deplorable because it brings the genuine specialist, nay all medicine, into disrepute and belittles our high calling. Operate on me if you must, pass speculi and probangs, snare, cauterize or cut, but let it at least be done by a man who is able, by years of experience, to take in the whole situation at once and not one who can see nothing but some single orifice, and when he is done passes me on, for further examination.

There is a fault resulting from hospital work, that we see the disease and not the patient. Dealing with strangers all the time, creates a lessening sympathy with the individual. He becomes but another "case," valued only, and in proportion to, the rarity of his ailment and then treated in a routine and entirely impersonal manner. The public knows this instinctively. The many faddist schools of medicine, the foolish negation of any and all treatment, the hostility to physicians, the contemptuous criticism of them by the press, the jokes, sneers and the unwillingness to listen to or heed their efforts to help humanity, springs, I think, from a resentment of this impersonal attitude on our part. It is not formulated, but is none the less present. The modern physician has lost his love for his people and they cannot be expected to retain their love and respect for him.

With this lost respect, has departed the doctor's influence in the community. True, he is no longer one of the two or three educated men in the locality, and it is well that this is so. Still the varying schools of medicine, the changing treatment, the rapid advances and the public and free discussion of these, in the popular periodicals, leads to two results. Either seeing the differences among physicians, and having the audacity of ignorance that thinks itself wise, the laity doubt there being any permanent basis for the healing art and show a disposition to weigh for themselves every statement made to them by their doctor, or else they actually come to the conclusion that they are as well able to understand and prescribe as the man who has undergone years of special training for the business. These smattering journal-articles are a positive danger, while their number but emphasizes the public interest in the subject and the wide-spread need and dependence of the world upon the profession. They admit the need of physicians, but are unwilling to trust any one. As a result of this they wander from one to another aimlessly, swayed by every wind of doctrine, loudly condemning the men they left too soon for results to show, and at last, if kindly Nature, unassisted, works a cure, may later be loudly proclaiming in some experience-meeting how they were given up by all doctors as incurable and were cured by prayer, or some exorcizing formula beginning "God is good; good is God," Good God, etc.

Very remarkable has been the growth of the hospital idea in this country. Equally significant is the growing class distinction of them. Here in San Francisco the average hospital is beyond the income of the average man. If he strains a point and avails himself of it there is nothing left with which to pay his doctor. More and more are the poorer classes falling back on the City and County Hospital, thereby becoming stamped as indigents. There is a crying need for a hospital so managed in this city as to furnish decent attention at about half the present scale of prices. It would have the patronage of ninety percent of the population.

Again, no longer can the physician succeed who continuously gives large and bitter doses. The public palate has become very æsthetic and hence has sprung the great growth of pharmacy as a profession. This is natural and right; but let the physician limit himself to prescribing and the pharmacist confine himself to their proper preparation. There should be a most cordial relationship between the two. To the disgrace of both there are cases of rebating all the time. The sad feature of this is that it is not limited to the outcast physician but has in the ranks of these two-bit thieves many men who are members of the county medical society and who make themselves constantly conspicuous by howling for purer ethics and higher standards.

It is a hard life that you young men are entering upon. You will get precious little help from the older practitioners, some will even be actively hostile. The world at large thinks it knows a great deal and will be slow to receive you. A wave of disbelief is characteristic of the times. There is unrest and dissatisfaction politically, socially, religiously and medically. Few persons are uninfluenced by this and it shades from interference to hostility. New parties are formed, new religions started all as a protest against the old. At present the fad numerically largest are the followers of a neurotic old lady of more than doubtful moral character and reputation. Now anything that attracts so many, at least, semi-intelligent people, must have, in some form somewhere, a modicum of truth. It little behooves us to entirely condemn it until we have analyzed it. I believe it contains a world-old truth in a new form. It is religiously disguised because the churches have not taught the peace of mind that comes from a trust in God's providence as of old and many of these backsliders never were the "children of light." It is scientifically disguised as a reaction and rebuke to us, for our sins of omission. The world has asked us for bread and been given a stone. They came to us for comfort and advice, mental as well as physical, and we treated them as "cases" only, forgetting the mental suffering and the natural craving for personal sympathy. We have become materialists whereas we should be spiritists.

Years are bringing to me the belief that the unseen, the immaterial, the spiritual, if you will, the things that cannot be subjected to the proof of the senses are after all the only realities and the only things eternal. Treasure in heaven only is safe. Remember this fact, you who have listened so attentively to me these pleasant years. Be true to your higher duty and spare not yourself to help the world to better living and better ideals. Then you will at least be trusted and your councils followed.

A reliance on others, is another failure of the modern man. I welcome every

advance of knowledge but when a diagnostic method is discovered that requires special and expensive machinery, or is beyond the skill of the average man, it never appeals to me. One little hint, that we can all use, in backwoods' cabins and in the world's by-paths, is worth more than the surest test that depends upon the laboratory. Remember this, you who advocate the ultra-scientific school of medicine, that the time of your experts would be better spent in simplifying, making practicable and popularizing much of what we already know. Medicine cannot be advanced by a few brilliant minds, but by the surge forward of the profession as a whole. The history of medicine is full of revolutionizing discoveries, of brilliant generalizations published too soon and then forgotten for a generation or two, because the rank and file were not equal to their appreciation. Be not dependent upon the laboratory. We do not need any more or better-equipped school of original research work, two or three would supply the whole United States, but we do need schools that will train men for a life time of good work. We must not lose sight of the fact that the ninety-nine percent who graduate, must go into the small places and will not even remain in the cities, and it is our business to fit such men for their life work, not to train them for original work.

And so in contrast with the past it seems to me that the modern physician is characterized by a loss of self-dependence and resourcefulness, by a dependence upon the findings of others to line him in aright, by diagnostic methods too complicated for him to do, even had he the skill to read them, and more seriously by a lack of sympathy for, and understanding of anything, but the actual derangement that he diagnoses. I say this with modesty for I may be wrong; I am not so sure of many things as I was twenty years ago.

And lastly, what is to be the physician of the future, and what do I hope to see you become.

I would like to see the young man started under the supervision of a physician, and, because of his fitness for the life, and remain under the advice of the preceptor for years. His pre-medical course should be ample in sciences and such as to cultivate his powers of observation, whether it embrace a college course or high-school-fitness in subjects only being considered. In all spare time let him be with the older man. Let him take three strenuous years in a medical college whose teachers are men actually engaged in practice and finish with a year of internship, not merely as a superior head nurse, but with actual responsibilities. Then let the young man return to his own home and, if possible, close association with the preceptor, learning from his experience and imparting in turn the newer methods he has learned, and thus will both be improved.

Let the young man begin amid his own boyhood associates and in the country, where only he can get the broadest vision of his profession. He will start with the good will and love of many. We Americans move about too much. We miss the start and weight that comes from being a member of a family in good repute for generations. We need also to scatter out our bright young men, not to teach them to starve in a city, there to lose their enthusiasm and degenerate into shady practices because of the need of bread and butter, which is the lot of the majority who crowd the cities. To struggle into practice in San Francisco is a sordid lot. When I hear of some gifted young man ruined, because he

listened to temptation and is arrested for criminal practices, I remember my early struggles and the times when a dollar meant so much, as I worked away, without books, equipment, or even without knowing where the next suit of clothes or month's rent was to come from, and I have a sense of personal grief and pity for I know what he went through before his better nature yielded.

Enter into the vital life of your home. Be a *friend* and *neighbor* to your people and plan to live contentedly and die there. Gain the personal touch, and you will have the influence, and let this influence be always for the best.

The true physician must be a gentleman, to which are added all the Christian graces and the poise of culture. Only by real manhood and merit can you take your proper place in the world. Believe in the ultimate triumph of truth and in the coming of that time when the "righteousness of God shall cover the earth as the waters cover the sea." The world needs men of such ideals and will always reward them.

The teaching of our schools must become more personal and clinical. The patient behind the disease, must be pointed out by the instructor. Would that we teachers could have, just once, a student so well posted that we could ignore the symptoms and go deeper into the man behind.

Small, well-equipped and cheap hospitals should be available everywhere. From the richest to the poorest, the comfort should be the same. This may be done perhaps by combining the charitable and the paid institutions. Therapy will be a logical and definite aim. The details will be left more and more to the trained pharmacist and we will mutually help each other.

Specialists in the future will be men who have had a general practice but who, because of peculiar fitness are finding special work drifting to them and who have added to this, courses of special study for—not months—but years. For such men some competent source should give a special degree. The right to handle any case should always remain in the state license, but the public will appreciate an added degree, if honestly given.

Ignorance, poverty and crime will always exist, yet the future will bring a better appreciation of us as medical men but only when, and exactly to the extent, that we are true to our ideals. Let us waste no time in fighting false beliefs but in self-improvement. The clamor against lodge practice is a good deal of a joke and an evil only because men can be had who will take a whole family at a dollar a month. Often the very men who are crying most lustily for reform and who are "thanking God" like the Pharisee that "they are not like other men," are surgeons for some railroad or large corporation or hospital association—only larger lodges under other names. If one of these prominent men is going to do this work for one-tenth of what he would ordinarily collect, let him not blame a recent graduate if he takes a lodge for a mere pittance. If it be true as the author of David Harum makes that character say "a certain number of fleas is good for a dog because it keeps him from worrying because he is a dog"—then it will at least keep the young man from worrying because he has nothing to do. He will be busy scratching most of the time.

No other calling gives away so much or so cheerfully. No other calling by its effort is destroying its own source of livelihood. God grant that it may always

be so. If ever we put the love of the dollar above the call of distress let us cry with the daughter of Eli, "Ichabod, our glory is departed." Beyond its business side medicine has something immensurably greater.

Some day the world will wake up and, with the extra bounty born of regret at the delay, shower appreciation upon the martyrs we have ever been able to furnish in the hours of need. Men who allow themselves to be inoculated with deadly germs, who died to prove or disprove a theory whereby other lives by thousands can be saved to usefulness and happiness, deserve memorials of stone even more than the heroic souls who flushed with excitement and by the inspiration of numbers gave up their lives on fields like Gettysburg. I am proud of my profession. When fire and earthquake destroyed this city the State Medical Society was in session. Did those men go home to allay the natural fears of their families—mind you no word could be sent out and the apprehension was exaggerated. Not a man of them but stayed. They manned our hospitals, assisted our local surgeons, did yeoman work for days on our distributing bureaus, and visited the homeless in our parks until they saw we were able to handle affairs alone.

We have our faults, but the spirit of the profession needs but some emergency to see its members rise grandly to the occasion. More than any other profession or class they had the ability to handle that emergency. Trained to coolness in danger, calm of judgment amid excitement, familiar with distress, to discerning of motives, and knowing human nature, in no other walk of life could their equals be found and while others were criticized for poor judgment and extravagance, even speculation, tell me if you can a physician of repute who obtained a tainted dollar or did not give better than the average service. We were represented on every board and every committee and did a disproportional part of all the work.

The physician of the future will know that he knows. He will be self-reliant because he will be properly trained. He will be competent to diagnose with the best, he will do his own laboratory work and know how to read its findings aright in the light of the clinical picture.

Lastly, he will be a man of sympathy and appreciation of others. To each he will give his very best. Behind the symptoms he will see the terror-stricken soul. By council and example he will put him in a mental state for the healing forces of Nature to work unhindered. He will be a trusted friend in whose fidelity the sick one can with the utmost confidence rely. And when he cannot hold out the hope of cure he can relieve the pain, impart a confidence in the providence of God and a philosophy of life that will teach the dying man "to wrap the drapery of his couch about him and lie down to pleasant dreams."

And now, my new brethren in this profession, let me congratulate you on having reached so noble a position. This is, however, but the beginning of the real study of medicine. We have only taught you to a point where we feel that you can pursue your journey alone.

It is a life of hardship and poorly paid service. It has many inevitable disappointments but it also has many precious rewards. The love and affection of the family, the confidence in you that will lead the wife to confide to you secrets hidden from her husband, the faces of the sick brightening at your call—all this

you will know and in this you will find your chiefest reward. Like the great Physician you will be a man of sorrow and acquainted with grief. The depressing sights and sounds of suffering are not to be met by a case-hardening, but by a philosophy of life that is supreme optimism and which sees the beauty and the good in unexpected places. I would have you confident, self-reliant, and above all, sympathetic. With Polonius I say to you, "This above all—to thine ownself be true; and it must follow, as the night the day, thou can'st not then be false to any man." Much is expected of you—meet it, by being it, in reality.

Material wealth can hardly be expected to come to any of you, but riches of character will, if you have followed what I have ever taught. You may none of you reach fame or distinction, that is oftener a matter of chance than of forethought, it will make you no happier and may lessen your usefulness. Cultivate character, give freely, hold fast to your ideals, extend your help to the poor and after many years may you hear the words "well done, thou good and faithful servant."

These have been pleasant years that we have spent together. It is a rare and sacred privilege to mould the thoughts of any one. All my teaching has been done under the sense of this responsibility. Some day I shall pass on before you, for I am older than you. Then when you occasionally meet together speak kindly of me, and give others in turn a chance to do the same of you and so let a widening stream of kindnesses go down the years until we meet in that city of God whose strongest appeal to me is that "there shall be no death, neither sorrow nor crying, neither shall there be any more pain, for the former things"—and with this the need of our life work,—“have passed away.”

PENNSYLVANIA IN THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

FRANKLIN M. APPLE, PHAR. D.

Pennsylvania Pharmacists and their families should be interested in the American Pharmaceutical Association for a great variety of reasons—sentimental as well as practical.

I will first direct your attention to the sentimental side of the query.

Are you aware of the fact that Pennsylvania played a most important role in the organization of the American Pharmaceutical Association?

Pennsylvania was the state in which it was organized in 1852, hence we can, with pardonable pride, point to it as, largely, a product of our beloved "Keystone State."

Of the list of sixty-one Presidents, Pennsylvania has supplied eleven of those chosen to the leadership: Prof. Daniel B. Smith in 1852, Chas. Ellis in 1857, Prof. Wm. Proctor, Jr., in 1862, Prof. Edw. Parrish in 1868, Chas. Bullock in 1876, Jas. T. Shinn in 1880, Chas. A. Heinitsh in 1882, A. B. Taylor in 1890,

*Read at the annual meeting of the Pennsylvania Pharmaceutical Association, held at Buena Vista Hotel, Buena Vista, Pa., June 23-25, 1914.

Prof. Jos. P. Remington in 1892, John T. Patton in 1900 and Jos. L. Lemberger in 1905.

As First Vice-President six pharmacists from our state have been honored by election to that office; as Second Vice-President two have served the Association, and as Third Vice-President three have been chosen.

For the important office of Treasurer, Mr. A. B. Taylor was selected to serve from 1852 to 1854.

The records show that, in the position of Corresponding Secretary, Pennsylvanians served almost continuously from 1852 to 1863.

As Recording Secretary, from 1853 to 1854, 1859 to 1862, and 1863 to 1865, pharmacists hailing from this state occupied the office.

When the offices of Corresponding Secretary and Recording Secretary were consolidated into the office of Permanent Secretary, our beloved Prof. John M. Maisch assumed the duties of the office and rendered efficient services until 1893, when Prof. J. P. Remington ("our Josie") took up the labors of his fellow professor for the ensuing year of the Association.

The very important and exacting office of Reporter on the progress of Pharmacy, was satisfactorily filled by Prof. H. Kraemer from 1892 to 1895.

As Chairman of the Council, the governing body of the Association between the times of meeting of the Association, Pennsylvania supplied Prof. Jos. P. Remington from 1880 to 1886 and from 1908 to 1909.

As Chairmen of the several Sections of the Association, the following have officiated as presiding officers: Prof. E. F. Cook, of the Section on Pharmacopœias and Formularies, organized in 1913; Mr. Jos. L. Lemberger, of the Historical Section, organized 1904; Mr. F. M. Apple, Prof. Louis Saalbach, and Mr. P. Henry Utech, of the Section on Practical Pharmacy and Dispensing, organized 1900; Prof. C. B. Lowe (2 terms), Mr. Jos. W. England (2 terms), Prof. Chas. H. LaWall and Mr. John C. Wallace of the Section on Education and Legislation, organized 1889; Prof. F. G. Ryan, Mr. Lyman Kebler, Mr. M. I. Wilbert and Prof. Chas. E. Vanderkleed of the Section on Scientific Papers, organized 1887, and the Section on Commercial Interests was under the guidance of the writer, in 1911. This Section was organized in 1887.

It will be observed that the first President, first Treasurer, first Corresponding Secretary and the second Recording Secretary were recruited from the pharmacists residing in Pennsylvania, and that we have always supplied a large number of active workers to assist in guiding the destinies of the Association—amongst whom we are very highly pleased to note the name of "The Father of American Pharmacy," Prof. Wm. Procter, Jr. To the untiring efforts, deep thought and helpful suggestions of our Jos. W. England, to a large degree, can be attributed the inception of one of the greatest assets of the Association—"The Journal of the American Pharmaceutical Association."

With such a record of valiant service rendered by the pharmacists and chemists claiming this state as their home at the time of their term of office, should it not appeal to the pride of every Pennsylvania pharmacist eligible for membership in the American Pharmaceutical Association, and arouse in them a strong desire to be numbered among the members of such an organization?

Laying aside the sentimental side of the question, we will now approach it from the practical side, and inspect the claims of the Association upon those eligible for membership.

It will be observed that the first Section organized by the Association was that of Commercial Interests, indicating that commercial problems and customs were not ignored or tabooed by the fore-fathers. In fact the original Constitution and By-laws of the Association demonstrate that unsatisfactory commercial condition was one of the prime causes leading to its organization. A careful study of its archives, proves that the materialistic side of pharmacy was never lost sight of, and continued efforts were made to remedy commercial customs that were the cause for complaint by many of the pharmacists of the past six decades of years.

It has been truly said to be a scientific and professional association, as a perusal of the minutes of its Scientific Section will prove; but it did not neglect or frown upon commercial questions as it has been repeatedly but unjustly, accused of doing. When a proposed remedy for an evil custom,—one that it was thought would stand the test of the courts,—was presented for consideration, it received careful attention by the *entire* membership in its annual sessions, not excluding those members supposed to be interested solely in scientific investigations.

The continued existence of pharmacy, as a learned profession, is due to the Association's fostering influence, more than to any other known agency; hence your ability to practice pharmacy, as a distinct and respected vocation, must be credited to this organization.

Since the organization of the Section on Practical Pharmacy and Dispensing a wonderfully rich reservoir of knowledge has been tapped, from which inestimable benefits have flowed to all practical pharmacists; in the majority of cases its beneficiaries being ignorant of the source of the helpful influences.

Legislation has received its due attention, and many of the legal rights and privileges you enjoy, emanated from the deliberations of its members.

For years, it has been customary for the wives and families of some of the members, to accompany their husbands and fathers to the annual gatherings, thereby making priceless acquaintances and friendships. A few years ago, it was decided to establish a Women's Section, to be officered and managed completely by the ladies, thereby affording them an opportunity to satisfy their desires to advance the interests of their sisters, who have taken up pharmacy as a life work, and to render whatsoever assistance lay in their power in aid of the general interest of the profession and business of pharmacy; hence it should be perfectly clear to all that provision has been made for the members of both sexes to labor together for the benefit of pharmacy, and of pharmacists and their families.

Under such conditions does it not appeal to you, ladies, that you should urge your husbands, brothers and fathers to become enrolled as active members thereof, and thereby, automatically, to make yourselves eligible to join in the activities of the Association?

If one is *truly* interested in an association or effort, he or she will become active in its behalf and be a missionary for it.

Do you not feel that *you* should become *truly* interested in the American Pharmaceutical Association, and experience the joys and benefits of membership therein?

We extend to you an earnest appeal to join our ranks and assure you we will accord you a warm welcome when we can grasp your hands as fellow members.

"Never put off until tomorrow what should be done to-day"; hence decide to accept the invitation and join us in our efforts to uplift American Pharmacy.

ORGANO-THERAPY FOR PHARMACISTS.*

BY JOHN ZIEG, M. D.

I will discuss only those biological products which are derived from the adrenal, thyroid, thymus, pituitary and ovarian glands, as these are the most important and most used, and their therapeutic value is quite well established. Frankly, reliable information, of practical value to the dispensing pharmacist, is obtainable only from those who prepare these products. To those who become interested, I would suggest that they obtain the printed literature and read the details.

Let me impress upon you,—

(1) That these remedies as a class have already won a place among reliable therapeutic agents.

(2) Their physiological action is to a great extent known even now, i. e., that action which can be recognized clinically, after the administration of sufficient dose, for a long enough period—this in distinction to their action in the normal body, where the activity of these glands is strongly interrelated, to preserve an equilibrium of paramount importance in the preservation of health.

(3) Very remarkable results have been consistently obtained in the regular clinical use of these agents and that, too, in conditions resistant to other treatment. For example, of adrenalin—its powerful local astringent and hemostatic action—its rapid powerful internal action as a cardiac stimulant, and its equally decisive and reliable action of relieving the paroxysms of asthma.

Then again, of pituitrin, its remarkable action on non-striped muscular tissue, which makes it a marvelous aid in overcoming uterine inertia in labor, a heart-tonic of merit and a remedy of worth in many conditions of muscular atonicity. Then, in the use of thyroid extract or thyroprotein, we find wonderful results, in conditions due to deficient function of the thyroid gland. I might mention more, but these should suffice to arouse the interest of the pharmacist and stimulate in him a desire to learn more of the details of their manufacture and use.

Lastly, these remedies should be used only under the direction of a qualified physician.

Preparation.—In manipulating material so unstable as glandular tissue from the animal body, with a view to preserve it and the active substance it contains, great care and skill must be exercised. A thorough knowledge of the structure both gross and microscopical, together with all the information available on the phy-

*Read before the San Francisco Branch, June 9, 1914.

siology of the gland, must be taken into consideration. In the case of the above mentioned glands, the original preparation consisted of the dried substance of the fresh gland, which was previously freed of all extraneous tissue—then ground and put into capsules. At this time considerable advance has been made over the process of simple desiccation of the recent gland.

Care in obtaining fresh material:—This includes the inspection of the animal for diseased condition—no material being taken from animals not otherwise fitted for consumption for food—further the glandular tissue, itself, is inspected for abnormal conditions, since it is quite possible to obtain glands that are far from normal from an animal presenting no condition requiring its condemnation for general food purposes.

Care of fresh material before preparation:—It is needless to say no time is lost in getting the preparation under way, but in the short interval which elapses, from the time the gland is removed from the animal, until the process of preparing it is begun, adequate refrigeration and protection from contamination and infection is provided.

Manipulation of the fresh material:—This includes the thorough removal of extraneous tissue, like fat and connective tissue and the separation of such portions of the gland-tissue proper, which is known to have no value in the preparation of the particular product in hand, i. e., in the case of pituitrin, only the posterior lobe is used, and it must be very carefully separated from the anterior lobe.

Scarcity of fresh material:—From the foregoing it is evident that unlimited supplies are not available, indeed the supply rarely equals the demand, as in the case of pituitrin and corpora lutea,—in the preparation of which only a small part of the whole gland is used,—the problem of obtaining sufficient supplies becomes, at times difficult.

A careful consideration of the foregoing points will give some idea of the care, skill and equipment entering into the production of these therapeutic agents, and the cost attending the same.

LISTED PREPARATIONS.

Thyroid gland:—Desiccated gland—U. S. P., physiologically tested, assayed to contain not less than 0.2 percent iodine, in capsules or tablets, for internal administration.

Thyroprotein (Beebe)—concentrated extract, containing active principle, physiologically tested, assayed to contain not less than 0.33 percent iodine, in tablets containing 1/50, 1/25, 1/10 gr., for internal administration, in glaseptic ampoules containing 1/50 grain, for hypodermic use.

Adrenal gland:—Desiccated gland—U. S. P., physiologically tested, in capsules or tablets. Adrenalin, the active principle—in powder form or in hypodermic tablets, in solution, in vials or 1 cc. ampoules.

Thymus gland:—Desiccated gland—in capsule or tablets for internal administration.

Pituitary gland:—Pituitrin—active principle, in solution, standardized physiologically on the basis of its blood pressure-raising property, in 1 cc. ampoules for hypodermic use.

Ovarian gland:—Corpora Lutea, desiccated—the dried substance of the yellow glandular material, only—the remainder of the gland being discarded.

Because adrenalin is the oldest, has well established worth, and is much used and frequently dispensed, I shall present some of the most important points in relation to it. There is a good deal of sophistry about deterioration of products like adrenalin. It should be generally understood, that it is absolutely impossible to prevent the ultimate deterioration which takes place in adrenalin and other suprarenal products. The change in a product like adrenalin is indicated by a pink color which grows increasingly more intense as deterioration develops. In the early stages, no appreciable loss of strength results, and it is not until the product actually turns brown, and begins to precipitate, that it loses much of its efficiency. Now this change of color, can be prevented by the use of a bleaching-agent like sodium sulphite, but the deterioration goes on just the same—the loss of strength is not prevented—it is simply concealed. The pharmacist who keeps his stock bottle (the opened-one especially) away from heat and alkaline reagents, and in such a way that dust, cotton or organic matter cannot gain access, will have a minimum of deterioration and will be able to dispense this product with entire satisfaction to his trade and himself.

Adrenalin in the presence of alkalies, even in high dilution, undergoes rapid deterioration, and when so prescribed by a physician, it is eminently proper that he be told of this change. A much disseminated error is, that adrenalin cannot be sterilized by heat. This became current about the time synthetic suprarenin was issued. The following tests bring out the facts regarding this point:

1. Ten cc. of 1:1000 solution, in a test tube closed with absorbent cotton, were immersed in boiling water for 15 minutes. At the end of this time the loss by exaporation was compensated, by the addition of distilled water,—careful testing showing the solution to be full 100 percent. The remaining solution was again immersed in the boiling water for a second period of 15 minutes, and the loss again corrected,—careful testing showed the product to be still 100 percent. This was repeated a third time and the adrenalin again gave a full 100 percent strength.

2. Twenty-five cc. of the adrenalin solution in a tightly-stoppered vial were immersed in boiling water for 15 minutes. This was repeated twice, and after each period of 15 minutes careful tests of strength were made. After the three heatings the adrenalin tested full 100 percent.

3. A very severe test—20 cc. in a small open-mouthed flask were boiled for five minutes. At the end of this time about 60 percent of the original solution had been evaporated but the volume was restored by the addition of distilled water and the solution then tested. This was repeated twice and tested after each addition. After the second boiling the adrenalin tested 100 percent and 90 percent after the third. This third test is a very severe one and is one which no careful pharmacist would resort to in the sterilization of his products, as such treatment would decompose ordinary alkaloidal solutions, such as morphine sulphate or atropine salts.

It will be seen from the above, that sterilization by the first two methods, are

quite practical, for periods from 15 to 30 minutes, or even longer, without impairing the activity of adrenalin, and that the pharmacist is able to dispense freshly sterilized solutions of this agent, when called upon to do so. One point in this connection should be noted,—it is advisable to sterilize only the quantity needed for immediate use.

THE GENERAL USE OF NEW SYNTHETICS.*

FRANKLIN M. APPLE, PHAR. D.

A careful search for the causes that lead to self medication by the laity with the newer synthetic remedies reveals the fact that a number of agencies are responsible for the practice.

The prime offenders in this respect are the manufacturers of the products termed patent chemicals, who ingeniously invent and apply to their goods easily pronounced names, which are not difficult for the consumers of their products to remember.

Ostensibly these euphonious names are adopted for the benefit of the medical practitioners, but their true object is to catch the eye and ear of the patient, who may soon dispense with the services of his physician, when he imagines he needs the chemical previously prescribed by his medical adviser; for it is not very difficult for a party of average intelligence to read a prescription for such a medicament, if it is clearly written by the prescriber.

If the physician announces his diagnosis of the case to his patient when handing him a prescription legibly written for one of these synthetic products, it is quite probable that the patient will associate the disease and the remedy together, with the result that he decides at a later date, when suffering with similar symptoms, that he need not consult his medical adviser, and he proceeds to medicate himself without the necessity of paying a fee for advice to take the formerly used chemical.

What has been stated concerning the possibilities of the patient associating the diagnosis with the remedy becomes an assured fact when the medical men prescribe verbally for the patient—whether it be by telephone or otherwise,—adding thereto explicit directions for the patient's benefit, in order to avoid writing a prescription, which is a very suicidal policy, indeed, for physicians to follow.

Experience has proven that the cause for some of this practice can be traced to the doors of the trained nurse, who, through a sense of friendly interest or vanity, usurps the role of the physician, and, in some instances, goes much farther in her support of the remedy by extolling its merits most heartily.

Those of our calling are, at times, found to be guilty of the same practices that some trained nurses follow—undoubtedly actuated by the same motives—with the result that the patients are unconsciously taught self-medication.

The patient becoming possessed of a (to him) wonderful new remedy proceeds

*Read at the annual meeting of the Pennsylvania Pharmaceutical Association, held at Buena Vista Hotel, Buena Vista, Pa., June 23-25, 1914.

to take a friendly interest in his fellowmen, who appear to be afflicted with a malady similar to his previous ailment, with the result that he is a free medical adviser and a good press agent for the manufacturer.

To sum up the entire situation I would state that the causes for the use of the newer synthetic remedies by the laity is a studied effort upon the part of the manufacturers thereof to encourage self-medication by the public for their financial gain; and *careless practices* by some nurses, physicians and pharmacists, which lead to the same end—self-medication by the public.

ALCOHOL AS A FOOD.

The influence of alcohol upon metabolism, as the chemical changes that occur in living matter are called, having now passed from the field of speculation and controversy into the realm of ascertained fact, there is no longer any justification in denying to alcohol the right to be regarded as a food. The chief property upon which this claim is based is that of partially paralyzing the living cell, thereby inhibiting the breaking down of the particles of fat or carbohydrate with which it is surrounded. The living cell normally preys upon these and proteid particles, and by breaking them down is enabled to make good the wastage of tissue resulting from its own combustion.

Alcohol is in this respect a "fat-saver," though it is itself consumed in the process, yielding heat and energy to the body.

Apart from their alcoholic contents, however, many spirits possess great value at certain times by reason of their stimulating effect upon the heart, brain and other vital centres. Preeminent in this respect is the finest old liquor brandy, which owes its peculiar properties to the presence of small quantities of highly complex volatile ethers formed from the acids and alcohols present during the period of maturing.

Owing to its property of dissolving many organic substances, alcohol is of great value as an aid to digestion, and as a stimulant and restorer of circulation it occupies an unrivaled position. Nevertheless the use of alcohol must be regulated with a nice discrimination, for its effects are not always what they seem. It is unwise, for instance, to take alcohol before going out into the cold, for by so doing the blood will be driven into the surface blood vessels and capillaries, and through their subsequent dilation an excessive amount of heat will be radiated from the body just when it is most required. It is right and proper, however, to take alcohol on returning from the cold, for it will then promote the circulation throughout the body of all the blood which contact with the outer cold has driven from the surface and the extremities away into the internal viscera.

It is well to bear in mind that alcohol does not keep one warm. On the contrary, it lets out one's heat.—*London Times*.

American Pharmaceutical Association

Organized 1851. Incorporated 1888.

GEORGE M. BERINGER, PRESIDENT

501 FEDERAL STREET, CAMDEN, N. J.

Dear Fellow Member:

The time is rapidly approaching for the Sixty-second Annual Meeting of the American Pharmaceutical Association. Detroit is famous as a convention city; renowned alike for its beauty and the hospitality of its citizens. The advance news is that the local committee have prepared to make our stay full of enjoyment and that the various Sections have arranged programs replete with matters of interest and profit.

We believe that this meeting, August 24th to 29th, will be a notable event in our history and will be the largest gathering of representative pharmacists ever held in this country.

The officers extend an invitation to you to come and enjoy to the fullest extent the pleasures in store. May we have your presence and co-operation? If you have never attended a meeting of the Association, attend this year and get imbued with the prevailing spirit and enthusiasm. If you have been attending, you will understand what an influence and benefit to each member is a meeting of the Association that stands for the welfare of all concerned in pharmacy. Goethe has well said: "There is no teaching to compare with what we derive from intercourse with others."

To the former presidents, I extend a special invitation. It is the hope to have present at the opening session all of the living former presidents.

Come and, if possible, bring along a new member to help the good work of the Membership Committee. There is going to be much of interest and ties of friendship and good fellowship will be renewed and strengthened.

This invitation, of course, includes the wives and daughters and lady members of the Association, as without the presence of the fair sex there could be no full enjoyment of the occasion.

The American Pharmaceutical Association is the exponent of all that tends to the welfare of pharmacy. Its aim is true, ethical and progressive pharmacy. Its activities are extending along ever increasing avenues of usefulness. The president will welcome suggestions from any member for improvement in methods or for additional lines of activity beneficial to pharmacists.

Looking forward to the pleasure of greeting you at Detroit on August 24th, I am

Yours fraternally,

GEORGE M. BERINGER, President.

CAMDEN, N. J., July 10, 1914.

Editorial

JAMES H. BEAL, Editor.....Scio, Ohio
 ERNEST C. MARSHALL, Acting Editor.....63 Clinton Building, Columbus, Ohio

TIME TO HALT.

WE would especially call the attention of every member of the A. Ph. A., and, thru them, that of every member of the profession, to the wise, brave and strong words of Dr. Beal which are contained in this issue under the caption, "Legislative Problems in Pharmacy."

Every sentence of this article should be studied by the druggists of this country, particularly by those who are engaged in endeavoring to shape the legislation of the nation and its several states.

The country seems almost to have gone apothecary-law-mad in its efforts to restrain imagined evils,—or if not imagined evils, at least grossly exaggerated ones, and, as Dr. Beal so well says, the drug-trade seems to have been a target for restrictive legislation, as if they, and they alone, were the only evil-doers; the panderers to all the morbid and depraved appetites of the country.

The fear, that even simple remonstrance to the most vicious legislation of this character may cause the objectors to unwise and burdensome laws to be classed as wrong-doers, has often prevented druggists from objecting to such laws, and, in consequence, restriction upon restriction has been piled, like Pelion on Ossa, upon the already over-burdened backs of the members of our profession.

Such pusillanimity has encouraged these persistent pests who are engaged in the attempt of reforming the world according to their light, and deceived by the apparent plea of "Guilty" by the druggists and their lack of resentment, their not "fighting-back"; their "appetite grows with feeding" and they seek to restrict more and more our sales, until, unless they are checked, they will require a prescription to be shown for even sales of postage-stamps or the use of the telephone. And it is not alone these men who are silly in their ideas. Some of our own are as bad. Why should a person be required to have a prescription to buy seven and a half grains of corrosive sublimate of a druggist, when they can buy a pound without such prescription of any general dealer in chemicals or even of the village grocery-store?

Not only are these restrictions burdensome to the practice of pharmacy, but they oppose its respectable exercise. It is not alone the "yellow" journals which hold the drug-trade up to odium, but respectable journals lend their columns to disseminate the same reprehensible views. Recently one of these, with the largest circulation in the country, published an article entitled, "How Kansas Boarded the Water-wagon," which contained such slurring references as the "tipple of

drug-stores," the "drug-store joint," "liquor sold behind imitation prescription-cases," etc., etc.

Far beyond the exaggerated statements of the article in representing that no liquor is now sold in Kansas, in its importance to our profession is the demagogic representation that the drug-stores of Kansas were the persistent violators of the laws. Such insinuations are mean and despicable. As well might we hold up all writers for the press as drunkards because there are a few conspicuous examples in that class.

There are Police Gazettes in Journalism, but we should be unfair and unjust to class the Saturday Evening Post as one of that class of periodicals, and it is also unfair and unjust for that journal to allow its columns to disseminate the idea that the practice of the Profession of Pharmacy is connected with pandering to vice and the demoralization of the community.

It is time that we showed resentment against these injurious and false misrepresentations, especially when further quiet submission to them is but encouragement to more animadversion and the imposition of more vexatious burdens and also when a patient sufferance is interpreted as conscious guilt.



CONVENTION DISPATCH OF BUSINESS.

THE most annoying and delaying interference with the prompt and agreeable dispatch of business at our Annual Meeting, is said by many people who have observed matters carefully at previous conventions, to be the seeming utter disregard of the Chairmen of the Sections, to the time-schedule, arranged with care by the Local Committee, from which there results confusion, delay, and chaos in the dispatch of the program. For no matter how well-conceived and arranged such a program may be, or how zealously the Local Secretary and his Committee may have been in the planning of details, and in their work for the proper conduct of the Convention, these conditions must appear, without strict attention to the schedules arranged for the conduct of the meetings.

Think for a moment of the confusion that would take place in a railroad system if the conductors of trains paid no attention to the time-tables, and each man took his train from the station at any time he pleased, or when his passengers thought proper, and the conception of the results which would ensue from that course of action, will give one an idea of the result of a disregard of their time-schedules by the conductors, or Chairmen of Sections.

It has been often observed that members have come to Section Meetings at the times appointed for them, and observing no signs of any meeting, have gone away and not returned, either thinking the meeting postponed, or that it was being held elsewhere, and that enough of these members have so gone away as would have made an audience worthy of the Section.

At the Los Angeles meeting, the Chairman of the Section of Practical Pharmacy and Dispensing, announced that his meeting would begin promptly at the time appointed, if not a member was present, with the result that the meeting was begun on schedule time with a large attendance, and was one of the most successful sessions held at the Convention.

If the rule should be adopted at the Detroit Convention, that the Chairman's gavel, falling to open the Section session, should drop at the precise minute appointed for the opening of that session, more would be done for proper dispatch of business than gallons of printers' ink used in discussing the number and name of the various sections; but without the adoption of this simple plan, no amount of work or change of method will be affective in bringing about a better result in the dispatch of business. The Local Committee requests the announcement that it earnestly requests the Chairmen of Sections to be promptly on hand to call their sessions to order at the times appointed, and announces that the first meeting to be called at the Convention, will be that of the Chairmen of Sections to consider this first and most important point of Fidelity to the Time-schedule.



SUPERSTITION IN MEDICINE.

From the most ancient times we read that more or less superstition was rife among the peoples of the earth; a belief in the possession of virtues in things unusual to possess them, and the more unusual or strange such belief, the more firm was the faith of those who attributed value to drugs or charms. Herbs should be gathered in the light or the dark of the moon, or with the repetition of cabalistic words at the time of their gathering, without which the herbs were of no remedial value. Strange things were used in pharmacy under the influence of this belief. Schenklius, Mizaldus and Rhasis commended, for the cure of mental troubles, "an old cock, a ram's head or a wolf's heart." A belief in the potency of gems to ward off or to cure disease was common; Paracelsus was a believer in the efficacy of the ruby, either powdered and taken, or worn in a ring, and Renodæus said that, "Precious stones defend us from enchantment, cure our diseases, drive away griefs and exhilarate the mind." Encilius commends the ruby as a remedy against sorrow, and a restorer of reason. Albertus wrote in praise of a stone called "Chelidonium" which was found sometimes in the belly of the swallow, and said it was a positive cure for lunacy. Lemnius praised the carbuncle and coral as possessing mystic power "to drive away fear and devils, overcome sorrow and repress troublesome dreams." One of the approved medicines of the ancient times, was "a ram's head, that never meddled with a ewe, cut off at a blow, and the horns only take away, boil it well, skin and wool together; after it is well sod, take out the brains, and put these spices to it, cinnamon, ginger, nutmeg, mace, clove, of each a half oz. Mingle the powder of these spices with it, and heat them in a platter upon a chafing-dish of coals together, stirring them well, that they do not burn; take heed that they be not too much dried or drier than a calf's brains ready to be eaten."

Amulets were much approved by Mizaldus, Porta, Albertus, and others. The Edinburgh Pharmacopœia of 1790 has lingering traces of these strange beliefs in its inclusion of Crab's Claws and Eyes, Millepedæ and their preparation as a conserve. But after this period there does not appear much of the superstition in the pharmaceutical works of authority.

In all times there have been these beliefs in the occult and mysterious influences for good and for evil upon the destinies of man.

In Ben Jonson we read:

Subtle,—And

Beneath your threshold bury me a loadstone
To draw in the gallants that wear spurs; the rest
They'll seem to follow.

This, the advice of the alchemist to the credulous Druggier, who comes for advice in regard to the equipment of his store, gives evidence of a prevalent belief in spells and charms in determining the affairs of life in those days, and a like belief has been maintained since the earliest days of recorded history.

Horace testifies, in the Fifth Ode of Book I, that it was customary to offer a sailor's garments to the powerful God of the sea:

*"Suspendisse impotenti
Vestimenta maris deo."*

And it is said that the walls of the Temple of Æsculapius were covered with tablets and inscriptions erected by those who thought their sacrifices to him had cured their ills. We smile perhaps at the credulity of these ancient peoples, but not long since, at a dinner-party at which there were present some of the men most eminent in the country,—those prominent in politics, literature and in journalism,—the subject of belief in things occult being broached, there was not one present who could deny their absolute unbelief in all the superstitions which are generally thought to belong to the province of the childish or uneducated. One man, and he a distinguished commentator on Darwin and Spencer, firmly avowed that he had actually seen the personal devil and gave a harrowing description of his appearance. One said he would never be a member of a dinner-party at which he made the thirteenth person; another never would begin an enterprise on Friday, and when it was the thirteenth of the month there was "nuthin doin'" for him. Thackery believed firmly in "luck" and Napoleon is said by Bourrienne to have believed in "his star."

How many of us "knock wood" when speaking favorably of our health or prospects; like to see the new moon over our right shoulder, or like the man in Hoyt's play are "not superstitious, but don't like to walk under a ladder?" How many of us put on our right shoe first; dislike to meet a funeral on our way to important business, or sneeze without ejaculating a prayer? A number of years ago, the question of launching a battleship on Friday was made the subject of discussion in the navy department of this great nation. And so it goes, and it must be feared that some of our present-day ideas are not far removed from those days of Horace and of Jonson. We are prone to look upon the other man as being weak and childish in his belief, while we at the same time may be carrying a horse-chestnut to keep away the rheumatism, or wearing a stocking wrong-side out for fear of changing our luck. As Carlyle says, "My doxy is orthodoxy, your doxy is heterodoxy."

It is of course useless to argue against these things,—as well try to argue a Christian Scientist out of his belief that there is no pain, even when an exposed nerve is causing him to groan in anguish.

"Such fools these mortals be."

Doubtless the reason, to some extent at least, for this belief in spells and

amulets and charms, is that men realize their insufficiency to cope with the vast powers of nature, and also their ignorance of what is in store for them in the Great Beyond. He is thus led to rely upon those things which his sober senses should assure him have no more power to influence his life, than the "Mumbo Jumbo" of an African tribe has over the destinies of those who bow before it in humble adoration.

Drugger hoped by the loadstone to draw in patrons, not relying upon the fact that in himself should be the magnetism to draw to him all who came within the circle of his influence. It is a misfortune for a man not to realize and to depend upon this positive fact. Let the young druggist, in the founding of his store, place for its corner-stone the desire to serve his patrons honestly and sincerely. Let him inscribe upon it the resolve to sturdily resist the sordid commercialization of his business; let him earnestly strive to maintain the high professional standards of the most honorable and best profession in the world,—one that has numbered in its ranks the truest and noblest of mankind, and to him will be gathered not only the monetary return which always follows such ambitions and such service, but that lasting reward which comes to every man who does his duty well and faithfully, the approval of his conscience and the knowledge that, in so far as lay in his power, he has advanced the profession he has chosen for his life-work.

TO EVERY MEMBER—FROM THE LOCAL COMMITTEE.

"Of course" you are coming to the A. Ph. A. Convention, which will be held in Detroit the week of August 24, 1914.

The Committee of Arrangements have planned a most elaborate program for your entertainment, the principal features of which will be a Reception and Grand Ball on Monday evening, August 24, the music for which occasion will be furnished by a famous Berlin orchestra of sixteen pieces. Other attractive features will be a theatre party, dinner and card parties, shopping expeditions, and a boat ride to Bob-Lo Park and dinner for the ladies, and a smoker and vaudeville performance for the men, and for all the members a day-light ride to the "Flats," the "Venice of America," on the palatial steamer Britannia, and a four-hour ride thru our parks and boulevards. All this for your pleasure and entertainment.

The same care has been exercised in arranging the business program, so that the various sections will not conflict, and you can attend any or all of them as you desire; there will be no tedious waits as the gavel will fall at the time appointed for the meetings. This meeting will be an innovation to you, so just throw a few things in your grip, and come along, and bring the ladies with you, as every preparation is being made for their care and comfort.

DETROIT EXECUTIVE COMMITTEE.



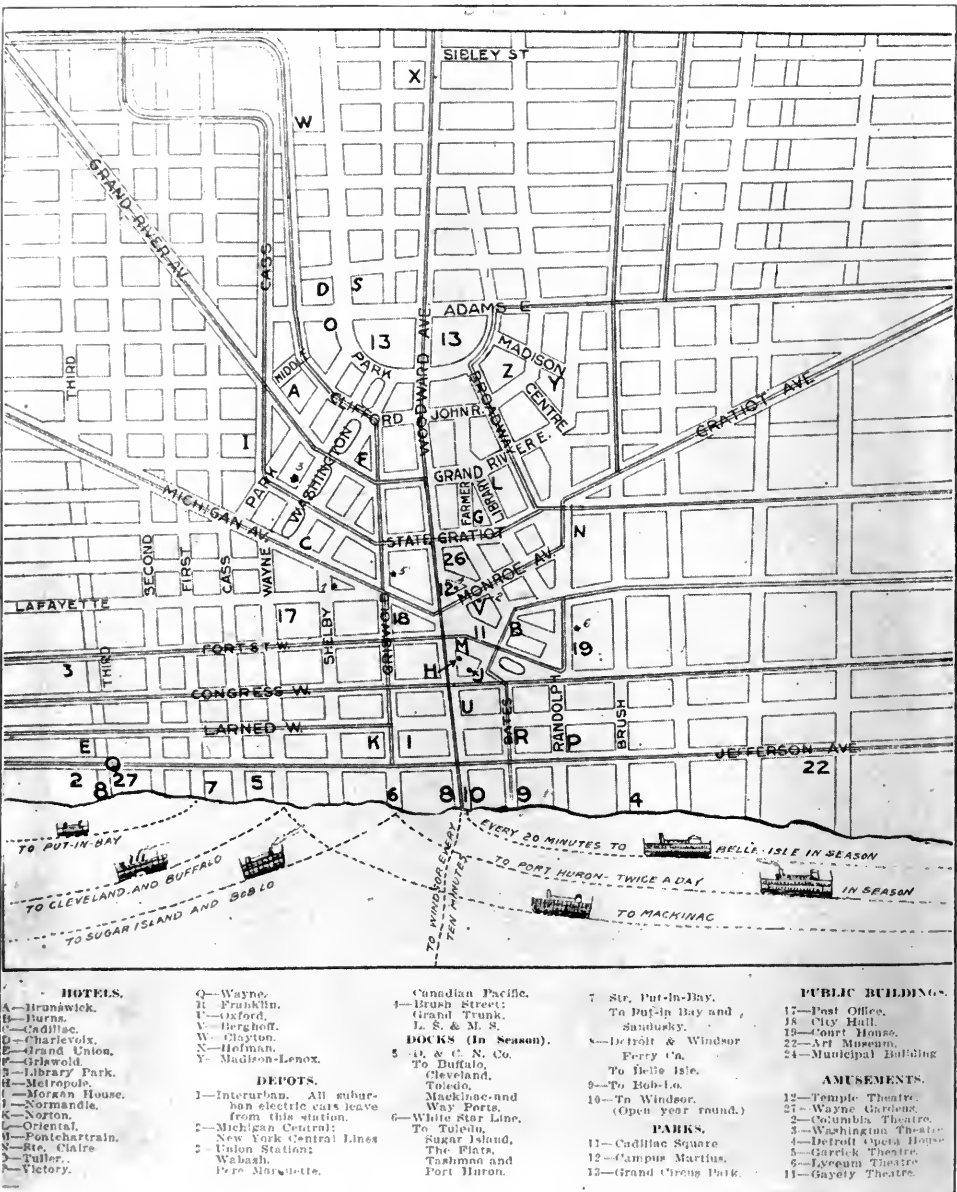
O. W. GORENFLO.
H. B. MASON.

W. A. HALL.
C. F. MANN.

J. H. WEBSTER.
L. A. SELTZER.

J. H. HACKNEY.
G. W. STEVENS.

PLAN OF A. PH. A. HEADQUARTER'S ENVIRONMENT AT DETROIT.



Duplicate small figures refer to City Ticket offices.

FACTS OF INTEREST ABOUT DETROIT, THE CONVENTION CITY.

It covers an area of 41.76 square miles, has twenty-nine public parks, among them being Belle Isle, the most beautiful island used for a public park in the world; and its handsome boulevard, which encircles the city, is said to be the finest in the country.

It is the first city in the world in pharmaceutical-manufacturing, automobile-production, pin-manufacturing, wire cloth, and stove-making, and several other important lines of industry.

More than 20,000 people are employed in the chemical and drug-industries of the city, the larger firms being, Parke, Davis & Co., F. F. Ingram & Co., Frederick Stearns & Co., F. A. Thompson & Co., and the Nelson, Baker Co., which firms are to be the generous hosts of the Association in the entertainment features of the Convention,—and at whose establishments visitors will be cordially welcomed.

The Local Secretary urges the members to make reservation of their accommodations in Detroit as soon as possible, as the city is a popular resort at the time of the Convention and much better service and accommodation will be assured to members by securing early reservation of their rooms. It is also requested that those who reserve rooms bring the letters in relation thereto with them in order to save any misunderstandings.

One of the most popular features of Detroit is the fact that it is surrounded by so many beautiful and interesting spots, places that can be reached by boats and trolleys, away in the morning and back in the evening. Some place new to go every day and all different, is the way it has been expressed a million times.

WHERE TO GO.

Amherstburg, a quaint old Canadian town near mouth of Detroit River, overlooking Lake Erie; reached by the D. & W. boats and electric cars from Windsor; also good auto roads.

Ann Arbor, the home of the University of Michigan, forty miles from Detroit; reached by inter-urban cars and Michigan Central. Good auto roads.

Belle Isle is known the world over for its beauty. Steamer every ten minutes from the foot of Woodward avenue, ten cents for round trip or ride on steamer all day for ten cents; also Jefferson avenue car line to Boulevard and thence automobile bus line operated by the City of Detroit; automobile fare six cents round trip.

Bob-Lo, popular and attractive island in Detroit River, reached by D. & W. steamers. Athletic field, bathing, boating, dancing and modern cafe; no liquors; 35 cents round trip.

Cedar Point, on Lake Erie, noted for its bathing and numerous summer attractions. Steamers Kirby and Put-in-Bay from Detroit; \$1.25 round trip.

Chatham, Ontario; superb boat ride from Detroit up the beautiful and picturesque Thames River.

Detroit Art Museum, Jefferson avenue, open every day in year to public; fine pictures, sculptor works, art collections of various kinds including some of the finest foreign productions on this continent. Value many millions of dollars. FREE.



LEONARD A. SELTZER, LOCAL SEC'Y,
32 Adams Ave. West, Detroit, Mich.

CENTRAL VIEW OF



Hotel Pontchartrain

Hammond Building
Ford Building

Penobscot Building

City Hall

Dime Savings Bank Building

Free Press Building
(Background)

The Flats, called the "Venice of America," about 30 miles from Detroit, and the finest water ride in the world; paradise for fishermen; reached thrice daily by White Star Line boats; fine motor-boat trip. Round trip rates 60 cents.

Fort Wayne, United States army post, located on river just below Detroit; reached by city cars.

Gladwin Park, fronts Jefferson avenue, four miles east of Woodward avenue.

Grand Boulevard, nearly twelve miles long, encircling central portion of city, and crossed by all the principal avenues. Excellent automobile trips around the city.

Grosse Pointe, the fine summer residence district of Detroit, should not be missed. Reached by Jefferson-Grosse Pointe cars and elegant auto driveway.

Kingsville, an Ontario resort; place of note, is on Lake Erie and can be reached by the W. E. & L. S. electric line from Windsor, giving strangers a beautiful ride through Canada.

Lakeside Inn is near Mt. Clemens, looking over Lake St. Clair, and can be reached by trolley; automobile ride being fine and auto boat route the best out of Detroit. Golf links and other amusements.

Mount Clemens, year round health and pleasure resort, just twenty miles from Detroit and near Lake St. Clair; reached by two trolley lines of D. U. R. and Grand Trunk railroad. Good auto roads.

Palmer Park is one of the finest show places of Detroit. Reached by Woodward avenue cars marked Log Cabin.

Pontiac, and the Oakland county lake region, finest fishing in Michigan. Fine lakes. Two hours from Detroit by two trolley lines. Fine auto roads.

Port Huron, overlooking Lake Huron, five hours from Detroit; White Star Line and D. & C. steamers; Grand Trunk and D. U. R. inter-urban.

Put-in-Bay, historic and beautiful island located in Lake Erie; fine bass fishing, bathing beach, boating, etc. Reached by steamer Frank E. Kirby and steamer Put-in-Bay. One hundred and twenty miles; round trip 60 cents.

River Riding is one of the summer pastimes at Detroit, the D. & W. Ferry Company operating the finest fleet of excursion steamers on fresh water in the world; hours and hours, up and down the river, just enjoying life, at a cost that is not greater than riding in a street car in your own city.

Stag Island, first stop this side of Port Huron. Good fishing, bathing, and excellent hotels and cottages. Ideal island for outing.

Sugar Island, at mouth of Detroit River, overlooking Lake Erie; reached by White Star Line steamers from Detroit and Toledo. Fine picnic park, bathing and numerous summer attractions; 35 cents round trip.

Tashmoo Park, a beautiful summer spot at the Flats, reached only by White Star Line steamers; athletic field, picnic grounds, boating and fishing; 60 cents round trip.

OUR CONVENTION CITY.



Majestic Building

Detroit Opera House

Temple Theatre

DETROIT CONVENTION COMMITTEE.

Leonard W. Seltzer, Local Secretary

Publicity Committee.

H. B. Mason, Chairman
Joseph Helfman
J. W. T. Knox

Norman Taylor
Andrew Cunningham
E. O. Geissler

W. A. Hall
G. W. Stevens
O. W. Gorenflo

Hotel Committee.

R. W. Rennie, Chairman

Geo. M. Schettler

Entertainment Committee.

O. W. Gorenflo, Chairman
F. Rohnert
W. W. Fiero
A. S. Parker

J. W. Seeley
A. J. Reisterer
C. P. Newell
W. C. M. Scott

H. C. Reinhold
P. E. Biddlecombe
A. M. Reid
F. O. Taylor

Membership Committee.

W. A. Hall, Chairman
C. A. Weaver

J. W. T. Knox
Prof. W. H. Allen

W. L. Scoville
W. Ohliger

Financial Committee.

C. F. Mann, Chairman
F. W. R. Perry

F. E. Bogart

W. H. Dodds

Reception Committee.

G. W. Stevens, Chairman
F. G. Ryan
E. H. Nelson
David M. Gray

Frank A. Thompson
F. F. Ingram
R. E. Bell
H. T. Carver

J. M. Francis
Chas. E. Knight
J. H. Hackney
J. H. Webster

Transportation Committee.

J. H. Webster, Chairman
G. W. Stevens

R. W. Rennie

E. Kimmick
H. C. Hamilton

Travelers' Committee.

F. W. Kerr
C. C. Creedon

G. H. Halpin
Walter S. Lawton

H. L. Bump

Ladies' Committee.

Mesdames J. H. Webster
R. W. Rennie
C. F. Mann

Mesdames H. B. Mason
W. L. Scoville
W. A. Hall

Mesdames C. A. Weaver
J. M. Francis
G. W. Stevens

THE SCIENTIFIC SECTION

A Partial List of the Papers to be Presented at Detroit.

Glycerite of Bismuth, by W. L. Scoville.

The Necessity of a Method of Estimating the Intrinsic Value or Essential Qualities of Coffee, by L. E. Sayre.

Third Alkaloid from Gelsemium, by A. E. Stevenson and L. E. Sayre.

Examination of *Calycanthus Floridus* for Alkaloids, by E. R. Miller and H. W. Brooks.

Stillingia Sylvatica, by E. R. Miller, R. L. Brooks and C. P. Rutledge.

The Analysis of Emulsions, by C. H. LaWall and L. Forman.

The Analysis of Some Additional Coffee Products and Coffee Substitutes by the Method Recently Proposed for the Detection of Chicory in Decoctions of Chicory and Coffee, by C. H. LaWall and L. Forman.

The Determination of Glycerin in Tablets and Confections, by L. Forman.

On Physiological Assaying, by F. W. Connolly.

New Science of Immunology, by F. E. Stewart.

A Photographic Presentation of Some Phases of Lloyd's Reagent, by J. U. & J. T. Lloyd.

Official and Other Tinctures, by M. I. Wilbert.

The Differentiation of Senna and Henna Leaves, by W. R. White.

The Quality of Morphine Nitrate and Morphine Acetate, by H. Engelhardt and O. E. Winters.

The Estimation of Elementary Phosphorus, by H. Engelhardt and O. E. Winters.
Estimation of Calomel, by R. I. Grantham.
Laboratory Notes, C. E. Vanderkleed and G. E. E'we.

Assay of Opium, A. R. L. Dohme.

The Structural Variation of Allspice, by Wm. Mansfield.

Notes on a Glycerin Substitute, by Jos. Feil.

Uniformity in Dosage of Radium Emanation, by W. J. Schieffelin.

Glands of Internal Secretion and Their Importance as Therapeutic Agents, by C. P. McCord.

The Pharmacy of Adrenalin, by C. P. Beckwith.

Cannabis Sativa: Is the Medicinal Value

Found Only in the Indian-grown Drug? by H. O. Hamilton.

What is the Best End-point of the Reaction in the Frog-heart Method of Digitalis Assay? by H. C. Hamilton and L. W. Powe.

The Analysis of Cigarettes, Cigars and Tobacco, and the Use of Lloyd's Reagent in the Determination of Nicotine, by Azor Thurston.

A Simple Form of Nitrometer for the Assay of Spirit of Nitrous Ether, by T. J. Bradley.

Notes on the Assay of Hydrastis and of the Fluidextract of Hydrastis, by H. W. Jones.

Report of the Committee on the Quality of Medicinal Products, by E. L. Patch, Ch'm.

The Pharmacognosy of the Medicinal *Rhamnus Barks*, by E. N. Gathercoal.



SECTION ON PHARMACOPŒIAS AND FORMULARIES.

This Section has always had as feature of its first session, after the Chairman's address, the reading of the reports from the Chairman of the U. S. Pharmacopœia Revision Committee; the Chairman of the American Pharmaceutical Association Committee on the U. S. Pharmacopœia; the Chairman of the National Formulary Revision Committee; the Chairman of the Committee on Unofficial Standards, and the Chairman of the Recipe Committee.

Dr. Bernard Fantus promises to discuss the Pharmacopœia as a help to the physician.

Mr. Beringer will present a review of the new Homeopathic Pharmacopœia.

Mr. Wilbert will give a review of the Norwegian Pharmacopœia, and possibly a review of the new British Pharmacopœia will be at hand.

The second session will be devoted to an exhibition of a large number of the new or modified U. S. P. IX and N. F. IV preparations, together with an exhibit by Professor Newcomb of the University of Minnesota of the crude drugs of both books. The preparations of the Exhibit have been made by a number of the members of the Association, each preparing six samples; the proposed formulas for the new editions being followed minutely in every case. Those who have prepared these specimens will report upon the merit of the processes. About fifty mem-

bers have taken part in the preparations of this display.

This session should prove of interest to the members of the Association and should materially assist the members of the two Revision Committees at this time in the Revision; the final manuscript for both books being in course of preparation.

E. FULLERTON COOK, Chairman.



SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Ferdinand W. Nitardy, Ph. C., the Chairman of the Section on Practical Pharmacy and Dispensing, has sent out the following list of suggestions for subjects of papers to be read before that Section at Detroit, and requests that answers or comments thereupon be sent to him in time to be included in the program of the Section:—

1. R. Creosote1 dr.
Compound Syrup of Hypophosphites8 oz.
Cod Liver Oil.....8 oz.
Mix..... Sig.
How would you fill it? Why?
2. What do you think of using a specially shaped bottle for dispensing poisonous or dangerous preparations? Where would you draw the line as to what should and what should not be dispensed in these kind of bottles?
3. What is the best container for dispensing ointments on prescriptions?
4. Does the ordinary shop label as supplied by most label houses give intelligent directions for use, proper and available antidotes in case of poisons, and such other information as is desirable? Are abbreviations desirable? Do you consider a bottle of spirit of camphor put out under a label reading "Spts. Camphor" any reflection on the pharmacist's knowledge?
5. How would you advertise your prescription department?
6. What constitutes good prescription service?
7. What utensils and apparatus do you consider necessary for the prescription department of the average pharmacy? What further equipment would be desirable?
8. How far may the druggist go in marketing his own preparations without usurping the rights of the physician or becoming unethical? Would there be any difference, ethically, in marketing preparations made by the druggist or those made by some co-operative organization to which he belongs? Would there be any difference from the same standpoint between preparations of such

a co-operative organization and any regular patent medicine manufacturer?

9. What do you think of tinctures made by diluting fluid extracts? Should formulas for making tinctures that way, be given on fluid extract bottles?
10. What are essential qualities of a good cold cream? A good hand lotion? Can you offer a formula embodying these qualities?
11. What arguments have you in favor of the retail druggist making his own tinctures, syrups, elixirs and other simple pharmaceuticals? Have you any arguments against such practice?
12. How much of the trouble encountered by pharmacists in making official preparations is due to the use of crude materials of improper quality and subsequent improper keeping of the finished product?
13. Did you find it necessary to have your pharmacopœia rebound before it has been subjected to much wear? Is the binding as substantial as it should be or does it compare favorably with the binding of other books intended for constant use?
14. Has the average pharmacist such reference books as he should have? Would \$50.00 to \$100.00 expended on books of value to pharmacists be a paying investment from a commercial standpoint? What books would you include in five feet of reference books for the country pharmacist? The city pharmacist?
15. Do pharmacists as a rule select the right kind of boys for apprentices, considering they are the timber from which pharmacy of tomorrow will be built?
16. What plan would you suggest to make our profession more attractive to the better class of young men?



THE GERMAN APOTHECARIES' TOUR.

The sympathy of the JOURNAL and of the members will go out to those participating in the European Tour of this society, on its summary interruption. On Friday, July 24, the party was scheduled for Vienna, the focus of the disturbance, and the day before the declaration of war they were to have been at Strasburg. In view of the disturbed state of the districts included in their itinerary, it is too much to hope that they will not experience great annoyance and that the trip can be further pursued. Our members accompanying the party are:— Gustav Bachmann, Mr. and Mrs. F. A. Bongartz, Mr. and Mrs. O. F. Clauss, Mr. and Mrs. F. W. Connolly, H. A. B. Dunning, Mr. and Mrs. T. Griffin, H. Kantrowitz and daughter, Mr. and Mrs. G. Kring, R. S. Lehman, Dr. A. W. Miller, Mrs. Charles Rehffuss, Leonette Rehffuss, E. W. Runyon and wife, H. W. Schimpf, Mr. and Mrs. T. H. Tucker, Mr. and Mrs. P. H. Utech.

A CORRECTION.

BROOKLYN, N. Y., July 18, 1914.

The Editor of the Journal:

DEAR SIR—Referring to your editorial about the Convention City, allow me to say that the French word "*etroit*" means "narrow," and D'*etroit* by derivation means the place on the narrow (of the river). Compare: Des Moines, the place of the monks. You see how near and natural the derivation really is.

I appreciate the JOURNAL so highly that I do not like to let this little *faux pas* pass unnoticed. Sincerely yours,

LORENTZ CANTOR.

<>

For the Editor:

I write about a matter dear to my heart. I desire to awaken an interest in a National Veteran Druggists' Association under the auspices of the A. Ph. A. If the requirements for membership of the Chicago Veteran's Association were adopted by such an Association, viz., twenty-five years' connection with pharmacy and the furnishing of a photograph and autobiography, the future historian of American Pharmacy would have "a cinch." Give me the autobiography of the present leaders,—and—you have the History of Pharmacy. And if the Chicago experience is repeated in the country at large, most men will have less trouble to write their biography before their funeral than after.

Men who make their mark, generally come to the surface in the space of time of a quarter-century.

I would suggest that local chapters be formed in larger cities, or in counties or states, but let the A. Ph. A. be the focus.

Whether the local chapters will write Goodfellowship on their banner is a matter for them to settle. But, if you ask for my opinion, I say in hundred horse-power voice, "Let Goodfellowship Reign Supreme."

We, in Chicago, prohibit the discussion of business, religion or politics at our meetings; thus avoiding all infection of friction microphone. We lead, uplift, and reform professional spell-binders and speakers, and don't touch the blessed article "Reform." Aside from these, nothing is prohibited, not even indulgence in cold water;—but no cold hearts are tolerated.

The principle of our branch is to foster

the *entente cordiale*, to cast a hue of gold over the setting sun, and to demonstrate the fact that filthy lucre is not paramount everywhere. With us, all are alike, rich or poor,—all are friends,—all work for all and one for all,—and our emblem, a pink carnation, blazes the way,—in burning rays,—

"Cheers for the living, and tears for the dead."

I wish the leading members to give the matter a pre-convention thought. I am satisfied to start the Krupp Guard of the A. Ph. A., the organizers, to thought on this subject.

If these constructing and consulting engineers formulate a working formula, I feel fully recompensed in having started "the ball rolling."

W. BODEMANN.

<>

THE DRUGGISTS' NATIONAL HOME.

To the Editor:

Probably every druggist in the United States knows the history of the Home. A property costing some \$120,000, was sold to the druggists of the United States for \$60,000, this including repairs.

Some \$10,000 was sent in and the prospect looked good to have it all paid for in a few months. During the summer of 1913 the Home was open to all and was well patronized. We were promised donations from all over the United States. The property was bought on the lease system, the trustees signing papers that if \$20,000 was not paid by April 10, 1914, the property would revert back to the owner with all repairs. During the winter of 1913-1914 the house was practically closed, only three people being there. The trustees became discouraged, and one by one they resigned their offices, until only I was left.

April 10 Mr. Hedenburg claimed the property according to the contract, and it was turned back to him. He then stated he had done this to protect himself, and he then appointed me his agent and put me in charge of the property, and with the understanding the deal was still open to the druggists of the country, and he (Mr. Hedenburg), would give them the first chance.

Mr. Hedenburg and I am still sanguine over it that the druggists will rally and accept this beautiful place. Since October I have cared for the place without any charges. May 1, 1914, the Home was opened for the reception of visiting druggists and

has been visited by many to prove the statements made by the trustees that it has paid expenses so far this season. It is now open to all who wish to make it a visit.

The property, as stated, cost \$120,000—it was bought for \$60,000. It is now in good repair and we can have it according to the original contract. We have fifteen applications, now, for admission. All of them are from old druggists who have spent a lifetime in their work, and are now "down and out."

We have six other applications from old druggists who have money and can and will pay a good price, but want to spend their

days at the Home. If the N. A. R. D. and the American Pharmaceutical Association would take this up, appoint the trustees from their executive committees, the entire sum could be raised in a short time and in five years the place would be self-sustaining. At present there are no officers, so it will be only necessary to elect a board of managers. The full amount need not be paid down. Two dollars and a half per year (5 cigars) from each druggist in the U. S. will give us and sustain for us a Home that we will all be proud of.

Respectfully,

E. B. HEIMSTREET.

Book Reviews

THE BULLETIN OF THE MASSACHUSETTS COLLEGE OF PHARMACY, June, 1914. Published by the College. Edited by Theodore J. Bradley, Dean.

The very excellent *brochure* of the College has come to the A. E.'s table full of interesting matter in relation to the M. C. P. Its special items are the report of Treasurer Godding, which shows the College to have assets over all liabilities of \$238,227.94; the comment upon the Course in Commercial Pharmacy, conducted by Professor La Pierre; President Packard's address in full to the graduating class of this year, and the address of Joseph H. Cooney, a member of the class of this year on "Cut Prices."

The entire *ensemble* of the Bulletin is most praiseworthy from cover to cover.

THE PHARMACEUTICAL SYLLABUS. Second Edition. Outlining a Minimum Course of Instruction of Twelve Hundred Hours. Revised and Published by the National Committee, Representing The American Pharmaceutical Association, American Committee of Pharmaceutical Faculties, National Association of the Boards of Pharmacy. Copyrighted. All rights reserved. Price \$1.25. Postage 10 cents.

The pharmaceutical profession will welcome this syllabus with enthusiasm, for it is the first one published in this country of a national character, and one which will have a most potent and beneficial effect upon pharmaceutical education throughout the country, and which, by the elevation of instruction, will give to pharmacy a standing, long-jeopardized by lax and inefficient standards, varying according to locality and individual opinion.

Here is a well-ordered plan of instruction, which, if definitely adhered to, will result in immense advantage to the profession.

The committee are to be congratulated on their admirable work and they should receive the thanks of every well-wisher for pharmacy in the world, and it is earnestly to be hoped that no time will be lost in the adoption of this plan of instruction by every institution in the United States.

Copies may be secured of H. I. Taylor, Treasurer, Albany, New York.

Section on Commercial Interests

Papers Presented at the Sixty-First Annual Convention

SHAPE OF TABLETS FOR EXTERNAL USE.

OTTO RAUBENHEIMER, PHAR. D., BROOKLYN, N. Y.

The manufacture of tablets and, quite especially, their evolution, is unquestionably an American innovation. From the compression of a pill, the *flat, round* shape of the tablet has resulted, and it has become the custom to manufacture tablets of this particular shape throughout the civilized world. In the course of time, larger tablets have been manufactured, such as lithia tablets, which were very convenient for the extemporaneous preparation of lithia water. Next came tablets, which were intended for the preparation of solutions for external use, some of which were even of a poisonous nature. It has undoubtedly been a very serious mistake to manufacture tablets for external use, of identically the same shape of those for internal use, as they can easily be mistaken for one another, even by physicians themselves. On account of the many, the very many, accidents, some of which have even proven fatal, from the internal use of "Bichloride Tablets," which have usually been mistaken for headache tablets, numerous suggestions as to color and shape have been made. The craniums of pharmacists, chemists and even those of the public have been quite busy in making suggestions.

Color: There is no question but that the color of the poisonous tablet exerts some psychological action upon the patient or the public. The German Pharmacopœia in the case of "Bichloride Tablets" orders a red color by means of eosine. The supplement of 1891 of the Netherlands Pharmacopœia, 3rd edition, specifies a blue color, which is also used in Russia. In the United States "Bichloride Tablets" have been manufactured of a white, blue, green and red color.

Shape of Bichloride Tablets: Ever since "Bichloride Tablets" have become official in the 3rd edition of the German Pharmacopœia (1890) they have been made of cylindrical shape, about twice as long as thick. At least three manufacturers in the United States have realized the necessity of a special shape of these poisonous tablets, one making them diamond shape, another clover-leaf shape, and the third in the shape of a triangle. There is no question that these distinctive shapes have contributed to prevent accidental poisonings. As a further precaution "Bichloride Tablets" in the United States are also put up in distinctively-shaped bottles, of rough corrugated exterior, these bearing a poison-label, and in addition, each tablet is stamped "Poison."

A great many suggestions have been made regarding the proper shape of the

deadly "Bichloride Tablet." A former chairman of the Section of Pharmacy and Dispensing of the A. Ph. A. is of the opinion that the shape of a coffin, adorned with skull and cross-bones, should be adopted as the proper shape and that this will prove an efficient safeguard. Another active A. Ph. A. member suggests the grotesque shape of a skull, or the peculiar form of a kidney. There is no question but that all these suggestions have been made in good faith, with the sole object of safe-guarding the patient and the community.

Shape of Tablets for External Use: The Bichloride "accidents" have plainly demonstrated the desirability and also the necessity of a *distinctive and uniform shape of tablets for external use*. The tablets for internal administration are round, and this shape, which has been adopted throughout the civilized world, cannot be very well changed. What is needed, and needed very badly, is a distinctive shape, *but not a fancy shape*, of tablets for external use. The writer has given this subject much consideration. He has reached the very simple conclusion that all tablets for external use should be made *Flat* and *Square*, with four corners and that these corners should not be rounded.

Advantages of Square Tablets for External Use: 1. A distinctive square shaped tablet cannot be *mistaken* for a round tablet at any time.

2. The tablet has four corners and thus it will mark plainly its use for solutions intended for external application.

3. Such a tablet cannot be easily swallowed as, owing to its four corners, it is liable to stick in the throat.

4. By being *Flat* and *not Cubical* the tablet can readily be broken into several pieces, to increase its solubility.

Poisonous External Use Tablets: If the external-use tablet is poisonous, then, in the opinion of the author, the following precautions should be taken:—

1. The tablet should be square and flat.

2. The tablet should be colored.

3. Each tablet should be wrapped *individually*, and the wrapper should be marked "Poison."

As to the proper color for a poison tablet, I would recommend eosine. Red has always been the danger-signal and for that reason, the psychological action of a red tablet might be stronger to prevent mistake than that of any other color. As to the individual wrapping, the author is in favor of the German method in the case of "Bichloride Tablets," namely the wrapping of each tablet with black paper, which in white letters bears the name "Poison," as well as the skull and cross-bones.

Conclusion. In view of the enormous use of tablets in the United States, I would make the following three additional recommendations:—

1. The adoption of a monograph or general chapter on tablets, in one of our legal standards, the U. S. P. or the N. F. It might be news to some pharmacists in the United States, to learn that a Chapter on Tablet Triturates is official in the National Formulary under "Pulveres" as "Pulveres in Tablettis."

2. That the U. S. P. or N. F. should make an explicit statement that *all tablets for external use* should be made of a *square and flat shape*.

3. That *poisonous tablets* intended for external use should have the same

square shape, should be *colored*, and should be wrapped *individually with black paper* which in *white ink* bears the word "*Poison*."

By the adoption of these simple recommendations, the dispensing and the use of external tablets and poison tablets would be thoroughly safe-guarded. The adoption of these simple recommendations would result in uniformity in the shape of these tablets all over the United States and this arrangement would be far more desirable than the enactment of heterogeneous laws by different states, which would result in a multiplicity of shapes and colors for such tablets, and be a hardship for manufacturers and pharmacists. Remember, *round* tablets for *internal* administration and *square* tablets for *external* use only. Let us be "on the square!"

DISCUSSION.

Mr. Mayo said there was one objection he could see to the use of eosin, and that was, that a color for poison should be selected which was characteristic. A pink, or any shade of red, was not sufficiently characteristic, as there were already so many tablets colored in that way that it would be no indication of any peculiarity. There were no tablets, so far as he was aware, that were colored blue, except methylene-blue tablets, and blue was a color which had been adopted for corrosive sublimate in hospitals. The suggestion offered by the author did not include the specific name of a color. He wished to move, therefore, that the Section on Practical Pharmacy and Dispensing recommend to the House of Delegates the passage of a resolution suggesting the introduction into the Pharmacopoeia of a monograph on tablets in accordance with the suggestions contained in Mr. Raubenheimer's paper. He expressed his satisfaction that the author had not specified any color, because he did not think any shade of pink was desirable, either in U. S. P. or N. F.

Mr. Nitardy moved to amend, that Mr. Raubenheimer and Mr. Mayo be appointed as a committee to draw up suitable resolutions to be introduced in the House of Delegates.

This motion was seconded by Doctor Schneider; but the Chair suggested that this matter be presented a little later, when there were more members present, and so the matter was passed.

Mr. Raubenheimer made the suggestion in regard to blue, that it was very difficult to get a blue color which was permanent, because all blues, except one, as he recalled, were reduced by bichloride. There was only one blue color that could be used.

Mr. Mayo replied that "One was a-plenty."

Mr. Windloph said he did not know whether Mr. Mayo was referring to tablets for internal use, and suggested that his establishment manufactured bichloride tablets colored blue.

Mr. Mittlebach thought that conscientious druggists throughout the country were anxiously awaiting a solution of this problem of throwing around the use of these dangerous tablets some adequate safeguard. Mr. Raubenheimer, he said, had been working faithfully to this end; he had read some of his papers on this subject. It occurred to him that some other word than "tablet" might be coined to meet this situation. A tablet meant something taken internally, and he thought it would be a decided advantage if some other word could be used to express the idea in mind. He also thought it would be well to put these dangerous tablets on the market in small packages, with permission to dispensers to sell them in original package only. The trouble was the result, usually of the breaking of the package, as was the habit with many druggists throughout the country. They often sell these strong poisonous tablets in pill-boxes, or in some other way, not distinctive, and they were taken home by the purchaser and put in the medicine-closet, alongside of aspirin tablets, in a box of perhaps the same shape, with the result that mistakes often occurred. If druggists could be compelled to sell these poisonous tablets in original packages only, in some proper and distinctive shape, he was satisfied it would "help the cause."

Chairman Lascoff commended this as a good suggestion.

Section on Pharmacopœias and Formularies

Papers Presented at the Sixty-First Annual Convention

SOME OBJECTIONS TO MATERIA MEDICA STANDARDIZATION WITH REFERENCE TO THE U. S. PHARMACOPŒIA.*

F. E. STEWART, PH. G., M. D.

The text of my sermon will be found in the Journal of the American Medical Association for Nov. 30, 1909, p. 1645: "A thoroughly up-to-date Pharmacopœia—one which will truly reflect the best medical practice of the present time—will contribute more to sane drug therapeutics than any other one thing."

To prepare a new materia medica product for introduction into the United States Pharmacopœia, it is necessary first, to give it a name conformable with scientific nomenclature, (the first step in standardization). This is objected to by certain commercial interests who desire property-rights in the name of each new product, for the purpose of creating a lasting monopoly in its manufacture and sale.

The next step consists in the free discussion of each new drug in medical and pharmaceutical journals, societies, schools and colleges. Certain objectors are entirely in accord with such discussion, provided the discussion is favorable to the therapeutic claims they make for their controlled products. But free and impartial discussion, when it results in diminishing sales, is not viewed with equanimity by commercial introducers, after they have spent, possibly, a hundred thousand dollars in advertising.

The next step is the fixing of tests for identity and purity, and the enforcing of the standards thus evolved by pure food and drug laws. Honest manufacturing houses favor this kind of legislation. It is only the dishonest manufacturers who object.

The standardization of galenical products, to fit them for a place in the Pharmacopœia, includes determination of botanic source, physical and chemical structure, pharmaco-dynamic and therapy-dynamic properties, and therapeutic uses. Manufacturers depending upon concealing one or more of these factors, to obtain and retain monopoly of sales, object to such standardization.

Again, manufacturers depending upon a fictitious demand, created by misleading advertising, object to standardization.

Another objection to standardization, is, that standardization means *leveling* of all materia medica products to common standards, thus taking away from commercial introducers, the advantage to be derived from advertising their products as better than those of their competitors.

*Read before the Section of Pharmacopœias and Formularies at the Nashville Meeting, August, 1913.

What the medical profession must know in order to treat the sick properly, are the side-effects, limitations and comparative value of new products, in their relation to each other, and to older and better known products, employed as therapeutic agents in similar conditions. It is just this kind of levelization, that the medical and pharmaceutical professions must insist upon, if we are ever to restore public confidence in drugs as remedial agents.

Suppose that the manufacturers of potassium iodide, were able to do so, and should, organize a campaign against the newer syphilitic remedies, because their success meant injury to the sale of potassium iodide. Suppose the manufacturers of quinine should endeavor to prevent the destruction of mosquitoes because malaria is propagated by mosquitoes and the sale of quinine is dependent upon the existence of malaria. Such action on the part of the manufacturers, would be bitterly resented by the public. Yet this kind of opposition to the therapeutic standardization of new materia medica products, is actually going on at the present time.

Demand created by false advertising of unwarranted claims, represents unfair competition. Business taken away from competitors, in this way, is stolen. The remedy for unfair competition, is to be found in drug-standardization. It is not surprising that those guilty of unfair competition object.

Let me quote the exaggerated claims made for a certain alleged new remedy by way of illustration. I have coined the name "Antigonensis" to describe the advertised product.

"Antigonensis is a powerful and harmless systemic antiseptic in the most varied medical and surgical infections. It checks beginning sepses and often effects brilliant recoveries in desperate ones. Recent investigations show that, with its direct bactericide energy, it exerts a marked electrolytic and leucocytogenetic action, and thus greatly aids the natural protective forces of the body.

"Used topically, by mouth, rectally, intravenously or by inunction, Antigonensis forestalls the development of sepsis from accidental or operative wounds, or childbirth, arrests beginning medical and surgical infections, and often achieves brilliant recoveries in apparently hopeless cases."

It is evident that pharmaceutic and therapeutic standardization, would soon "levelize" this product and rob the manufacturer of the advantage to be obtained by claiming it to be better than competing products.

The true ideal of pharmacologic practice includes coöperation between the medical and pharmaceutical professions, and the manufacturing houses supplying them with materia medica products, to prevent such kind of advertising. This coöperation can never be secured, until all concerned are willing to consider the public health, as of greater importance; than the *making of money*. It is admitted that the *making of money*, is absolutely necessary, for the existence of the doctor, druggist and manufacturer. The doctor must live on his fees, the pharmacist on his sales of medicines, and the manufacturer on the profit obtained by selling his wares. But dishonest commercialism should be abolished. The principle expressed by the motto "caveat emptor" (let the purchaser beware) is a very dangerous principle, applied to medicine or pharmacy.

Objections to materia medica standardization, come from manufacturers of commercially-controlled materia medica products of all kinds. For the purpose

of obtaining a clear conception of the objections and objectors, let us classify the objectors into their classes as follows:

1. Secret Medicine Manufacturers.

a. Retail druggists supplying medicine of their own make, which they recommend for self-medication, trusting patients to make their own diagnosis for the most part, but sometimes venturing to make a diagnosis for them.

b. So-called "patent" or proprietary medicine manufacturers, who prescribe medicine at wholesale, without diagnosis.

2. Manufacturing Chemists and Pharmacists dealing in commercially-controlled specialties.

a. Manufacturers of medicinal-mixtures of secret formulas, for doctors to prescribe.

b. Manufacturers of mixtures concerning which the medicinal ingredients are published, but regarding which the working formulas are suppressed.

c. Manufacturers of chemical synthetics protected by patent, and registered names.

The objectors to standardization, are as varied as the character of the manufacturers. Behind the objections, are motives equally complex. All object, because they do not want to part with their monopolies. Some object, because, in addition to that reason they wish to create a demand by misleading advertising.

"How can inventors protect capital, invested in the working and development of new inventions, from interference and competition, if inventors publish full knowledge of their inventions, for the benefit of scientific classification and standardization?" This question is frequently asked by the pharmacists and the reputable manufacturers, engaged in the pharmacal and pharmaco-chemical industries.

The answer is to be found in that clause of the Constitution of the United States, that gives to Congress the power "to promote the progress of science and the useful arts, by securing, for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries."

Inventors of new and useful arts, machines, manufactures, and composition of matter, may obtain proper protection by patenting their inventions.

There are good reasons for believing, that the proper application of the patent-law to medical inventions, would promote progress in medical science and in the useful arts of pharmacy and drug-therapy. But to accomplish this object, it would be necessary to establish some kind of a commission, board of control, or bureau of materia medica, working with the Patent Office and the Courts, to limit the patenting of materia medica products to substances new and useful, *in fact*, also to act as experts in infringement-cases, requiring higher knowledge of medical and chemical science and arts, than that possessed by the legal fraternity.

The patenting of new materia medica inventions under such a board of control, would promote materia medica standardization. For the statute exacts, "That, before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner, and shall file, in the Patent Office, a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise and exact terms, as to enable any person skilled in the art or

science to which it appertains, to make, construct, compound and use the same."

It may be answered that the prejudice against patenting materia medica inventions manifested by the medical profession is a serious hindrance. This is true. However, this prejudice might, in all probability, be overcome by the adoption of some plan to prevent dishonest exploitation of new materia medica products by commercial introducers, also to secure free and impartial discussion of commercially-controlled products by the medical and pharmaceutical press.

Much has been done in this direction by the Council on Pharmacy and Chemistry of the American Medical Association, and much by the pure food and drug laws. The Shirley amendment to the national pure food and drug act, aimed against misleading advertising, if properly enforced, will be of great service. Similar bills advocated by "Printers Ink" are being passed by the States, and, as they are backed by the advertising fraternity and their agents, we have a right to expect salutary reform. But we need some kind of strong central board of control, in which the various interests involved may be represented, and have a voice in the administration of affairs.

"But," say some of the objectors, "the seventeen year limit, provided by the patent law, is not long enough to get our money back. It requires an investment of at least one hundred thousand dollars in advertising a new product, before the investment becomes remunerative. And it must also be considered that a certain proportion of ventures prove unprofitable. That is why we devised the scheme of patenting our products, under their chemical names, and registering coined names as trade-marks, to be advertised as the names of the products. By forcing the coined names into the common language, as nouns, and retaining ownership in them, we are enabled to extend our monopolies indefinitely."

This plan, for defeating the object of the patent-laws, was set aside by the decision of the Supreme Court of the United States, in the Singer Sewing Machine case in 1895. According to this decision, the name of a patented article cannot be commercially-controlled after the patent expires.

"Then why 'patent' materia medica products at all?" say the objectors. "Why not 'trade-mark' them, and keep the process of their manufacture secret? A trade-mark never expires and the manufacturer, by controlling the name of the product, possesses a perpetual patent."

The weakness of this argument is apparent, when one considers that any person who discovers, by legitimate means, how to make the same product, has the right to do so, and advertise the fact. He also has the right to employ its currently-used name, either as the title of the product or as a synonym. For example, what is to hinder any manufacturer of hexamethylamine from using on his label, as synonyms, all of the fourteen so-called trade names or trade marks of that drug?

"We are perfectly willing to aid the government in fixing standards for our products and placing them in the Pharmacopœia, if we can still maintain monopoly," say the objectors. "What we desire is, to secure the advertising advantage of having our products listed in pharmacopœias, dispensatories, medical dictionaries, text books and other medical and pharmaceutical literature. We also desire discussion in professional journals and societies. We want the medical

colleges to teach the students how to use our products. But we want to hold on to them."

That is the same as saying, that these objectors want the medical and pharmaceutical professions, colleges, societies and press, to do their detail-work without pay. "No," say the objectors, "we are willing to pay for the work, if we can get it done in this way. What we object to, is giving up our monopoly."

To this, medical scientists reply that to do the work for pay, would be the same as going into partnership with the manufacturers in a commercial business, and the turning of the educational machinery of the profession into a great advertising bureau for the commercial exploiting of alleged "new remedies." Those engaged in materia medica commerce, are no longer in a judicial position in relation to materia medica, and what they say about it must be received *cum grano salis*.

If this objection is true, then the professional ideals taught by the colleges of pharmacy are false, and there can be no profession of pharmacy.

But is it true? I do not believe it. It becomes evident that pharmacy is a profession, when it is considered that the proper introduction of new materia medica products requires the coöperative work of physicians, pharmacists, chemists, botanists, bacteriologists and other professional men, learned in the knowledge of their respective branches and expert in *technic*. Coöperation on the part of the professional societies and press, is also required. The result of this coöperative work belongs to the workers, not to individuals. It must be contributed to the common fund, for the benefit of all concerned. This means, that the introduction of new materia medica products, should be changed from a commercial or monopolistic plan, to a professional or coöperative plan.

Now we are in position to consider the question of patenting new materia medica products, in connection with a professional system. It seems to me, that the question is one for the professions of pharmacy and medicine to decide. If they are willing to consent to it, as adapted to the promotion of progress in medical science, and in the arts of pharmacy and drug therapy, then let it be done.

But it is evident that it is unfair to ask any one person or manufacturing house, to do business on a professional basis, while competitors are doing the same business on a commercial basis.

Until manufacturers are willing to place their business upon a professional basis, they have no right to expect professional coöperation. I believe that the profession is willing to endorse and coöperate with manufacturers, under the protections of the patent laws, just as they are willing to coöperate with the publishing houses, under the protection of the copyright laws, provided that medical science and the arts can be promoted thereby.

The object of the copyright and patent laws, is to promote progress in science and the useful arts, by securing, to authors and inventors, the right to prevent others from copying their respective writings and discoveries for limited times. The object of the trade-mark law is to protect all concerned, from the counterfeiting of labels and brand-marks. But all plans for obtaining and fostering perpetual monopolies, are a hindrance to science, and stand in the way of prog-

ress in civilization. Monopolies of this character, ought to be opposed by all patriotic citizens, and especially by physicians and pharmacists.

It is evident from the foregoing that a thoroughly up-to-date pharmacopœia will contribute more to sane drug therapeutics than any other one thing. The U. S. Pharmacopœia is preëminently the standard for medicinal drugs, chemicals and pharmaceutical preparations in the United States. It is the basis upon which rests all materia medica literature, including the dispensatories and text books. The information contained in the Pharmacopœia, is taught in the medical and pharmaceutical schools and colleges, and circulated throughout the country, in the literature of pharmacy, chemistry, and therapeutics.

The U. S. Pharmacopœia is "the law of the land," not only for Inter-state commerce, but also for state commerce, in most of the States. Whatever goes into it, is placed there, after mature consideration by a convention of representative physicians, pharmacists and chemists, who, collectively, decide its policy and appoint the committee for its decennial revision. The influence of the Pharmacopœia upon the pharmaceutic, pharmaco-chemic, and therapeutic arts is therefore incalculable.

To prepare new materia medica products for admission to the Pharmacopœia, their standardization is necessary. Materia Medica products cannot be properly standardized, except by the coöperative work of the medical, pharmacal, and chemical professions, whose functions are to determine, for each product, its nomenclature, source or genesis, physical and chemical properties, pharmacodynamic and therapy-dynamic actions, therapeutic applications, and proper methods of preparation. This function is being constantly exercised by the Committee having charge of the revision of the Pharmacopœia.

To obtain a thoroughly up-to-date Pharmacopœia, the commercially-controlled materia medica must be considered. The rule adopted concerning the admission of controlled-materia medica products, to the Pharmacopœia follows,—the Committee was authorized to admit,

"Any synthetized product of definite composition which is in common use by the medical profession, the identity, purity, or strength of which can be determined. No compound or mixture shall be introduced, if the compositions or mode of manufacture thereof be kept secret, or if it be controlled by unlimited proprietary patent rights."

Some of the synthetic products still controlled by patents were admitted, because the patents were about to expire. So-called "trade names" were not admitted. Abbreviations for long chemical names were coined and adopted.

In the light of the above facts, it is evident that the rule adopted by the committee, which was doubtless the best that could be devised under circumstances then existing, is not adequate to secure proper standardization. Something should be done to clear up the question of nomenclature, so that a new product may be admitted under its currently-used name, the same to be adopted either as the official title or as a synonym. Also the question of ethics, in regard to patenting new materia medica products, either as to product, or process, or both, should be decided, and proper action taken in the premises.

The proper application of the patent law to materia medica inventions, the same to be administered under the advertisement of a board of control, repre-

sentative in character, working with the Patent Office and the Courts, would probably result in securing the object of the patent law in this connection, i. e., the promotion of progress in medical science, and in the useful arts of pharmacy, chemistry and drug therapeutics.

The *personnel* of such a board of control is well exemplified by the U. S. P. Revision Committee. It is truly representative in character, and is already engaged in the work of standardization. If to this Committee, Congress would give advisory authority to act in expert capacity, in conjunction with the Patent Office and the Courts, and would provide sufficient appropriation to meet the necessary expense, all objections to drug standardization, on the part of inventors and manufacturers, would disappear, also the ethical problem would be solved, and an embarrassing situation relieved.

THE PHARMACOPŒIA, THE DRUGGIST AND THE PHYSICIAN.*

R. H. NEEDHAM.

That the Pharmacopœia is the "Book of Books" among chemical and pharmaceutical publications must be conceded, when we look about and, after reviewing the great mass of literature, we find that we are compelled to turn to it, as a rule and guide in selecting and standardizing drugs and chemicals. It is not perfect, and probably never will be, but this does not detract nor lessen its value, when considering it as a book of standards, because there is no other work equal to it, let alone being its superior.

Druggists who are familiar with the Pharmacopœia are aware of its value, though we regret to say that but few of them make any use of it, except as a reference to simples. When it comes to formulas and preparations, almost every one of the rank and file, consult a Dispensary, instead of the Pharmacopœia. As a Dispensary consists of notes taken from one or more pharmacopœias, the matter is second-hand in a way, and coming from so many sources, it gives the reader, if he is not very careful, quite confused ideas as to some preparations. Druggists will not agree upon the procedure for making a preparation for this reason, each claiming their preparations U. S. P. Should you ask them to make the preparation, using the U. S. P. text, you would be apt to receive a mild protest, as they would probably inform you that they preferred to use the Dispensary rather than the Pharmacopœia as the latter gives all quantities in the metric system and they have difficulty in converting weights and measures. I consider it a shame and disgrace for the druggist to make such an excuse, when metric weights and measures can be so readily obtained and at such reasonable prices. Yet this bugbear is in the way, and nothing short of a national law making the metric system the official one will place the pharmacopœia where it ought to be among the druggists.

From my view-point and experience in teaching, I wish the other systems of

*Read before the Section of Pharmacopœias and Formularies at the Nashville Meeting of the A. Ph. A., August, 1913.

weights and measures were buried and forgotten and I further wish that the new Dispensatory would omit old forms entirely.

I fail to see how we are to make any headway with physicians concerning the Pharmacopœia under present conditions. First, until the metric system is forced upon the doctors they will neither read or write it, but will continue to use the old forms. In the second place, I declare, without fear of contradiction, that they are being educated away from the pharmacopœia instead of toward it. I refer to scholastic courses of education, now, and not to commercial education.

We all know where the latter leads to, without further comment. When the time for teaching *Materia Medica* and Pharmacy are so shortened as to give but thirty to forty hours' work in medical courses, kindly tell me, how, when, or where, can an instructor find time enough to teach anything concerning the pharmacopœia or of its listed drugs and preparations. I have tried for several years, asking for more time each year, in return being assigned shorter hours, until I am asked this year to teach these two important subjects within twenty-five hours. The *curricula* of other medical schools are following the same plan and a remonstrance is met with the declaration that the student does not need a longer time. Pharmacology and therapeutics are the important subjects, consequently our future physicians will know nothing of the pharmacopœia, except as an authority to be quoted, never to be used. Neither is there any time or place for the National Formulary. Thus we perceive that while the druggist may acquire a very complete knowledge of the pharmacopœia the practical application largely ceases when we reach the physician, because of his ignorance regarding it.

We must be alive to these conditions and exert a different influence in educational matters, else we as druggists will some day awake to the fact that the pharmacopœia will be the center of attraction of a mutual admiration society, composed of all other scientists, to the exclusion of the practicing physician.

THE NEED FOR GREATER UNIFORMITY IN LAWS RELATING TO THE MANUFACTURE, SALE AND USE OF POISONS AND HABIT-FORMING DRUGS.*

M. I. WILBERT, PH. M., WASHINGTON, D. C.

The untoward harm that might result from the promiscuous distribution of admittedly potent drugs and chemical substances was early recognized as being sufficient reason for the enactment of legislation designed to restrict the manufacture, sale and use of articles that might reasonably be classed as poisons or habit-forming.

Based on this generally accepted need, laws have been enacted for practically every political division constituting what is now designated as the United States. A compilation of the essential features of these several laws has been made, in

*Read before the Section on Education and Legislation at the Nashville Meeting of the A. Ph. A., August, 1913.

connection with a general study of the laws relating to public health matters, by the Public Health Service of the United States, and published as Public Health Bulletin No. 56, entitled a "Digest of Laws and Regulations in force in the United States Relating to the Possession, Use, Sale and Manufacture of Poisons and Habit-Forming Drugs." Even the most cursory comparative review of the requirements embodied in the several laws included in this compilation will suggest the imperative need for some form of correlation between these laws and the desirability of having greater uniformity in their general provisions and requirements. To bring this matter more directly to the attention of pharmacists, who, above all, should be interested in the efficiency and equity of laws of this kind, I have endeavored to compile some of the requirements in statistical form.

In connection with the laws regulating the practice of pharmacy, it may be pointed out that all of the fifty-four political divisions enumerated have some form of pharmacy law. Two states, New York and Pennsylvania, require graduation, and a third state, North Dakota, will require graduation in 1915 as a prerequisite to registration. Forty-four of the political divisions by statute-law require practical experience, four require five years' training, thirty require four years and ten require three years. In three of the remaining states, the boards of pharmacy have adopted regulations requiring four years of practical experience, or its equivalent, for registration. Forty-two of the political divisions provide for revocation of license for cause. In forty-one political divisions the pharmacy laws apply only to retail drug stores. In but two states, California and Oregon, are the manufacture of drugs mentioned, and in two other political divisions, the State of Washington and the District of Columbia, the law applies, equally, to wholesale and retail dealers. In seven additional political divisions, the law can be interpreted to apply to other than retail dealers.

In connection with the provisions relating to the manufacture, sale and use of poisons, the variation is equally great, if not greater. Up to the present time, no satisfactory definition for the word "poison" appears to be available, and the several laws vary, from "any substance which, in doses of 5 grains or less, is destructive to human life" to "any drug, chemical, medicine or preparation liable to be destructive to adult human life in quantities of 60 grains or less." In some states the law is made to apply to "any deadly drugs"; "any article belonging to the class of medicines usually denominated poisons," or "articles of a nature poisonous to the human system or to animals."

Equally chaotic conditions exist in connection with the schedules of poisons included in the several laws, as now enforced; these laws enumerate a total of one hundred and sixty-four articles. Thirty-nine of these occur but once, twenty-seven occur twice and twenty occur three times. The following table presents a list of the articles enumerated most frequently, in the order of their occurrence:

Corrosive Sublimate	in 38 laws
Opium	" 36 "
Chloroform	" 35 "
Carbolic Acid	" 34 "
Arsenic	" 34 "
Oxalic Acid	" 33 "
Hydrocyanic Acid	" 32 "
Potassium Cyanide	" 30 "

Arsenic, preparations of.....	in 29 laws
Croton Oil	" 27 "
Chloral Hydrate	" 26 "
Mineral Acids	" 25 "
Aconite and preparations.....	" 25 "
Belladonna "	" 25 "
Digitalis "	" 25 "
Cotton root "	" 24 "
Strychnine	" 24 "
Oil of Savin.....	" 23 "
Ergot and its preparations.....	" 22 "
Oil of Tansy.....	" 22 "
Cantharides and its preparations.....	" 21 "
Nux vomica "	" 21 "
Oil of Almonds, essential.....	" 20 "
Creosote	" 20 "

Among other frequently mentioned drugs and preparations, are conium (18), colchicum (17), Henbane (14) and veratrum viride (13). Strangely enough, morphine in its several forms, occurs in but a total of 16 laws. Cocaine and its salts are enumerated in 14 laws, and "coca or its preparations or alkaloids" occurs in but one. Among other substances that occur but once, are salts of barium, arsenate of copper, sulphate of copper, compound solution of cresol, ether, nitroglycerin and santonin. This feature of the laws relating to the sale of poisons, is no more variable than are the other restrictions usually included in these laws. For instance, of the fifty-four laws now in force, fifty require the word "poison" on the bottle or container, though there are a number of variations in the requirements as to how the word is to occur. Thirteen laws require the enumeration of antidotes on the label. Forty-five laws require some form of poison-register and thirty require that the seller make due inquiry that the substance is to be used for a lawful purpose.

Legislation designed to restrict the sale of narcotic drugs, is equally variable, and, in this connection, it may be pointed out that while thirty political divisions restrict the sale of opium, only seven laws include "the alkaloids of opium." Twenty-seven mention morphine, five mention codeine, sixteen mention heroin and sixteen include derivatives of the substances enumerated. The sale of cocaine is legislated against in no less than forty-eight of the political divisions, but so far as known, only sixteen restrict the sale of hydrated chloral.

In thirty-one of the political divisions, the law requires the preservation of prescriptions or orders for narcotic drugs. Eight of these laws do not specify the period of time, one requires preservation for one year, three require preservation for two years, one requires preservation for three years, seven require preservation for five years, and no less than eleven require that the prescription be permanently kept on file.

Up to the present time a total of eighteen states, have enacted legislation relating to the sale and use of methyl alcohol, and the greater number of these states, declare it unlawful to sell products intended for the use of man, either for internal or external purposes, which contain methyl alcohol or wood spirits. Several states define a drug or a food as being adulterated, if it contains any methyl or wood alcohol. Little or no attention has as yet been given to the toxicity of methyl alcohol by absorption and apart from the several provisions included under occupational intoxications, no legislation has been noted that is designed to restrict or discourage the use of methyl alcohol in confined places.

Legislation designed to prevent the misbranding of drugs and of foods, while of comparatively recent origin, is already showing evidence of variance and vagaries. Some effort has been made, in connection with Public Health Bulletin No. 56, to show the variations existing in the requirements of the several state laws, but these variations are so well known to manufacturers and others who attempt to do an interstate business, that it will not be necessary to do more than call attention to them at this time.

The need for greater uniformity in state legislation on matters relating to public health, has been discussed repeatedly and several organizations, notably the American Bar Association, are making consistent efforts to bring about greater correlation in the statutes of the several states. The newly organized National Drug Trade Conference, gives promise of developing into a clearing-house for legislation relating to the several branches of the drug-business and incidentally, therefore, to the laws relating to the manufacture, sale and use of poisons and habit-forming drugs. From every possible point of view the development of such a clearing-house would be of advantage to all concerned and it should be encouraged by the members of the several organizations interested. The consistent censoring of proposed drug legislation, by members of a representative body, in which all branches of the trade have a voice, would serve to eliminate from our state laws much of the provincialism so evident at the present time. In conclusion it may be asserted that, if laws relating to pharmacy could be designed on a broader basis, they would serve to provide ample protection for the health and welfare of the public, and yet avoid many of the objectionable requirements which tend to hamper trade and unduly interfere with the conduct of legitimate business.

DISCUSSION.

Dr. Beal said that Mr. Wilbert had called very emphatic attention, in a very successful way, to one of the crying evils of the day, and to the fact that pharmacists in the past had operated upon too narrow lines, and said that by their failure to really establish a series of laws which would be a protection to the public, while at the same time they gave satisfaction to the pharmacists themselves, that they had been laying up trouble for themselves. The time had come when it was necessary to face about, and pharmacists should remember that their own best interests would be conserved by looking after the best interests of the public. He thought this matter should be brought to the attention of the National Drug Trade Conference, with the recommendation of this Section—or the recommendation of the Council—that an attempt should be made to draft some general form of legislation that would be sufficiently comprehensive, and at the same time provide an effective remedy for these evils.

Mr. Freericks expressed himself as having been very much impressed by the remarks of Mr. Wilbert, and that his own study of the various laws of the country pertaining to the subject of pharmacy, went to prove that, nearly always, there was some provision that, if tested, would be found invalid, if brought before the courts, that, while there was a general effort being made to improve such legislation, there was, usually, some local issue or condition, which induced the pharmacists of any given State to introduce into the draft of the bill presented, something that it should not contain. It had occurred to him—and he believed this was in line with a suggestion made in the paper just read—that it would be well to have, in connection with some association, a permanent committee, to which all intended legislation from the different States could be submitted for comment and suggestions. Because, no matter how many model laws might be drafted, there were always local conditions that would induce the “tacking-on” of certain provisions outside of the particular one considered in any single model draft. He felt sure, that if some central commission or committee were

charged with the business of looking after these things, it would be a great help—a "clearing-house," or something of that kind, as Mr. Wilbert had suggested.

Mr. Wallace thought that all must agree with the remarks of Messrs. Wilbert, Freericks and Beal, and suggested that a clearing-house had already been established in the National Drug Trade Conference, for this very purpose. It was true that, up to the present time, nothing but anti-narcotic legislation had been discussed before that body, as that was such an important subject that it necessarily occupied all the time the delegates could give to the question of legislation. The resolutions creating the National Drug Trade Conference, specifically provided that this work was the particular purpose of its establishment, which statement, he thought, would be borne out by the proceedings of the past year.

Mr. Freericks agreed, that it was true that the National Drug Trade Conference could work out the purpose indicated by the writer of the paper.

MANUFACTURE OF ABSORBENT COTTON.

As a general proposition absorbent cotton cannot be economically manufactured on the small scale, as the operation requires technical experience, special apparatus and a plant representing large capitalization. Some manufacturers, so-called, eliminate the preliminary manufacturing operations and buy the amount of absorbent cotton they may need, and use it as "raw material," preparing from it the various antiseptic cottons or specialties by their particular formulas. On the commercial scale the following outline represents the steps usually followed by the average manufacturer: The fat is first removed from the cotton by prolonged boiling under pressure with a solution of sodium hydrate or of an alkaline rosin-soda soap solution, and thorough washing with soft water. The cotton is then bleached by immersion in a clear solution of chlorinated lime, the latter being removed by one of several methods. One method consists in profuse washing with water, treatment with very dilute hydrochloric acid, immersion in a bath of sodium hyposulphite to remove the liberated chlorine, and addition of stearin soap. This reacts with the hydrochloric acid still retained by the cotton, stearic acid being liberated, this imparting to the cotton the peculiar "crunching" between the fingers when handled, a quality some users demand. This "crunching," however, may be removed by treatment with a very dilute solution of sodium bicarbonate. If desired, the absorbent property of the cotton may be destroyed by rinsing the material in a solution of alum. To secure a uniformly and satisfactory product thorough and copious washings with water after all operations must be rigidly observed.—*The Pharmaceutical Era*.

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

A SUGGESTION OR TWO.*

JOHN M. LINDLY, PH. G.

The lines of education are not fixed, but are alterable. Changes, additions and improvements are made as the signs of the times may indicate. What may have been regarded as of minor importance in one generation, may be considered of prime importance in the next, or *vice versa*.

Educators may outline a course of study which they regard as ideal, as including all the essentials, as meeting the demands of the age,—but the finished product, the student, when he steps out into the world, may find that he does not fit into place in its affairs as easily as he had anticipated, and the public also discovers something lacking in him.

At the recent meeting of the Iowa Pharmaceutical Association, the list of queries contained the following question:— “Should not our Colleges of Pharmacy insist that their graduates be better prepared as business men, so that at least the ordinary operations of charging, crediting, posting and making-out a bill may be understood?”

Such an implied criticism was common enough ten years ago, and is asked with more insistence to-day and there must be some reason for asking the question, as the list of queries was prepared by a member of the State Board of Pharmacy.

If the student, on leaving school, goes into business for himself, a knowledge of bookkeeping is absolutely necessary. If he becomes a clerk, which most do at first, such a knowledge is almost equally important. If he does not possess knowledge of such matters his employer is displeased, criticises him as incompetent and condemns the institution that has conferred its degree upon him.

But the educator may say, that bookkeeping, or a knowledge of business, is not a part of a course in Pharmacy; that the student is supposed to have obtained such knowledge in the public school, or in some commercial college. However, if he has not obtained such knowledge in the public school, or been trained in a business college, our student in pharmacy enters into the exercise of his profession with but one hand trained, the other untrained and awkward. And, of course, his progress cannot be as smooth as he or his employer expected. The employer of a Graduate in Pharmacy expects to receive the assistance of a skilled man, an

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all-around, competent man. As Pharmacy, nowadays, is more of a commercial or business matter than formerly, as compounding has become a less prominent feature in it, the College of Pharmacy that desires to turn out its graduates fully prepared for the business of Pharmacy, must see to it that its graduates have some knowledge of the principles and rules of business. If the student has already secured such knowledge, well and good. But if he has not such knowledge, the College of Pharmacy should afford him the opportunity of acquiring it. A few lectures on the principles of business, and on the essentials of book-keeping, delivered during the closing weeks of the school year, to both juniors and seniors, will prepare them to meet the customer at the counter, fit them to do business with business-method and make them ready to turn their knowledge of pharmacy,—which has up to the present time only fitted them for the laboratory,—into coin, that alone buys bread and butter and keeps the body and soul together.

There comes to mind, as an illustration, the case of a preacher who was a good-looking young man, pleasant and agreeable, a graduate of a prominent theological seminary, but whose success was very indifferent, owing to his great disregard for the rules of elocution. This defect was noticeable in emphasis, and particularly in inflection. A fine sentence was often spoiled, by the use of inflections the very opposite of that which should have been used. His mistakes were like discords in music. His hearers were offended by his false rhetoric and did not endure it long. When asked if the theological seminary from which he graduated, did not instruct their students in elocution, he replied that it did not; that the student was supposed to have received such instruction in the preparatory college.

On being interrogated as to whether he had taken such instruction in college, he replied that the course was optional and, as he had not been interested in it, he had not taken it. Thus he had been allowed to pass through both the college **and the theological seminary**, without having studied or having received any instruction in the art of elocution, or public speaking. When he graduated from the seminary, he was supposed to be prepared for the career of a public speaker, but he was not. A public speaker, yet he had no knowledge of the art of public speaking! The art by which it was expected he would make use of the knowledge acquired during his many years of study *had been entirely neglected*. The ostensible preparation of young men for the career of public speaking, that does not include any instruction in the art of oratory and rhetoric is a glaring absurdity.

The College of Pharmacy that will most effectually serve the patrons and public, is that one which provides that its students, is not previously so instructed, shall receive proper instruction in the principles and rules of commercial transactions, in order that its students shall be prepared for the business of pharmacy as well as for the laboratory.

DISCUSSION.

Mr. Anderson thought this paper a very valuable one, and one eminently worthy of consideration. The subject touched upon, was one that had agitated the retail drug-trade for many years, where it was felt that the graduates of colleges should be better versed in the business side of pharmacy, and that it was the duty of the colleges of pharmacy to so prepare

their students. He believed that it was mainly through the agitation of the retail drug-trade, and the presentation of such papers as this, that the colleges had been stimulated to give more attention to the commercial side of pharmacy, that, to-day, there were very few colleges in the country that did not make some provision for this form of instruction. The Pharmaceutical Syllabus, which was in process of making, made a particular point of this, and outlined a certain number of hours that must be devoted to the teaching of commercial subjects, such as bookkeeping, making-out bills, banking, the value of notes, etc., all of which were in use in the every-day practice of pharmacy. This course, was, of course, supposed to embrace, also, everything that pertained to the conduct of a drug-store, such as the handling of customers, and of stocks, buying and selling, etc. He believed in the future the pharmacists of the country might not only expect, but also might rely upon the fact, that the graduates from the various colleges,—particularly those who took up the Syllabus in the serious manner they should, and abided by its regulations—would come to them better prepared in the duties of this important and essential part of pharmaceutical education.

THE TREND OF MODERN MEDICINE.*

RUFUS A. LYMAN, DIRECTOR OF THE SCHOOL OF PHARMACY, UNIVERSITY OF
NEBRASKA, LINCOLN.

In these days of rapid progress in both the fundamental and the special medical sciences, one hesitates to prophesy as to what the future may bring. Being in close touch with the drug men of my own state, Nebraska, I hear the complaints of the rank and file of the profession, and am forced upon every occasion to play the part of the optimist. The most common lament is, that pharmacy is a lost cause. Nebraskans are not alone in this belief for if I remember rightly, in the last five years, I have heard some half-dozen papers read by men of prominence in the National Association, urging druggists to take up urinalysis, bacteriology, and, even, first aid to the injured, as side lines, in order that they may have something of a professional nature to do. Of course, as usual, and as it must always be, the pharmaceutical manufacturer and the physician that prefers to prescribe the manufacturer's preparations rather than those made locally, come in for their share of the blame for the condition of things. But now, there is advanced another and a more serious cause, namely, that preventive medicine, serum therapy, and therapeutic measures, other than with the use of drugs, will make professional pharmacy superfluous. With this in mind, perhaps it is worth our while, for a moment, to glance over the field and note what physiological basis, if any, drug therapy has, and what we may expect of it in the future.

We are living in an age of medical fads. Like mushrooms, they appear in a night, mature in a day, and disappear as quickly and as silently as they came. Perhaps chief among the faddists, are those who have placed upon the nervous mechanism an undue importance,—maintaining that the various abnormal physiological conditions, that we find in disease, to be due to so-called nervous influences, and to be rectified thru some re-adjustment, mechanical or otherwise, of the nervous system, or of some structure in close relation to that system.

Such ideas are untenable, if we but stop to study the physiology of the cell

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or of the highly organized animal. In the single-celled animal, there occur all the usual physiological phenomena such as digestion, absorption, assimilation, excretion, reproduction,—in fact all the physiological processes necessary for the maintenance of life, and the preservation of the species, without the existence of a nervous system, or anything suggestive of it. In more highly organized animals, we have the appearance of a nervous system, which reaches its highest development in man. While the nervous system is necessary in our complex mechanism, for the production of quick motor-reactions, the fact should not be lost sight of, that the functions of the various organs of the body are regulated or correlated thru the action of chemical bodies and are primarily independent of the central nervous system. To illustrate what I mean, I shall discuss a few important tissue-products which are typical examples of chemical bodies producing physiological correlations.

The simplest, at least the most familiar example of a chemical correlation in the body, is the relation which exists between the carbon dioxide tension in the blood, and the activity of the respiratory center. It is now pretty definitely settled that while carbon dioxide may not be the only factor, it is certainly the chief factor in initiating the inspiratory act. At birth, the foetal circulation is interrupted, thru the detachment of the placenta. The carbon dioxide which is formed in the infant's body, by the tissue metabolism, can no longer be eliminated thru the maternal circulation. It therefore collects in the blood, until a sufficient quantity is formed to stimulate the respiratory center, and produce the first inspiration, and its constant formation maintains respiration thereafter. While the quantity of oxygen in the blood may vary greatly, without influencing the activity of the respiratory center to any marked degree, an increase of 8 percent of the carbon dioxide content of the blood, will increase the amount of air inspired 100 percent.

Largely thru the efforts of the Russian physiologist, Pawlow, and his pupils, and the English physiologists, Bayliss and Starling, many chemical correlations are known to exist in the digestive mechanism. For example, it has been thought that the activity of the pancreas was due largely to the effect of impulses reaching it thru the central nervous system, reflexly or otherwise. Now, it has been shown that the pancreatic cells become active, and produce their secretion, only when a definite chemical body reaches them thru the blood. This chemical body is known as "secretin" and is formed from "prosecretin," a product of the intestinal mucosa, and the hydrochloric acid coming into the intestine, from the stomach. The "secretin" enters the blood and, thru it, reaches the pancreas, where it produces a profuse flow of pancreatic juice. Again, the pancreatic secretion contains a powerful proteolytic enzyme known as "trypsin." "Trypsin," as such, does not exist in the secretion, as it comes from the gland but a zymogen, "trypsinogen," does. In the intestine, "trypsinogen" comes in contact with a body formed in the intestinal mucosa, known as "enterokinase" and, thru its action, "trypsinogen" is converted into "trypsin." Not only are there chemical bodies, elaborated in the digestive glands, which have a pronounced effect upon their own activities, but certain glands produce, in addition, internal secretions, containing substances which have a marked effect upon metabolism in gen-

eral. The pancreas is one such. It has been shown that the internal secretion of this organ contains a body, which enters and circulates in the blood and is absolutely essential for the proper metabolism of sugar.

Of the ductless glands of interest in this connection, the thyroid and the suprarenals are the most important. The physiologically active body in the thyroid secretion, is a combination of iodine with a protein molecule. As is well known, the absence of this compound in the infant, results in a lack of development in every tissue in the body, and a lessened mentality. If the thyroid is removed, or the normal secretion is interfered with thru disease of the organ, a series of symptoms follow which ultimately prove fatal. These conditions may be prevented, either by the intransplantation of a normal gland, or by the constant administration of the fresh, or the prepared gland. Epinephrine, a basic substance, is the active constituent of the suprarenal and is supplied constantly to the blood. This body is essential for the maintenance of tonicity in the muscles,—skeletal, vascular, and heart. Removal of the gland, results in death in a very short time.

A most interesting set of correlations, is found to exist in the reproductive organs. The general effect upon metabolism, of the removal of the male gland, is too well known to need discussion here. A similar effect is observed in the female, after removal of the ovaries, a more important relation, however, has been proven to exist between the ovaries and menstruation, and between the ovaries, uterus and the mammary glands. It has been shown that menstruation is brought about by a chemical substance, formed in the ovary at certain times, which stimulates the mucous membrane of the uterus to greater activity, resulting in increased growth. This process is not interrupted, even when all nervous connections with the organs concerned are severed. Likewise, the mammary glands atrophy, with the extirpation of the ovaries. There is no doubt but that the secretion of milk is profoundly influenced by nervous impulses. On the other hand, Bayliss and his pupils have shown, that the growth of the mammary gland, which takes place during pregnancy, is due to a chemical body which is formed in the foetal body *in utero*. This body enters the maternal circulation, and stimulates the growth of mammary tissue or causes the formation of milk. These experiments using rabbits, macerated the foetal bodies, and made a watery extract. By introducing this extract into the circulation of non-pregnant rabbits, they were able to cause an increased growth in mammary tissue and ultimately the formation of milk.

While I have mentioned some of the more important chemical correlations which are known, there are many others, and it is not unscientific to presume, from what we already know, that there are many more, the chemical and physiological nature of which we do not know. From our present knowledge, it would appear that the fundamental physiological processes are due to chemical reactions of a more or less complex nature, and that the nervous system is a system that has become specialized as a necessary convenience, rather than as an absolute necessity in the production of those processes.

Ehrlich, and many others, have raised the question that if there are chemical bodies elaborated within the animal body capable of producing such profound

physiological changes, why is it not possible, or even probable, that there are many substances, which are normally not a part of the body, which may produce similar changes in whole or in part. The utopian dream of medical science, is to find a set of such substances with which the physician can control the functions of the body at will. Ehrlich believes there are many such bodies, and, to me, it is a significant fact, that he who has done so much work in the field of immunity, has practically deserted the field of serum therapy, in order to devote the best years of his life to the study of the physiological action and therapy of drugs. At present, his efforts are being directed toward the discovery of drugs which act as specifics in certain diseases, such as quinine in malaria. While his discovery of the specific action of the arsenic compounds in syphilis, is an epoch-making discovery, we may be sure that it is only a beginning of the revelations which the future has in store. The establishment by our leading universities, of laboratories for the experimental study of drug therapy, is a most potent proof of its importance.

Viewing the future of medicine from the standpoint of how physiological phenomena are produced in the body, knowing to some extent how these phenomena may be modified by the intra- and extra-corporeal products, and realizing the work to be done in connection with the collection, preservation, preparation, standardization, and dispensing of such products for therapeutic use, it seems hardly proper to consign professional pharmacy to the superfluous science class.

HEALTH IN GEORGIA.

What North Carolina is doing and what Georgia is not doing for the health of their respective populations makes a suggestive contrast. The *Progressive Farmer*, of Raleigh, tells us, in an editorial The Constitution reproduces, that in a state-wide campaign against typhoid the state furnishes the vaccine free and the county the services of physicians free. The process extends through the regulation three treatments.

It is merely a matter of arithmetic that in course of time, and a comparatively short time, North Carolina will subjugate the scourge of typhoid. The vaccine is about as absolute a preventive as cowpox vaccine for smallpox.

Georgia's attitude toward disease shows in discouraging contrast. It is not the fault of the State Board of Health. The hands of this body are tied by lack of authority and still greater lack of money. It is willing and ready to practice the conservation of human life on a large and habitual scale, but it can do nothing until machinery is placed at its disposal.

Georgia has long enough been neglectful of her greatest asset, human life. It is the only state in the Union without a system for collecting vital statistics. The Legislature that assembles to-day can perform no service of a more constructive nature than by enacting the vital statistics and the public health bills.—*Atlanta Constitution*.

College and Society

THE PREAMBLE TO THE CONSTITUTION OF THE CINCINNATI BRANCH.

"The American Pharmaceutical Association is recognized the world over as the Trustee of true Pharmacy in the United States, and should in our judgment include among its membership every real Pharmacist, and everyone interested in the advancement of Pharmacy, and its allied branches. Its lofty aims and ideals, its work in the interest of Pharmacy and for the proper recognition of Pharmacists entitles it to a more general support. The time has come in its history when Pharmacists and those interested in Pharmacy should be brought into a more direct and frequent touch with each other under its guidance, so that its earnest endeavor, and the spirit of advancement prevailing within its ranks be more generally appreciated, and its store of knowledge more readily disseminated. In order to make effective these present-day needs, the members of the American Pharmaceutical Association residing in Cincinnati and its vicinity have resolved to organize, and do now organize to maintain a permanent branch thereof, and for that purpose adopt Constitution and By-Laws."



A large party, consisting of the members of the City of Washington Branch, American Pharmaceutical Association, and their guests, visited the Experimental Farm of the Department of Agriculture at Arlington, Va., in charge of Dr. W. W. Stockberger and several assistants, one day last month.

The party was carefully shown through that part of the farm devoted to the drug-plant experiments and had explained to them the nature and progress of the investigations being carried on there. Dr. Stockberger very carefully discussed the folly of many of the recently-advertised get-rich schemes connected with plant culture, and told of many interesting and peculiar inquiries received at the Department of Agriculture concerning plants and their development.

Later the party was taken to the farm

buildings where experiments are being carried on in connection with the production of rose water.



The Indiana Pharmaceutical Association has elected as officers for the ensuing year:—

President—Ernest W. Stahlhuth, Columbus, Ind.

First Vice President—Charles Gelolin, Nashville, Ind.

Second Vice President—W. S. Margowski, Delphi, Ind.

Third Vice President—A. J. Fraizer, Muncie, Ind.

Treasurer—Frank H. Carter, Indianapolis, Ind.

Secretary—Wm. F. Werner, Indianapolis, Ind.

Executive Committee—E. W. Stucky, Indianapolis, Ind.; D. H. Houks, Goshen, Ind.; J. T. Shandy, Terre Haute, Ind.



THE COLLEGE OF PHARMACY OF THE STATE UNIVERSITY OF IOWA.

IOWA CITY, IOWA.

The baccalaureate address to the graduates of the University, was given by the Reverend Charles Richmond Henderson, D. D., of the University of Chicago, Sunday afternoon, June 14th. On the evening of the same day occurred the annual Social Service meeting, under the auspices of the U. N. and U. W. C. A. This meeting was addressed by the Reverend Effie McCollum Jones, pastor of the Universalist Church at Waterloo.

Tuesday of Commencement week was Alumni day and various classes held their reunions. In the afternoon a series of "stunts" were carried out, as well as a game of base ball between an alumni team and the "Varsity," in which the latter team was the winner.

The twenty-eighth annual commencement of the College of Pharmacy occurred Wednesday, June 17th, together with the commencement exercises of the eight other Colleges of the University. The address was given by the Hon. Alexander MacDonald, LL.D., managing editor of the Toronto Globe, on the subject of Internationalism and the University. Two students received the second degree in Pharmacy, that of Pharmaceutical Chemist. They were Homer D. Long, Ph. G., 1911, and Thurston J. Long, Ph. G., 1913. The degree of Graduate in

Pharmacy was conferred upon the following people: Herbert Frederick Doden, Wilton, Junction; Leslie Knapp Fenlon, Clinton; Robert C. Hahn, Muscatine; Raymond C. Harvey, Guttenberg; Francis P. Hess, Lone Tree; N. Reno Hohmann, Iowa City; Clyde E. Jacobs, Iowa City; Edward Kiedaisch, Keokuk; John Frederick Keidaisch, Keokuk; Walter E. Palmer, Murray; Carl C. Powers, Murray; John Fred Babe, Marengo; Harry E. Rutenbeck, Lost Nation; Maud Wieland, Red Oak.

The Dean Teeter's prize of membership in the American Pharmaceutical Association for recognition of organic drugs was awarded to H. M. Doden, of Wilton. Mr. Doden also attained the highest rank in Practical Pharmacy for the Senior year, thereby winning membership in the Iowa Pharmaceutical Association offered as prize by Prof. Zada M. Cooper.

Prof. Kuever's prize of a year's subscription to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION offered to the Junior student attaining highest rank in Practical Pharmacy was awarded to L. T. Dyk, of Orange City.

Among the Alumni and former students of the College who were in the city for the Commencement festivities were J. M. Lindly, '89, of Winfield; Edith Seymour, '05, of Fort Dodge; J. A. Pierce, '09, of Denver; B. H. Davis, '08, and wife, of Onawa; C. L. Kettellwell, ex-'91, and wife, of Carson.

The College was represented at the annual convention of the State Pharmaceutical Association held at Burlington the second week of June, by Dean W. J. Teeters and wife, Professor Zada M. Cooper, Professor R. A. Kuever and Dr. C. S. Chase. Both Professor Kuever and Dr. Chase appeared on the program. Mr. E. L. Boerner, former Dean of the College of Pharmacy, and Professor Emeritus attended also.

The marriage of Professor R. A. Kuever and Miss Ruth Hindman occurred at the home of the bride's mother at Iowa City at 8 o'clock on the evening of June 20th. Only relatives and intimate friends were present. Professor and Mrs. Kuever will spend a month in the West and, after their return to Iowa City, will be at their new bungalow home on the West Side.

On the evening of June 13th, Dean and Mrs. Teeters entertained the members of the Senior class at their home on the West Side.

KENTUCKY PHARMACEUTICAL ASSOCIATION.

The annual convention of the Kentucky Pharmaceutical Association was held at Lexington on June 16-17-18, and, after a pleasant and successful meeting, elected the following officers for the ensuing year:—

Leon Evans, Mayfield, President; W. H. Tibballs, Somerset, First Vice-President; Miss Alice Caden, Lexington, Second Vice-President; George Morland, Brandenburg, Third Vice-President; J. W. Gayle, Frankfort (re-elected), Secretary, and V. Driskell, Carrollton, Treasurer. Executive Committee: R. S. Berryman, Versailles; William J. Johnston, Mayfield, and G. R. McGinnis, Louisville.

Cerulean Springs or Dawson Springs will be the next year's meeting place, the exact place not having been determined upon.

The following list of names, from which to select a member of the State Board of Pharmacy Examiners was agreed on to be presented to the Governor, who annually makes the appointment from the members of the State Pharmaceutical Association: Dr. C. Lewis Diehl, of the Louisville College of Pharmacy; Simon N. Jones, Louisville; C. J. Clark, Paris; R. S. Berryman, Versailles, and Charles Lordier, Ashland. Dr. Diehl is at present a member of the board.

Mr. Henry P. Hynson, of Baltimore, was a special guest of the Association and gave many interesting and instructive talks out of, and during the meetings, besides winning the hearts of the men as well as the ladies.

At the last session the members had the pleasure of hearing Dr. L. F. Kebler, Chief, Drug Division, Bureau of Chemistry, U. S. Department of Agriculture, who gave a most interesting discourse on the work done by his department, in enforcing the Pure Food Laws, etc.

Six new applications for membership to the A. Ph. A. were received.



MARYLAND PHARMACEUTICAL ASSOCIATION.

The annual meeting of this Association was a lively one, in which Professors Charles E. Caspari, Jr., and J. F. Hancock were in active opposition to one another on legal questions involving pharmacists. Dr. Caspari criticised the action of some pharma-

cists, in being obstructive of the work of the State Board of Health. Dr. Hancock defended the action of the druggists.

President George M. Beringer addressed the convention, and made a felicitous address touching upon the importance of fraternal feeling among the druggists of the state and nation.

The Association elected the following officers for the ensuing year:—

J. D. Leary, President; George A. Bunting, Eugene Hodgson and Henry Howard, First, Second and Third Vice Presidents, respectively; E. F. Kelly, Secretary, and S. Y. Harris, Treasurer; Members of the Executive Board, J. Fuller Frames, David P. Schindel and H. G. Wendel; Pharmacy Commissioners, one to be selected by the Governor, D. R. Millard, J. E. Hengst and H. C. Spetzler.

Thirty new members were elected, bringing the total up to about 450.



MISSOURI PHARMACEUTICAL ASSOCIATION.

The thirty-sixth annual meeting of the Mo. Ph. A. and the twenty-third annual convention of the Mo. Ph. Travelers' A. met at Pertle Springs, Warrensburg, June 16-19. The women do not have an auxiliary but have been attending the meetings since the one at Brownsville, in 1886. They have an entertainment program of their own and look after the children with games and prizes.

More retail druggists attended the meeting this year than usual, but the number of travelers was not as large as last year.

The Stevens Bill (H. R. No. 13305), intended to regulate retail prices and stop cutting, was the subject of much discussion and was endorsed by the Association.

The Kansas City R. D. A. introduced a resolution, censuring those manufacturers who give jobbers a special discount. After an extended discussion, the resolutions were finally adopted.

The reading of papers and discussions that followed occupied much of the time of the seven sessions. Some of the papers were illustrated with specimens and accompanied with demonstrations which added to their practical value and the attention given them. The exhibits were confined to pharmaceutical preparations, articles of historical interest, soda fountain syrups and similar goods. These exhibits have been an annual

feature of the Mo. Ph. A. for some years past.

The Association added thirty-seven new names but will drop more than twice that number. A net membership of over 700 will remain. The by-laws were amended so that delinquents may be dropped after one year, instead of waiting three years as heretofore.

The third Tuesday in June, 1915, was the time and Pertle Springs the place selected for the next meeting. The Association has already convened fourteen times at Pertle Springs. The decision to return next year was unanimous.

The new officers are: O. J. Cloughly, St. Louis, President; Hon. Louis Grother, Cole Camp, Honorary President; J. A. Trimble, Butler, First Vice-President; John M. Hawkins, East Prairie, Second Vice-President; H. D. Llewellyn, Mexico, Third Vice-President; William Mittelbach, Boonville, Treasurer; Dr. H. M. Whelpley, St. Louis, Permanent Secretary; Jacob Lieberstein, St. Louis, Assistant Secretary; F. W. Robinson, Warrensburg, Local Secretary.

Council: Ed. G. Schroers, St. Joseph, Chairman; R. A. Davidson, Essex, Vice-Chairman; Professor D. V. Whitney, Kansas City, Secretary; Alfred W. Pauley, St. Louis; Joseph Clinkenbeard, Lamar; with the President, Secretary and Treasurer, ex-officio.

President O. J. Cloughly announced the following chairmen of committees: Deceased Members, Fred. R. Dimmitt, Kansas City; Entertainment, George R. Gibson, St. Louis; Drug Adulterations, Minnie M. Whitney, Kansas City; Exhibits, J. A. Koppenbrink, Higginsville; Ladies' Entertainment, Mrs. H. M. Whelpley, St. Louis; Legislation, F. H. Fricke, St. Louis; National Formulary, Carl T. Buehler, St. Louis; Membership and Attendance, R. A. Davidson, Essex; Papers and Queries, Professor Francis Hemm, St. Louis; Trade Interests, J. A. Kinder, Cape Girardeau; Transportation, George M. Scheu, St. Louis; U. S. Pharmacopœia, William Mittelbach, Boonville; Welcome, R. A. Doyle, East Prairie; Candidates for Board of Pharmacy, Dr. Otto F. Claus, St. Louis; Pharmaceutical Assay Processes, F. H. Fricke, St. Louis; Delegation to A. Ph. A., Charles E. Zinn, Kansas City; Historian, Leo Suppan, St. Louis.

Papers as follows were read and discussed:

1. French Folk Medicine, by J. F. Llewellyn.
2. Can We Improve the Missouri Pharmaceutical Association?, by Dr. H. M. Whelpley.
3. Future for Retail Pharmacists, by O. J. Cloughly.
4. Timely Topics, by Dr. H. M. Whelpley.
5. Odd Prescriptions (illustrated with specimens and methods of filling unusual prescriptions), by Professor D. V. Whitney.
6. Missouri Prehistoric Mortars and Pestles (illustrated with several specimens), by Dr. H. M. Whelpley.
7. Compilation of Poisons Employed; taken from "St. Louis Coroner's Records"—from 1904 to 1913, by Professor Francis Hemm.
8. The Missouri Pharmaceutical Association 1889 Meeting, by Dr. H. M. Whelpley.
9. Some Preparations of the U. S. P., by H. D. Llewellyn.
10. The Missouri Pharmaceutical Travelers' Association, by Dr. H. M. Whelpley.
11. Bacterial Vaccines, Sera and Phylacogens, by John B. Wood.



PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The adoption of a draft of a proposed anti-narcotic law and the recommendation to the incoming Committee on Legislation that it prepare drafts of a heroin and an itinerant vender's bill, featured the action of the Pennsylvania Pharmaceutical Association which held its thirty-seventh annual meeting at Buena Vista Spring, Franklin County, Pa., June 23, 24 and 25. From the standpoint of action taken; of the value of the papers read and discussed and of the enjoyable entertainment features, the meeting was one of the most successful ever held by the Association. The attendance was slightly below normal, but the reports of committees and officers indicated that the past year had been a particularly successful one.

This was particularly true from the standpoint of membership, for Chairman William H. Knoepfel of the Committee on Membership announced that 130 names had been added to the list at the low cost of \$18. In 1911, it cost \$780 to secure 428 members; in 1912, the cost was \$450 to get 149 members, and in the following year, 38 members were added at no cost other than postage. The loss by death last year was 16 and by resignation and non-payment of dues, 28.

The need of a heroin law was emphasized when members of the Pennsylvania Pharmaceutical Examining Board declared that the

sale of this drug in the stores of Pennsylvania was growing to an alarming degree with the corresponding decrease in the sales of cocaine, due to stringent State and Federal legislation. The Committee on Legislation brought in a recommendation that an amendment, taking care of heroin, be made to the Cocaine Law. But it was subsequently decided to frame a separate law on heroin, putting heroin in the same class with cocaine. At present, this drug is classed as a poison and can be sold when the sale is registered. Under the proposed law, it can be sold only on the prescription of a physician, such prescription not to be renewed.

In a most comprehensive report, Chairman Charles E. Vanderkleed of the Committee on Drug Market stated that the character of the drugs and chemicals submitted for sale in Pennsylvania during the past year were a great improvement over those of previous years, and that cases of adulteration were very scarce. He proved these statements by statistics gathered among pharmacists and chemists throughout the State.

The Association endorsed the provisions of H. R. Bill 13,305, known as the Stevens Bill, and elected Caswell A. Mayo, President-elect of the American Pharmaceutical Association, an honorary member of the Association. He is a classmate of the retiring President, Richard H. Lackey, of Philadelphia. Following a recommendation by the President, the Association also went on record as approving an amendment to the Act of May 24, 1887, providing for the printing of an antidote on the label of commonly-used poisons.

The Committee on Papers and Queries, of which Mr. Fred. J. Blumenschein was Chairman, with the following associates, Prof. J. W. Sturmer, P. Henry Utech, Mrs. Bertha L. DeG. Peacock, and Prof. E. Fullerton Cook, issued the following comprehensive list of subjects for papers to be read before the meetings:—

LIST OF QUERIES.

- 1—Pharmacy in America from 1814 to 2014, views retrospective and prospective, are wanted.
- 2—It is said that if the principles governing the Pennsylvania Farmers' Grange were adopted by organized pharmacy improved conditions would soon prevail. An exposition of these principles is desired.
- 3—It is claimed that the bane of habit-forming drugs will adjust itself if new recruits are not formed. An investiga-

- tion as to how habitues of narcotic drugs are produced is desired.
- 4—How does the laity learn the use of the newer synthetic remedies?
 - 5—Has the pharmacist advanced his retail prices to meet the "high cost of living"?
 - 6—What should be the wages of a college educated drug clerk?
 - 7—Wanted: A plan for a "pure drugs" advertising campaign to be conducted by county or state associations.
 - 8—Wanted: A plan for a co-operative analytical laboratory.
 - 9—Is it ethical to ask physicians to send their patients to lunch-counter drug stores to have prescriptions compounded? Would you go to a restaurant for a remedial agent?
 - 10—Can pharmacists do anything to bring about the teaching of pharmacy and chemistry in medical schools?
 - 11—Wanted: The best method for obtaining new members.
 - 12—Is the stock of expensive chemicals required to conduct a general prescription business warranted through profit or advertising?
 - 13—What percentage of profit in advance should be figured on the cost price of expensive ingredients in a prescription ordered in unusual quantities?
 - 14—Do pharmacists as a rule dispense U. S. P. lime water?
 - 15—Magma Magnesiae: The manipulation of the N. F. process is somewhat tedious. What has been your experience with it?
 - 16—Papers dealing with the prescription nomenclatures of different nationalities are wanted.
 - 17—Since the registration of some "poisons" is compulsory, would it be advisable to curtail the sale of small quantities of such articles?
 - 18—What is your definition of a poison?
 - 19—Is there any particular advantage in using pepsin of higher proteolytic power for making the various official preparations?
 - 20—What is your best selling "own make" preparation? Will you give the working formula and method of procedure?
 - 21—Describe any special window display which you have made and which has proven a trade winner.
 - 22—Can you suggest any method for improving either process or product of any U. S. P. or N. F. formula?
 - 23—How many hours per day and how many hours per week would appear proper for a registered pharmacist to be employed?
 - 24—Does the state law which prohibits the sale of cigarettes to minors also include the sale of medicated or tobaccoless cigarettes?
 - 25—What is your experience as agents with the so-called "proprietary" lines of non-secret remedies? Is there any advantage in selling your own goods?
 - 26—Have you a legal right to sell a "poison" to a minor? Who is responsible in the event of accidental use of such poison?
 - 27—Is it good practice to pour into the bottle of a customer more of a substance which may already be in it, even though it bears your label?
 - 28—What has been your experience with the Salol coating of pills?
 - 29—Glutoid capsules: Their use and methods of preparation.
 - 30—Is there any real objection to filtering Brown Mixture? Does filtering remove any valuable constituent?
 - 31—Is there any objection to replacing Solution of Potassium Arsenite with Solution of Arsenic Chloride when the former is prescribed with Syrup of Ferrous Iodide or Tincture of Ferric Chloride?
 - 32—Prescriptions; Attractive packages; Delivery; At what rate do you figure the cost of service in compounding?
 - 33—Should the pharmacist tell customers the nature of the "Fakes" which are advertised to the public through reading notices in the newspapers as bona fide drugs?
 - 34—To what extent can the pharmacists of this state compel the enforcement of the "Truth Advertising Law"? In what way are you aiding the police officials to rid your community of those stores that make a business of selling habit-forming drugs?
 - 35—Can you afford to permit a high-salaried prescriptionist to dispense soda water? Can you expect the public to believe the man is a trained pharmacist if they see him cleaning windows, mopping floors, etc.?
 - 36—Cameras and Supplies. Their value as trade builders.
 - 37—To what extent do pharmacists keep their drugs and chemicals in proper containers?
 - 38—Sodium Beta-Naphtholate. Literature regarding toxicity and antiseptic properties is wanted.
 - 39—Salable toilet articles and household remedies.
 - 40—Is it logical and is it wise for Pennsylvania Colleges of Pharmacy to reduce "the four-year practical experience requirement" for graduation in case of students who have completed a four-year high-school course?
 - 41—Should our pharmacy law embody a clause requiring the registration of pharmacy apprentices?
 - 42—What evils may be expected when the latitude permitted by the "Variation Clause" of the Pure Food and Drugs Act is understood?
 - 43—From the standpoint of the manufacturer, why should the "Variation Clause" permit variation, only in case a drug is not inferior to the official standard?

- 46—To what extent is Essence of Ginger sold in general stores, especially local option districts? Why should we not have a law prohibiting the sale of Essence of Ginger except on prescription?
- 47—Ownership of pharmacies by wholesalers. Who is most to blame for this?
- 48—Co-operation or competition. Which is best?
- 49—Stopping leaks in business.
- 50—The retail pharmacist and the traveling salesman. The retail pharmacist and the country newspaper.
- 51—The physician, the pharmacist and proprietary medicines.
- 52—The pharmacist versus legislation.
- 53—Does it pay country druggists to solicit business of dispensing physicians?
- 54—Is the prescribing of synthetics increasing or decreasing? Why?
- 55—To what extent is a preceptor under obligations to instruct his employes in practical pharmacy?
- 56—What benefit do you derive from belonging to and attending the annual meetings of the A. Ph. A.?
- 57—Outline the system you use in taking care of credit business.
- 58—Business plans I have successfully used.
- 59—The comical side of a serious business.
- 60—It has been proposed by a faction in the American Conference of Pharmaceutical Faculties to raise the pharmacy entrance requirements from one year of high-school work to two years. Is such a change desirable in Pennsylvania at this time?
- 61—Lloyd's Reagent; Fullers Earth; Kaolin: Behavior toward alkaloids.

The election of officers resulted as follows: President, Edgar F. Heffner, Lock Haven; First Vice-President, J. C. Peacock, Philadelphia; Second Vice-President, F. M. Siggins, Meadville; Secretary, David J. Reese, Philadelphia; Assistant Secretary, Lewis H. Davis, Philadelphia; Treasurer, F. H. E. Gleim, Lebanon; to the Executive Committee, Frank P. Streeper, Philadelphia; Local Secretary for the 1915 meeting, Louis Frank, Wilkes-Barre. It was decided to hold the 1915 meeting at Forest Park, Pike County, June 22, 23 and 24.



HONORARY DOCTORS OF PHARMACY.

In appreciation of invaluable services, unselfishly rendered in the interest of their Institution, or in recognition of highly meritorious work contributed for the advancement of Pharmacy and Allied Science and in ac-

knowledge of fruitful efforts directed toward the betterment of general education, the Board of Trustees of the University of the State of New Jersey have conferred the Honorary Degree of Doctor of Pharmacy, Ph. D. Honoris Causa, upon the following men, well known in the field of pharmacy and medicine:

Joseph P. Remington, Ph. M.
George M. Beringer, Ph. M.
Joseph Koppel, M. D.
Otto Raubenheimer, Ph. G.
Leon J. Lascoff.
Jacob Gutman, M. D.



The Pharmacist and the Law

WRITTEN CONTRACT FOR SODA FOUNTAIN—VARIANCE BY ORAL AGREEMENT.

In an action for the balance due on a soda fountain sold by the plaintiff to the defendant, the latter offered to prove by the plaintiff's agent and by the defendant, that coolers were to be installed in the cooler boxes, which coolers were to be of a given capacity made known to the plaintiff's manager and draftsman in Philadelphia at the time the contract was drawn. The defendant also offered testimony to show that there was to be installed a soda water apparatus capable of furnishing cool soda. The trial court refused both of these offers. It found that the defendant purchased the fountain, that it was installed in his place of business, that \$530 was paid on account, that the plaintiffs made an allowance of \$41.50, leaving a balance of \$563.50, that the orders signed by the defendant, together with the plan and letter of acceptance, constituted a complete contract which bound the defendant, and that no oral testimony could be admitted as to the capacity and installation of coolers. This was affirmed on appeal.

The contract between the parties was in writing; that is, the defendant signed an order and approved the plan, and the order was accepted by the plaintiff. The order was directed to the plaintiff, and requested the delivery of the "following described soda water apparatus and appurtenances," and then followed a description of the structure,

with a note that, if it was for counter service, then there were to be additional details. These details appeared in the order under the title "counter service details," in which the following appeared: "One cooler box, no coolers with milk pump and 1-3 gal. can in centre, surrounded by four crushed fruit jars, as per plan." It was not denied that the defendant furnished all that he was required to do according to the writing, but the defendant argued that the contract was incomplete, and that he was entitled to offer oral testimony to show what was required to complete it. It was held that the contract, as written, was complete. The defendant might have expected more, and he might, during the negotiations, have contracted for more, but, when the contract was put in writing, that expressed the result of the negotiations, and oral testimony was not admissible to vary its terms.

Green v. Watts, New Jersey Supreme Court, 90 Atl. 667.



CASH COUPONS—ILLEGAL CONTRACTS.

An offer by the proprietor of a drug store to give a piano at the end of a designated period to any person who shall present to him the largest amount of cash coupons, representing purchases from the drug store, is equivalent to maintaining a lottery; and if the druggist purchased the piano from a dealer who agrees to furnish the literature and advertising necessary to carry out the scheme, such dealer cannot recover the price of the piano and the advertising, inasmuch as it was an illegal contract and therefore not enforceable.

Main v. Mackey, 39 Pa. Co. Ct., 589.



CONSTRUCTION OF EMPLOYER'S LIABILITY POLICY.

A drug company employer's liability policy, stated that the premium of \$113.90, placed therein, was based on estimated upon data furnished in the schedule as to the amount of compensation paid employes, and, further, that the premium should be subject to adjustment if the compensation was greater or less than the estimated sum stated in the schedule. The compensation paid, was in fact greater than the amount so estimated. It was held that the \$113.90, the amount estimated, was not conclusive of the amount of

the premium, and the insurer could recover the additional amount shown to be due.

Fidelity & Casualty Co. of New York v. J. W. Crowder Drug Co., Texas Civil Appeals, 166 S. W. 1186.



INTOXICATING LIQUORS—VALIDITY OF DRUGGIST'S LICENSE—TRANSPORTATION.

A civil action was brought by a regularly licensed druggist and pharmacist in North Carolina against an express company to recover a statutory penalty for non-delivery of goods. The plaintiff also held a license from the sheriff of the county as a retail liquor dealer. He ordered six quarts of cognac brandy from a firm in Tennessee and paid charges thereon, but delivery was refused by the express company. The plaintiff alleged that it was his purpose to sell the brandy for profit, but only in the way of filling prescriptions in the *bona fide* pursuit of his calling, and this was well known to the defendant's agent. It appeared that the plaintiff had not applied for his license to sell liquor to the board of aldermen of the town in which he did business, nor to the county commissioners, as required by the North Carolina statute, but had merely gone to the sheriff for his privilege license tax, and the sheriff had given him the license. The exception in the statute permitting the sale of intoxicating liquor by pharmacists on physicians' certificates, as an exception to the public policy of the state forbidding its manufacture and sale, does not, by the express terms of the provision, relieve druggists from complying with the law as to license and taxes. The plaintiff's license was therefore held to be invalid. As a sale of liquor by him would have been unlawful, it was held that the court would not aid him in this intended breach of the criminal law, nor penalize one who, knowing the facts, declined to deliver the liquor, in furtherance of his unlawful purpose.

Smith v. Southern Express Co., North Carolina Supreme Court, 82 S. E. 16.



DISTINCTION BETWEEN "SURETY" AND "GUARANTOR."

An agency contract to sell medicines and extracts within fixed territory required the agent to canvass the territory, keep a record of all goods sold, and to make reports of

sales and collections and of all goods on hand, and to pay wholesale prices, and at the termination of the agreement to pay the whole amount remaining unpaid and return the goods on hand. A separate instrument recited that the undersigned jointly and severally guaranteed the payment of a specified sum for medicines, extracts, etc., in the manner provided for in the contract. This instrument was signed by two obligors at a place indicated by the words "Sureties sign here," and an added statement read: "The above-mentioned sureties will be furnished, upon request, at any time, a statement of the amount due the company, from the party of the second part." In an action against the agent and the two signers of the instrument it was held that the instrument created only a guaranty, and the signers were not sureties.

Contracts of suretyship and of guaranty have much in common—in both the undertaking is to answer for the debt, default, or miscarriage of another. The difference is that a surety insures the debt, is bound with his principal as an original promisor, is a debtor from the beginning; a guarantor answers for the debtor's solvency, must make good the consequences of his principal's failure to pay or perform, is bound only in case his principal is unable to pay or perform. From this difference, one consequence of importance in respect of the procedure to be followed in the enforcement of liability results. A principal and a surety, being equally bound, may be joined in the same suit; but a guarantor, being bound by a separate contract, must be sued separately. Judgment for the guarantors was therefore affirmed.

J. R. Watkins Medical Co. v. Lovelady, Alabama Supreme Court, 65 So. 52.



SALE OF DRUGS REGULATED.

The Massachusetts Legislature passed an act, which goes into effect January 1, making the sale of opium, morphine and other narcotic drugs unlawful, except when there is a written prescription or order. The new law requires that the prescription must be retained on file by the druggist filling it for at least two years and shall be open at all times to inspection by the State Board of Health, the Board of Registration in Pharmacy and the police. It shall not be refilled except upon the order of the prescriber. The act

does not apply to prescriptions or remedies containing a small stated amount of the drugs. Violation of the act is punishable by a fine of from \$50 to \$1000, imprisonment for not more than one year or both.

PORT COCKBURN TRIP.

We are informed by Mr. C. C. Williams, the General Passenger Agent of the C. R. R., that the itinerary of the trip to Port Cockburn, published in the last issue of the JOURNAL, has been changed since it was furnished the JOURNAL.

It would be advisable, therefore, for members intending to take this trip to note this, and to inform themselves, by consultation with the Canadian Pacific Railway Company, No. 7, Fort Street West, Detroit, as to the time of the departure of trains and connections therewith.

Council Business

COUNCIL LETTER No. 27.

PHILADELPHIA, PA., July 1, 1914.

To the Members of the Council:

In the previous Council Letter, two motions Nos. 40 were presented, the second number (p. 68) (*Assignment of Patent Rights for Improved Package for Antiseptic Poisons*) was a typographical error and should have been No. 41. Please correct.

Motion No. 40 (C. L. No. 26, p. 67), on appropriation of \$50 or less to Section on Pharmacopœias and Formularies, has received a majority of affirmative votes.

The following communication has been received from Franklin M. Apple:—

"Replying to Council Letter No. 26, I wish to record my objection to the motion numbered 40 pertaining to the Wm. S. Merrell Chemical Company's offer to the Association.

"The offer made by the Wm. S. Merrell Chemical Company is *not* identical with the one previously made by The Norwich Pharmacal Company, as a careful reading of the two offers will reveal.

"In Council Letter No. 12, p. 29, will be found the following conditions pertaining to the offer of The Norwich Pharmacal Company: 'This we propose ——— Serial No. 801,748 and we hereby agree to bear all expense incident to the prosecution and securing of said patent,' and on page 31 of the same letter will be found a copy of a letter from their attorneys in Washington, D. C.,

which verifies their (The Norwich Pharmacal Company's) offer to deliver a valid patent to the Association without any cost whatsoever to the Association.

"The offer of the Wm. S. Merrell Chemical Company is *not* accompanied by any such provision to tender to the Association a valid patent; but it offers merely whatsoever rights they may have in the case, which up to this date have not been determined by anyone to my knowledge. Under such conditions, the Association would be compelled to engage an attorney and ask the assistance of the Wm. S. Merrell Chemical Company to prove that the claims set forth in the application are based upon facts that leave no doubt as to the value of the invention.

"One party agrees to deliver a finished product, but the other party offers to deliver a product only partially completed—to what extent cannot be accurately determined by the evidence offered.

"As I see the facts, President Beringer has correctly voiced the further objections to the offer of the Wm. S. Merrell Chemical Company in Council Letter No. 24, p. 63 and 64.

"Concerning the suggestions made by Harry B. Mason in Council Letter No. 20, I wish to state that I endorse the following ones without reserve: Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13 and 14. I would modify No. 5 so that a brief synopsis of the committee reports be presented to the Council for its consideration and if deemed wise by it, referred to the Association for discussion. Before adopting No. 12, provision must be made to protect the material offered for the benefit of the Journal of the A. Ph. A. No. 13 is a very radical move and should be given very serious attention before its adoption. This proposed move indicates the necessity of using very great care in selecting presiding officers for the several sections. It might be well to have an Advisory Board, chosen by the Council, to censor the nominees for presiding officers of the several sections in the general interest of the Association. I most heartily endorse the idea of abolishing the Section on Pharmacopœias and Formularies, as its work comes under the scope of the Committee on Practical Pharmacy and Dispensing mostly, hence you very materially weaken this Section, which is most unfortunate indeed. The only advantage gained by its existence is the fact that a member *not* actively engaged in the retail drug business is eligible to hold office, whereas it is obligatory that he be so engaged to preside over the destinies of the Section on Practical Pharmacy and Dispensing.

"Until it is proven that another Section can properly look after the questions that now are the property of the Committee on Commercial Interests, I am opposed to the discontinuing of the oldest section of the Association. It was established in 1887, when

the Association was only twenty-five years old, and has continued to prove to be a vital part of the Association's activities. It is needed more today than at any previous day, and all that is needed is proper supervision and direction. The bread and butter line is too prominent a part in the life of the majority of our members to be treated lightly. What is demanded today is the possibility of *practically applying* one's knowledge to gain an honorable living, and provide for the proverbial rainy day."

The following letter has been received from President G. M. Beringer:—

"From the letter of Prof. Koch (Letter No. 26, pages 67-68), I fear that he has mistaken my position. His communication in no wise answers the arguments advanced by me in Council Letter No. 24. I am not averse to the acceptance of any proposition of this character for the protection of the public by additional safeguards in the handling of poisons. To the contrary, I am ready to vote in favor of the acceptance of these propositions, provided they are not coupled with conditions that would be unwise for the Association to accept.

"If the members will kindly peruse the letter of the Norwich Pharmacal Company (Letter No. 12, page 30) and the letter of the William S. Merrell Chemical Company (Letter No. 21, page 53), they should not fail to understand my point. The first is a generous offer to transfer all right and title to the American Pharmaceutical Association without any expense to the Association, with no condition attached except the right on the part of the assignee to continue manufacturing these tablets. The latter proposition contained two conditions, which as pointed out in my previous communication, may prove burdensome and objectionable.

"The form of the assignment is not what I have directed attention to, but the letter accompanying such assignment which, doubtless, is intended by the William S. Merrell Chemical Company as a part of their offer and contract and should be so considered by the Council. The wording of the motion submitted by Drs. Beal and Koch in the first resolution refers to their communication and undoubtedly covers the conditions named therein.

"In order to get the matter squarely before the Council, I will move that paragraph *one* of the motion be amended to read:

"Resolved, That the American Pharmaceutical Association accept the completed assignment of the patent rights of the William S. Merrell Chemical Company in and to a design patent for a new, original and useful improvement in packages for Antiseptic Poisons, serial number 817,364, provided such patent and assignment is completed without expense to the Association or associated with any other conditions than that named in the assignment."

Do you approve above motion, which will include approval of the original motion as

amended and as a whole, and will be regarded as *Motion No. 42 (Amended Motion for Assignment of Patent Rights or Improved Package for Antiseptic Poisons)*.

The following communication has been received from Hugh Craig:—

"I am particularly impressed with Mr. Wilbert's communication and I believe that for the most part his suggestions are good ones, because there is a real and growing necessity for some change in the procedure of the Association, to obviate a great deal of wasting of time and to coordinate the interests of the various sections. While Mr. Wilbert suggests a great many simultaneous sessions, I believe that this matter could be adjusted each year quite satisfactorily. It might be a little out of place for me to comment particularly upon his suggestion for the elimination of the Section on Commercial Interests because of my connection with an organization which really covers the ground that this section is designed to cover. Pharmacally considered, the commercial side of the calling of the druggists should have the limitations that Mr. Wilbert specifies and within the limitations it could quite well be handled in the Section on Practical Pharmacy.

"I particularly favor, however, his suggestion to eliminate the Section on Pharmacopœias and Formularies. This has always seemed to me an unnecessary subdivision. Considered from the standpoint of legal standards, the Pharmacopœia and the National Formulary would come within the purview of the Section on Education and Legislation and they really have no other place. From the standpoint of pharmaceutical practice embracing processes and formulas, all books having to do with the preparation of drugs would come most naturally within the purview of the Section on Practical Pharmacy and nowhere else. Of course, I recognize that this might have a tendency to crowd unduly the program of the two sections to which the work would be allotted, but I believe that this crowding can be guarded against, if the chairmen of the sections will but refrain from perhaps a commendable desire to have a great many papers rather than a few papers on timely topics and permit an opportunity for discussion on the floor.

"The matter of the standing of the so-called Women's Section, was one upon which my position is quite well known from the effort I made to have at least the name of this subdivision changed at the Nashville convention. Mr. Wilbert states what are uncontrovertible facts with reference to the constitutional standing of such a division of the Association and heartened by his suggestion I desire at this time to offer the following motion:

"*Resolved*, That the name of the subdivision of the American Pharmaceutical Association now known as the Women's Sec-

tion be changed to the Women's Auxiliary, and that all matters of constitution and by-laws of this Auxiliary be left to the determination of those who shall constitute it, with the provision that membership in the Auxiliary be limited to the women members of the Association and to the women members of the immediate family of all members of the Association."

"I do not agree with Mr. Wilbert with reference to the abolition of the House of Delegates, as I believe this body performs a very necessary service as a clearing house under present conditions. I think, however, that it would be much better, if provision was made for having the Council meet as a committee on resolutions—to use a popular term—and perform the work now carried out by the House of Delegates. In order that delegates might secure proper recognition my suggestion would embody a plan for having them certified to the Council and allowing them full voice on the floor of the meeting, which I have suggested, this meeting not to have any voting, the disposition of the various matters being left to the Council.

"In another matter I do not agree with Mr. Wilbert, and that is, in his suggestion that alternates be recognized by the Council to represent absent members. The business of the Council is continuous throughout the year and for this reason an alternate could not be expected to be in touch with the status of various matters that perhaps had previously come before the Council. It is, however, greatly to be desired that there be at each annual convention the fullest possible attendance of the members of the Council and this desirability should be urged upon each member of the body on every possible occasion."

Do you approve of motion as above offered? It will be known as *Motion No. 43 (In Women's Section, A. Ph. A.)*

The following communication has been received from Frederick J. Wulling:—

"Council Letter No. 26 at hand. Mr. Wilbert's letter includes some of my oft-times expressed sentiments. I believe the multiplication of sections was unwise. The sections on commercial interests, history, pharmacopœias and formularies could be made standing committees of other sections or of the Association, with definite periods of time and places on the program for their reports. The sessions of the three sections ought to be held concurrently to save time. A very much greater number of members read the proceedings than attend the sessions. Indeed, I venture to say most members get more out of reading the proceedings than out of listening to them.

"In the general and section sessions, especially in the latter, too much time is wasted because not enough time and care is devoted to the preparation of the programs. The reading and discussion of papers should be

based on a time schedule, carefully prepared beforehand by the chairmen, who, in the absence of the fullest cooperation on part of the participants in the program, should arbitrarily set limits to papers and their discussions and then adhere as strictly to the time schedule as a train dispatcher does to his. That kind of work and courage on part of the chairmen and cooperation on part of participants would unquestionably be appreciated by practically everyone. We have tested this out here in Minnesota, where for the past ten years the Scientific Section of the State Association has been conducted on a time schedule with never a minute's deviation and to everybody's satisfaction and profit. Under this system every participant is held to the point and gabfests are simply impossible, all with the result that an astonishingly large amount of really meaty transactions can be conducted in a session of average length. The sessions, especially of the sections, should not constitute the evolution of a program, but *the presentation of an already evolved program*. The elimination of non-essentials would save an amount of time that would astonish many.

"With this kind of management the Association would need not more than three days and the other two Associations one day each. If these three bodies should hold their meetings quasi-concurrently, as I think they should, the A. Ph. A. could meet on Mondays, Wednesdays and Fridays and the other two bodies on Tuesdays and Thursdays with one session each, each day.

"Mr. Wilbert's suggestion of alternates for members of the Council who are unable to attend the meeting should receive consideration. The members unable to attend should have the designation of the alternates. Possibly it should be the duty as well as the power of each Council member to so designate.

"As I see the matter, there is no warrant for a Women's Section. There would be no objection to a non-official Women's Auxiliary.

"I believe, too, that we ought to hold our meetings in the winter time or other than the summer time and that the meetings ought to be devoted more seriously and exclusively to the business of the Association. Now we hold our meetings during the holiday period of the year and transact our business with the holiday spirit and mood on us. Those who care to combine a holiday with the meetings could do so as well in winter. The time ought to be past when pharmacists must be induced to attend meetings by the promise of a good time."

The following communication has been received from Albert Schneider:—

In reference to Mr. Mason's letter of May 16th I would urge most careful consideration. Let us make haste slowly in this matter. The A. Ph. A. has done most excellent work in the past and it has a most excellent reputation. I agree with Mr. Mason that

certain changes in the manner of conducting the annual meetings of the Association are very necessary, but I for one would not think it wise to cut out any of the sections. I believe the objectionable features referred to by Mr. Mason can be corrected by certain rearrangements of the section work. To this end I hereby submit the following. Establish four sections, each section with four, or more, divisions, as follows:

I. COMMERCIAL SECTION—

1. Division of Foreign and Domestic Drug Market
2. Division of Advertising
3. Division of Manufacture
4. Division of Retail Drug Trade

II. LABORATORY SECTION—

1. Division of Chemistry
2. Division of Botany and Pharmacognosy
3. Division of Materia Medica and Pharmacology
4. Division of Bacteriology and Sanitation

III. SECTION ON PHARMACY AND DISPENSING—

1. Division of U. S. P. and N. F.
2. Division of Dispensing
3. Division of Retail Manufacture
4. Division of Historical Pharmacy

IV. SECTION ON EDUCATION AND LEGISLATION—

1. Division of Colleges of Pharmacy
2. Division of State Legislation
3. Division of National Legislation
4. Division of Boards of Pharmacy

I have purposely mixed the different interests as represented by the main divisions or sections, so as not to be accused of showing partiality. The four sections cover drug trade, investigation and research, pharmaceutical methods and education, in fact the entire field of legitimate pharmaceutical interest. Each section should have full control of the subdivisions. It is my idea that there should not be separate meetings for the section divisions, but that such divisions as may be represented by readers of papers, are to meet with the rest of the divisions of such section, at one and the same session.

The above are suggestions which are quite self-explanatory. I believe if they were adopted they would overcome the confusion referred to by Mr. Mason without abandoning any of the sections now in existence. Under the proposed plan, the Conference of Faculties and the Association of Boards could be made Divisions of Section II; or they could continue as before provided that none of their meetings interfere with the work of the A. Ph. A."

Motion No. 44 (Applications for Membership). You are requested to vote on the following applications for membership:—

No. 197. Walter Hines Whisenant, 117 E.

Houston St., San Antonio, Texas, rec. by Herman A. Nester and E. G. Eberle.

No. 198. Robert T. Chambers, 529 San Pedro Ave., San Antonio, Texas, rec. by Herman A. Nester and E. G. Eberle.

No. 199. John W. Callens, 201 De Leard St., Monroe, La., rec. by Philip Asher and J. H. Beal.

No. 200. Emile Joseph Burvant, 2308 Lacharpe St., New Orleans, La., rec. by Philip Asher and J. H. Beal.

No. 201. Charles Friedgen, 1220 Amsterdam Ave., New York, N. Y., rec. by Louis Berger and Leon Lascoff.

No. 202. James H. Jones, 350 E. Fordham Road, New York, N. Y., rec. by Louis Berger and J. Leon Lascoff.

No. 203. George Waterman Smith, Honolulu, Territory Hawaii, rec. by Frank L. Gibson and J. H. Beal.

No. 204. Louis Frank Thumser, 232 Monticello Ave., Jersey City, N. J., rec. by Wm. C. Anderson and Jacob Reffuss.

No. 205. Ernest Reif, 1251 North Second St., Philadelphia, Pa., rec. by A. J. Staudt and Franklin M. Apple.

No. 206. Frank Randall Rohrman, 4603 Wayne Ave., Philadelphia, Pa., rec. by Franklin M. Apple and George M. Beringer.

No. 207. Virgil Earl Pirtle, Bonne Terre, Mo., rec. by H. M. Whelpley and J. W. Mackelden.

No. 208. Junius Blanton Linn, Canton, Mo., rec. by H. M. Whelpley and Francis Hemm.

No. 209. D. W. Casey, Red Oak, Iowa, rec. by E. O. Kagy and R. L. Parker.

No. 210. Longin Tabenski, Ph. G., M. D., 1725 W. 18th St., Chicago, Ill., rec. by S. K. Sass and Leo L. Inrazek.

No. 211. Clarence Van Buren Nichols, 408 E. Main St., Anadarko, Okla., rec. by J. H. Beal and J. W. England.

No. 212. Frank Edward Bradley, Noble, Oklahoma, rec. by J. H. Beal and J. W. England.

No. 213. Ralph Preston Hron, 1 Highland Circle, Guthrie, Okla., rec. by J. H. Beal and J. W. England.

No. 214. Abdel Wm. Kiler, 2470 Summit St., Columbus, Ohio, rec. by Ernest C. Marshall and Anna G. Bagley.

No. 215. Jacob Maurice Bloch, 17 Poplar St., Richmond Hill, Long Island, New York, rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 216. Herman Cohen, Phar. D., 69 Worrell St., Brooklyn, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 217. John Deuble, Phar. D., 105 Sherman Ave., Jersey City Heights, N. J., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 218. Meyer A. Feinberg, Phar. D., 259 East Broadway, New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 219. Luke Carleton Hines, Phar. D., 216 Washington St., Jersey City, N. J., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 220. Morris L. Klar, Ph. G., 25 De-

lancey St., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 221. Elias Liebmann, Phar. D., 308 E. 57th St., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 222. Abraham N. Miller, Phar. D., 306 East 165th St., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 223. Herman Harrison Oxman, Ph. G., 14 West 118th St., New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 224. Saul M. Robinson, Phar. D., 640 Broadway, Brooklyn, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 225. Carl L. Braun, 24 North High St., Columbus, Ohio, rec. by Edward N. Webb and Ernest C. Marshall.

No. 226. Edward L. Joyce, Sergt. 1st Class, Hospital Corps, U. S. Army, Philippine Islands, Corregidor, rec. by James R. Merryman and George H. Paul.

No. 227. Narciso Rabell Cabrero, Aquadilla St., San Sebastian, P. I., rec. by Rafael M. Mendez and C. H. Packard.

No. 228. Joel Morgan Fletcher, Cooper, Texas, rec. by E. G. Eberle and C. A. Duncan.

No. 229. Solomon Greenbaum, 219 East 7th St., New York, N. Y., rec. by Wm. C. Anderson and Joseph L. Mayer.

No. 230. Harry A. Read, 529 Dean St., Brooklyn, N. Y., rec. by Wm. C. Anderson and Joseph L. Mayer.

No. 231. Robert J. Gardner, 560 Monroe St., Brooklyn, N. Y., rec. by Eugene L. Maines and Joseph L. Turner.

No. 232. J. H. Axt, 740 2d St., Ft. Madison, Iowa, rec. by Geo. H. Schafer and C. H. Packard.

No. 233. Mrs. Virginia Turner Maukin, Thurmond, W. Va., rec. by Walter E. Dittmeyer and G. I. Young.

No. 234. Charles L. McIntire, Perry St., St. Marys, Ohio, rec. by P. J. Ackerman and Edward Spease.

No. 235. Oscar O. Rinker, 230 E. Russell St., Columbus, Ohio, rec. by P. J. Ackerman and Edward Spease.

No. 236. Geo. T. Lehman, 2032 N. 4th St., Columbus, Ohio, rec. by P. J. Ackerman and Edward Spease.

No. 237. Chester W. McClintock, 64 Woodruff Ave., Columbus, Ohio, rec. by Edward Spease and C. A. Dye.

No. 238. Cyrus Homer Young, 2361 N. High St., Columbus, O., rec. by Edward Spease and Clair A. Dye.

No. 239. Fred A. Powell, 430 N. Court St., Circleville, Ohio, rec. by Edward Spease and Clair A. Dye.

No. 240. Jacob L. Wagner, 205 West 11th Ave., Columbus, Ohio, rec. by Clair A. Dye and Edward Spease.

No. 241. Albert R. Will, 205 West 11th Ave., Columbus, Ohio, rec. by Edward Spease and Clair A. Dye.

No. 242. Alva O. Harris, 531 Carpenter St., Columbus, Ohio, rec. by Edward Spease and Clair A. Dye.

No. 243. Paul Lorrain Goodale, 1227 Pendleton Ave., St. Louis, Mo., rec. by H. M. Whelpley and J. C. Falk.

No. 244. Albert Rheinhart Paar, 51 W. Frambes Ave., Columbus, Ohio, rec. by C. A. Dye and Edward Spease.

No. 245. Lawrence Atkinson, Holly, Mich., rec. by A. H. Dewey and W. F. Gidley.

No. 246. Jesse G. Porter, Booneville, Ind., rec. by A. H. Dewey and W. F. Gidley.

No. 247. Homer Eberhard, Columbia City, Ind., rec. by A. H. Dewey and W. F. Gidley.

No. 248. John I. Groom, West LaFayette, Ind., rec. by A. H. Dewey and W. F. Gidley.

No. 249. John H. Grant, Jacksboro, Tenn., rec. by F. W. Ward and R. L. Crowe.

No. 250. Dell Wallace Youngken, 2500 Jefferson St., Philadelphia, Pa., rec. by J. W. Sturmer and Robert Fischelis.

No. 251. Charles A. Forbrich, 3752 S. Kedzie Ave., Chicago, Ill., rec. by J. H. Beal and J. W. England.

No. 252. D. Brice Adams, Warren, Ind., rec. by Wm. H. Hickerson and Frank Henry Carter.

No. 253. M. L. Barrett, 233 W. Lake St., Chicago, Ill., rec. by J. H. Beal and J. W. England.

No. 254. Alvin Chester Webb, 6630 Germantown Ave., Philadelphia, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 255. Stephen Disbrow Woolley, 43 Main Ave., Ocean Grove, N. J., rec. by Geo. M. Beringer and George M. Beringer, Jr.

No. 256. George Stelle Campbell, Millburn, N. J., rec. by Geo. M. Beringer and George M. Beringer, Jr.

No. 257. Albert H. Mitschele, 86 Hudson St., Hoboken, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 258. Harry Ernest Bischoff, 118 4th St., Union, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 259. Alexander Dubell, corner Main and Washington Sts., Mt. Holly, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 260. Walter Lewis, Regt. Hosp. 27th Infantry, Texas City, Texas, rec. by H. W. Riess and J. W. England.

No. 261. John M. Hawkins, East Prairie, Mo., rec. by Wm. Mittelback and H. M. Whelpley.

No. 262. Haydn Mozart Simmons, 757 Phelan Bldg., San Francisco, Cal., rec. by Joseph L. Lengfold and Albert Schneider.

No. 263. William Joseph Rabinowitz, 1043 S. Tinton Ave., Bronx, New York, N. Y., rec. by William C. Anderson and Joseph Caruso.

No. 264. William P. Porter, Belgrade, Montana, rec. by Charles E. Mollet and H. H. Bateman.

No. 265. Walter Harold Daniell, 40 Myrtle St., Boston, Mass., rec. by Elie H. LaPierre and William Atcheson.

No. 266. Edward Rabenstein, Jr., 4060

Superior Ave., Cleveland, Ohio, rec. by Eugene R. Selzer and J. H. Beal.

No. 267. Carl Weeks, Des Moines, Iowa, rec. by J. H. Beal and Mary L. Creighton.

No. 268. William Wilson McNeary, 1700 Mt. Vernon St., Philadelphia, Pa., rec. by Franklin M. Apple and J. W. England.

No. 269. John J. Seiberz, Shelly and Camp, Louisville, Ky., rec. by George Eisele and J. W. Gayle.

No. 270. Robert S. Berryman, Versailles, Ky., rec. by George Eisele and J. W. Gayle.

No. 271. Charles I. Albus, 743 E. Market St., Louisville, Ky., rec. by George Eisele and J. W. Gayle.

No. 272. Leon Evans, Mayfield, Ky., rec. by George Eisele and J. W. Gayle.

No. 273. W. C. Morris, Midway, Ky., rec. by George Eisele and J. W. Gayle.

No. 274. Thomas P. Averill, 206 W. Main St., Frankfort, Ky., rec. by George Eisele and J. W. Gayle.

No. 275. George Ernst Thum, 61, 3d St., Elizabeth, N. J., rec. by Henry Schmidt and George M. Beringer.

No. 276. Samuel M. Jacobson, 171 4th St., Elizabeth, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 277. Dr. Jose I. Berenguer, Enramadas y San Felix Farmacia "La Especial," Santiago de Cuba, Cuba, rec. by Jose G. Diaz and Jose P. Alacan.

No. 278. Alfred Harrington Snyder, 51 Prospect St., Bridgeport, Conn., rec. by Geo. A. Jamieson and John A. Levery.

No. 279. Waldermar Guerich, 21 Ellis St., San Francisco, Cal., rec. by Fred I. Lackenbach and C. H. Packard.

No. 280. Otto W. Muehlhause, 1473 Woodall St., Baltimore, Md., rec. by James A. Black and H. A. B. Dunning.

No. 281. Hamilton Ewart Davis, Andrews, North Carolina, rec. by James D. Howard and C. H. Packard.

J. W. ENGLAND,
Secretary of the Council.

414 N. 33d St.

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COUNCIL LETTER No. 28.

PHILADELPHIA, PA., July 14, 1914.

To the Members of the Council:

J. W. England, Chairman of Committee on Publication, reports as follows:—

"It will be recalled by the members of the Council that Motion No. 30 (C. L. No. 17) provided that the resignation of Dr. James H. Beal as Editor and General Secretary be accepted to take effect September 1, 1914, and Motion No. 31, that Dr. Beal be relieved of the active work of the General Secretaryship and Editorship of the JOURNAL as far as possible, and that he be authorized to make the best arrangements he could with Mr. Ernest C. Marshall or other person or persons that he might select, to carry on the work of the offices of the General Secretary and Editor under his direction until September 1st.

Dr. Beal writes that Mr. Ernest C. Marshall has agreed to serve as Acting Editor and Acting General Secretary, beginning June 1, 1914, at the rate of \$3000 per year from the date of his assumption of duties, and that the allowance is to be in full for all of his services, and that he is not to receive additional compensation for work done as Advertising Manager."

The following communication has been received from President George M. Beringer:—

"I have been greatly pleased to note the interest that is being taken by our members in the discussion regarding the method of procedure at the annual meetings of the Association. From the multitude of counselors, no doubt, we will be able to draw some conclusions that will materially aid the situation. The President is giving these several suggestions very careful consideration and at the proper time may offer some recommendations concerning these.

From the discussion regarding the matter of our lady friends of the Women's Section, one might imagine that the members of the Council were all confirmed bachelors. We must remember that we are living in the twentieth century when women have ideas of their own and we must, at least, consult them before taking any definite action on the questions involved.

I believe that the members of the Council will agree with me that it is not desirable to take hasty action on the motion offered by Mr. Craig, and I am likewise constrained to question whether a motion of this character, in a parliamentary sense, is in order. The status of all of our Sections and standing committees of the Association is fixed in the by-laws and not simply by a motion or resolution offered in the interim between meetings and voted upon by mail.

Further, I believe that at the forthcoming meeting, action will be taken by the Association towards fixing the status of our good lady friends, to whom we owe so much, both as to the proper title for their section or branch or auxiliary, whatever we may decide to name it, and likewise their standing as members of the Association.

Pending such proper action of the Association or its Council at Detroit, I will move that the consideration of Mr. Craig's motion, known as Motion No. 43, be postponed until the meeting of the Association in Detroit."

Do you approve of substitute motion as above presented? It will be known as *Motion 45 (Postponement of Action on Motion No. 43)*.

Lucius E. Sayre writes as follows:—

"While I approve of the plan of condensation of sections, I do not like to see the Section on Pharmacopœias and Formularies discontinued. I know the desire of those who proposed this section and am in sympathy with their motives and purposes. Let them have a fair chance of a few years to see what they can do. They represent a young

and enthusiastic element in our Association who believe in certain reforms and progress along the line of this particular work. Please read my article on the subject of this section in a paper presented at Denver. I should not object to merging the Section on Practical Pharmacy and Dispensing with this section and give it a new title, e. g., Section on Pharmacopœias, Formularies and Dispensing. This title will embrace practical pharmacy, to my notion."

C. Lewis Diehl writes as follows:—

"If the motion on the 'Assignment of Patent Rights for Improved Package for Antiseptic Poisons' had been presented under the proper number, that is No. 41 instead of the duplicate number 40, I should have voted 'No,' and given my reasons for doing so—these reasons being in part on the grounds presented by Mr. Beringer, and more recently by Mr. Apple. But another reason, which is but lightly touched upon by Mr. Beringer, is, this, that while the offer of the Norwich Pharmacal Co. deals with an article which has been prominently discussed for admission into the U. S. P., the article covered by the offer of the Wm. S. Merrell Chemical Co.—aside from the fact that it is offered conditionally—is not generally known; has so far as I know, not been discussed, and certainly has not been proposed for admission into the U. S. P.

Indeed, if it had been the purpose to advertise this product, which is up to the present time exclusively controlled by its originators, the latter could have resorted to no better method than to relinquish their rights, with or without conditions, to the American Pharmaceutical Association; for, whether discussed for admission into the U. S. P., or not, the demand for this article, if any, is most likely hereafter to be for the product of the originators.

I do not approve the promiscuous ownership of patent-rights by the Association, and certainly not in any case in which it is not clearly evident that it is the only (or best) way to safe-guard the public. I am, therefore, constrained to vote in the negative on Mr. Beringer's resolution, covered by Motion No. 42."

C. Lewis Diehl, Chairman of the Committee on National Formulary, discusses the work of the revision of the N. F. IV, as follows:

"Inasmuch as it has been announced that the work of the revision of the U. S. P. IX has so far advanced that the printer can begin to set up the text in type on or about the first of this month (July), it has now become imperatively necessary to round up the revision of the N. F. IV so that it will be practically ready to go to press shortly after the Detroit meeting.

We have, since the date of the Nashville meeting, accomplished much towards this end; have revised and corrected the mimeograph copies of the text then presented, as

well as of the small number of unfinished monographs, including the chapter on sterilization; have prepared and mimeographed the text for some sixty or more articles carried over from the U. S. P. VIII, reviewed and supplemented the dosage with the assistance of Dr. Cohen, and have made substantial progress on the definition of ingredients that are required for the preparations and are not (or no longer) defined in the Pharmacopœia.

But there are some questions still in controversy, which cannot be settled except by tedious correspondence and consequent delay. It is, therefore, very desirable to arrange for a meeting of all the members of the Committee for several days' conference, so that these questions can be definitely settled and the last word said on the mimeograph proofs. Unless this is done, the responsibility on a number of important points will have to rest with the few members composing Sub-Committee "D," who are working directly with the preparation of the manuscript, and this responsibility the members of the Sub-Committee (acting as an 'Executive Committee') very properly decline to assume.

The necessity for this conference is emphatically voiced by Mr. Cook, who, as acting Chairman of Sub-Committee "D," has been indefatigable in this important service, and who, aside of being handicapped by other important duties, has very generously assumed the duties of cognately assembling the details of progress in our work, so that the Bulletin might be issued with fair regularity during a prolonged period of illness—almost continuous since October of last year—which had incapacitated me for the strenuous work involved in conducting the revision during much of that time.

For the reasons thus explained, I therefore respectfully ask your authority to issue a call for a meeting of the Committee on National Formulary for the purpose of a personal Conference during the two days succeeding the last session of the Association, at Detroit, with the usual allowance for expenses incurred by them for transportation, sleeper, meals *en-route*, and (not exceeding) two days at hotel.

Owing to the proximity of the location of many of the members to Detroit, the expense of this conference, if authorized, will be well within the appropriations for this purpose on previous occasions.

The proposed date, following the close of the last session, is suggested because some of the members—Mr. Beringer, Mr. Cook and others—will be too busy at an earlier date, and probably unable to attend, if the Conference is held before the opening session of the Association."

The Secretary of the Council wrote to Professor Diehl, as follows:—

"In re. your letter of the 6th inst., addressed to the Council, it seems to me that it would be better to appropriate a definite sum with which to pay the expenses, etc., of the

fifteen members of the Committee on National Formulary for two days, and I would suggest that a motion be offered stating the maximum amount desired. All expenditures in excess of twenty-five dollars must be approved by the Finance Committee before they can be acted upon by the Council. If you will state the necessary amount, I will submit the motion to the Finance Committee, and then to the Council. But since this expenditure is to be made *after* the Council is to meet at Detroit, why not leave the matter of appropriation rest until then? In the meanwhile, the authorization of the meeting of the Committee on National Formulary can be placed before the Council."

The following reply was received from Professor Diehl:—

"My object was for authority to call a meeting of all the members of the N. F. Committee, of course at the expense of the Association. The matter of appropriation, as suggested by you, had better rest until the Council meets at Detroit. Incidentally, we will then know approximately how much will be required."

Do you authorize the issuance of a call for a meeting of the Committee on National Formulary for the purpose of a personal conference during the two days succeeding the last session of the Association at Detroit, the matter of appropriation for expenses incurred by the committeemen for transportation, sleeper, hotel expenses, etc., to be passed upon by the Council at the Detroit meeting? This will be known as *Motion No. 46 (Authorization of Special Meeting of Committee on National Formulary after Sixty-second Annual Convention of A. Ph. A.)*

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.



COUNCIL LETTER No. 29.

Philadelphia, Ja., July 29, 1914.

To the Members of the Council:

Motions No. 39 (Organization of Columbus Branch, A. Ph. A.), No. 44 (Election of Members; applications Nos. 197 to 281 inclusive), No. 45 (Postponement of action on Motion No. 43), and No. 46 (Authorization of Special Meeting of Committee on National Formulary after sixty-second Annual Convention of the A. Ph. A.), have each received a majority of affirmative votes.

George B. Kauffman, of Columbus, O., has been elected as representative to the Council by the Columbus Branch. The members of the Council now number forty.

The following communication has been received from Julius A. Koch:

"In order to answer the various objections to the acceptance of the patent right on 'Antiseptic Leaflets,' I requested The William S. Merrell Chemical Company to make their offer more specific and am enclosing their reply which kindly insert in the next Council letter. I note Prof. Diehl's remarks on the subject and wish to reply only in so far as it seems to me necessary in justification of The William S. Merrell Chemical Company. Some months ago the 'Leaflets' came to my notice and to my mind seemed to meet our needs so well that I brought them to the attention of many of my friends, both physicians and pharmacists. The favor with which the idea was received, led me to bring it to notice of the Chairman of the Revision Committee and to request The William S. Merrell Chemical Company to assign their rights to the A. Ph. A., with which request they promptly complied. I am solely responsible for bringing 'Antiseptic Leaflets' before the Council and wish to state that I have no interests in the same except as a matter of public good. I still believe this form of dispensing corrosive sublimate for making antiseptic solution to be the safest for the prevention of accident and suicide and should like to see it adapted in the U. S. Pharmacopœia. For this reason I asked The Merrell Chemical Co. to assign to the Association the patent rights."

Attached to Prof. Koch's letter is the following communication:

"THE WM. S. MERRELL CHEMICAL CO.
Home Offices and Laboratories, Cincinnati.

July 15, 1914.

Mr. J. A. Koch, Strattonville, Pa.:

Dear Sir:—Replying to your letter of the 11th instant, our intention is to turn over our right to the patent which is now being prosecuted before the commissioner and which we intend to complete and secure issuance of the patent in our name, if a patent is granted, as we believe it will be.

Our assignment was intended to turn over to the American Pharmaceutical Association our rights as stated in a previous communication. We do not of course, guarantee that we shall secure the patent but of course if we fail to do so, the product becomes public property which as we understand it, would answer your purpose nearly if not quite as well.

In specific reply let us state that it is our intention to prosecute our claims to completion. In fact, our patent attorney has not even been advised of our assignment and is continuing prosecution as if nothing of the kind had occurred.

Very truly yours,

THE WM. S. MERRELL CHEMICAL COMPANY,
CHAS. G. MERRELL."

J. W. ENGLAND,
Secretary of the Council.

415 North Thirty-third St.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.

<>

DUNCAN, CHESTER A.
From Dallas Texas.
To 400 Chestnut St., Coatesville, Pa.

STANISLAUS, I. V. STANLEY.
From 1715 Cherry St., Philadelphia, Pa.
To 1214 Arch St., Philadelphia, Pa.

TYSON, L. R., PH. G.
From Cheyenne, Wyo.
To Homedale, Idaho.

GARDNER, ROBT. J.
From 560 Monroe St., Brooklyn, N. Y.
To 62 Welling St., Richmond Hill, L. I.,
N. Y.

BYERS, J. D.
From Manila, P. I.
To Augusta Arsenal, Augusta, Georgia.

GAHN, HENRY.
From Purveying Department, Union Bldg.,
Washington, D. C.
To U. S. Marine Hospital, New Orleans,
Louisiana.

CLARK, LOUIS G.
From Portland, Oregon.
To Alder and West Park, Portland Oregon.

SIEGENTHALER, HARVEY N.
From 22 E. High St., Springfield, Ohio.
To 25 E. Grand Ave., Springfield, Ohio.

PEAFFLIN, HENRY A.
From 602 Illinois St., Indianapolis, Ind.
To 2729 N. Pennsylvania Ave., Indianapol-
is, Ind.

BRUDER, OTTO E.
From 4740 N. Spalding Ave., Chicago, Ill.
To 3525 Greenview Ave., Chicago, Ill.

UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended June 24, 1914:—

Assistant Surgeon-General L. E. Cofer. Directed to proceed to Philadelphia, Pa., Reedy Island, and Delaware Breakwater Quarantines for the purpose of making an inspection of the operations of the quarantine service upon the Delaware River. June 16, 1914.

Assistant Surgeon-General J. W. Trask. Granted 1 day's leave of absence June 19, 1914. June 17, 1914.

Senior Surgeon H. W. Austin. Granted 10 days' leave of absence from June 25, 1914. June 24, 1914.

Surgeon George M. Magruder. Re-assigned for duty at Portland, Oregon, effective Feb. 23, 1914. June 16, 1914.

Surgeon R. M. Woodward. Detailed to attend the conference of the Pacific Coast Federation of Sex Hygiene at San Francisco, Cal., July 1, 1914. June 22, 1914.

Surgeon G. M. Guiteras. Granted 2 days' leave of absence, June 21-22, 1914. June 19, 1914.

Surgeon L. L. Lumsden. Directed to visit Baltimore and such other points in the State of Maryland as may be found necessary on business connected with the investigation of rural sanitation. June 10, 1914.

Surgeon J. F. Anderson. Detailed to attend a conference called by the licensed manufacturers of biologic products to be held at Atlantic City, N. J., June 22, 1914, for consideration of legal methods and procedures in the control of biologic products. June 16, 1914.

Surgeon Dunlop Moore. Granted 1 month's leave of absence from July 21, 1914. June 22, 1914.

Surgeon J. Goldberger. Directed to proceed, at such times as may be necessary, to Savannah, Ga., Spartanburg, S. C., and other points in the Southern States to organize and supervise the pellagra studies. June 16, 1914.

Surgeon M. K. Gwyn. Granted 30 days' leave of absence, on account of sickness, from June 14, 1914. June 16, 1914.

Passed Assistant Surgeon E. A. Sweet. Relieved from duty at the Gulf Quarantine Station and directed to proceed to the Mo-

bile Quarantine Station and assume temporary charge. June 19, 1914.

Assistant Surgeon G. A. Kempf. Granted 21 days' leave of absence from June 29, 1914. June 19, 1914.

Assistant Surgeon J. B. Laughlin. Relieved from duty in charge of the Mobile Quarantine Station, and directed to proceed to New Albany, Miss., and report to Surgeon L. L. Lumsden for duty in field investigations. June 19, 1914.

Professor E. B. Phelps. Directed to proceed to Cincinnati, Ohio, and such other places on the Ohio River watershed as may be necessary, for conference in regard to the investigations of the pollution of the Ohio River now being carried on. June 16, 1914.

Acting Assistant Surgeon L. E. Werry. Granted 4 days' leave of absence from June 4 1914. June 3, 1914.

Pharmacist E. M. Holt. Directed upon completion of temporary duty at the New Orleans Quarantine Station to return to station at the Marine Hospital, Savannah, Ga. June 23, 1914.

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended July 23, 1914.

Assistant Surgeon-General W. C. Rucker. Relieved from duty as member of a board of medical officers convened for the examination of candidates for appointment as assistant surgeons, on account of absence from the city. July 14, 1914.

Senior Surgeon Geo. W. Stoner. Directed to proceed to Ashbury Park N. J., for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service. July 17, 1914.

Senior Surgeon F. Irwin. Directed to proceed to Tuckerton, N. J., July 20, 1914, and Atlantic City, N. J., July 23, 1914, for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service. July 17, 1914.

Surgeon J. O. Cobb. Granted one days' leave of absence July 17, 1914, under paragraph 193, Regulations of the Service. July 14, 1914.

Surgeon E. K. Sprague. Granted 12 days' leave of absence from July 8, 1914. July 14, 1914.

Passed Assistant Surgeon A. D. Foster. Detailed as a member of the board of com-

missioned medical officers now in session at the Bureau for the examination of candidates for appointment as Assistant Surgeons in the Service, vice Assistant Surgeon R. A. Kearny, relieved. July 16, 1914.

Assistant Surgeon R. A. Kearny. Relieved from duty as recorder of a board of commissioned medical officers now in session at the Bureau, and directed to proceed to New Orleans, La., for duty in plague eradication measures. July 16, 1914.

Assistant Surgeon W. F. Draper. Directed to proceed to Ocean City, Md., Chincoteague, Wachapreague, and Cape Charles, Va., for the purpose of making the annual physical examination of keepers and surfmen of the Life Saving Service. July 17, 1914.

BOARD CONVENED.

Board of medical officers convened to meet at the Revenue-Cutter Academy, New London, Conn., July 17, 1914, for the physical examination of four cadet engineers to ascertain their fitness for promotion to third lieutenants of engineers.

Detail for the Board:

Assistant Surgeon J. H. Smith, Jr., Chairman.

Acting Assistant Surgeon J. G. Stanton, Recorder. July 13, 1914.

Official: RUPERT BLUE.
Surgeon-General.

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended July 15, 1914:—

Assistant Surgeon-General J. W. Kerr. Detailed to make an inspection of the Service operations for the prevention of trachoma in the mountains of Kentucky, with regard to present status of the work and with recommendations as to continuance or extension; also to inspect Service operations in connection with investigations of tuberculosis in relation to industries in Cincinnati, Ohio, and the investigations of the pollution of the Ohio River. July 10, 1914.

Surgeon L. L. Williams. Directed to make an inspection of the medical examination of arriving aliens along the Canadian border from Buffalo, N. Y., to Victoria, B. C., in order to establish uniformity in the medical examination and use of instruments of precision in the diagnosis of diseases. July 14, 1914.

Surgeon T. Clark. Detailed to attend the Second Biennial Conference of Health Officers of the State of Wisconsin, at Madison, July 16-17, 1914, for the purpose of presenting a paper on the prevention and treatment of trachoma. July 13, 1914.

Surgeon L. P. H. Bahrenburg. Directed to proceed to San Angelo, Texas, for the purpose of investigating suspected case of bubonic plague. July 10, 1914.

Passed Assistant Surgeon W. H. Frost. Authorized to instruct Sanitary Engineer H. W. Streeter, to proceed to such places on the Ohio River watershed as may be necessary to make investigations and collect data. July 10, 1914.

Passed Assistant Surgeon E. H. Mullan. Granted 2 weeks' leave of absence from Aug. 3, 1914. July 11, 1914.

Passed Assistant Surgeon H. E. Hasseltine. Directed to proceed to Richmond, Va., on request of the State Commissioner of Health, to investigate suspected case of typhus fever. July 14, 1914.

Assistant Surgeon C. V. Akin. Relieved from duty at the Marine Hospital, New Orleans, La., and directed to report to the medical officer in charge of the work for duty in the eradication of plague infection. July 10, 1914.

Official: A. H. GLENNAN,
Acting Surgeon-General.

A. PH. A. MEMBERSHIPS.

The Highland Park College of Des Moines, Iowa, is now offering the following prizes of nominations to membership in the A. Ph. A.:

The Kagy Prize.—A membership in the American Pharmaceutical Association is offered by Dean E. O. Kagy to the student doing the best work in compounding and dispensing.

The Parker Prize.—A membership in the American Pharmaceutical Association is offered by Dr. R. L. Parker to the student doing the best work in *Materia Medica* and *Pharmacognosy*.

The Chittick Prize.—Prof. J. R. Chittick offers a membership in the American Pharmaceutical Association to the student doing the best work in *Organic Chemistry*.

The Waterbury Prize.—A membership in the American Pharmaceutical Association is offered by Mr. E. W. Waterbury to the student doing the best work in *Manufacturing Pharmacy*.

American Pharmaceutical Association

Organized: Philadelphia, 1852.

Incorporated: Washington, D. C., 1888.

OFFICIAL ROSTER FOR 1913-1914.*

GENERAL OFFICERS.

President—GEORGE M. BERINGER.....501 Federal St., Camden, N. J.
 Honorary President—ALBERT B. LYONS.....102 Alger Ave., Detroit, Mich.
 First Vice President—FRANKLIN M. APPLE.....31st and Berks Sts., Philadelphia, Pa.
 Second Vice President—W. S. RICHARDSON.....816, 4½ St. S. W., Washington, D. C.
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 General Secretary and Editor of the Journal—JAMES H. BEAL.....Scio, Ohio
 Treasurer—HENRY M. WHELPLEY.....2342 Albion Place, St. Louis, Mo.
 Reporter on the Progress of Pharmacy—C. LEWIS DIEHL.....932 Cherokee Road, Louisville, Ky.
 Local Secretary—LEONARD A. SELTZER.....32 Adams St., W., Detroit, Mich.

Acting General Secretary and Acting Editor of the Journal—ERNEST C. MARSHALL,
 63 Clinton Bldg., Columbus, Ohio

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(To be installed at the 62d Annual Convention)

President—CASWELL A. MAYO.....New York
 First Vice President—L. D. HAVENHILL.....Lawrence, Kan.
 Second Vice President—C. HERBERT PACKARD.....East Boston, Mass.
 Third Vice President—CHARLES GIETNER.....St. Louis
 Members of the Council, 1914-15—OTTO F. CLAUS.....St. Louis
 M. I. WILBERT.....Washington, D. C.
 WM. B. DAY.....Chicago

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 Vice Chairman—JOHN G. GODDING.....278 Dartmouth St., Boston, Mass.
 Secretary—JOSEPH W. ENGLAND.....415 North Thirty-third St., Philadelphia, Pa.

MEMBERS OF THE COUNCIL.

(Elected by the Association.)

E. G. EBERLE, Dallas, Tex.....Term expires 1914
 GEORGE F. PAYNE, Atlanta, Ga.....Term expires 1914
 JAMES M. GOOD, St. Louis, Mo.....Term expires 1914
 WILLIAM C. ALPERS, Cleveland, Ohio.....Term expires 1915
 FABIAN C. GODBOLD, New Orleans, La.....Term expires 1915
 LUCIUS E. SAYRE, Lawrence, Kans.....Term expires 1915
 CHARLES CASPARI, JR., Baltimore, Md.....Term expires 1916
 CHARLES E. CASPARI, St. Louis.....Term expires 1916
 JOHN G. GODDING, Boston.....Term expires 1916

(Elected by Local Branches.)

LEWIS C. HOPP, Northern Ohio Branch, Cleveland, Ohio.....
 JOHN R. THOMAS, Baltimore Branch, Baltimore.....
 WM. R. WHITE, Nashville Branch, Nashville, Tenn.....
 J. A. KOCH, Pittsburg Branch, Pittsburg, Pa.....Term expires 1914
 PHILIP ASHER, New Orleans Branch, New Orleans, La.....Term expires 1914
 JOHN A. MARTIN, Denver Branch, Denver, Colo.....Term expires 1914
 HENRY B. FLOYD, City of Washington Branch, Washington, D. C.....Term expires 1914
 THOMAS D. McELHENIE, New York Branch, New York, N. Y.....Term expires 1915
 ALBERT H. CLARK, Chicago Branch, Chicago, Ill.....Term expires 1915
 WILLIAM K. ILHARDT, St. Louis Branch, St. Louis, Mo.....Term expires 1915
 FRANCIS E. STEWART, Philadelphia Branch, Philadelphia, Pa.....Term expires 1915
 F. J. WULLING, Northwestern Branch, Minneapolis.....Term expires 1917
 E. H. LAPIERRE, New England Branch, Cambridge, Mass.....Term expires 1916
 C. T. P. FENNEL, Cincinnati Branch, Cincinnati, Ohio.....Term expires 1916
 ALBERT SCHNEIDER, San Francisco Branch.....Term expires 1917
 GEORGE B. KAUFFMAN, Columbus Branch.....Term expires 1917

(Members of the Council Ex-Officio.)

The President, Vice Presidents, General Secretary, Treasurer, Reporter on the Progress of Pharmacy, Secretary of the Council, Local Secretary, Historian, and the Chairmen of the Sections.

* Please notify the Acting General Secretary of any errors or omissions discovered.

SCIENTIFIC.

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CHARLES R. ECKLES.....Indianapolis, Ind. WILLIAM WORTH HALE.....Washington, D. C.
PAUL S. PITTENGER.....Philadelphia, Pa.

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THOMAS F. MAIN, 166 Chambers St., New York, N. Y.....	Term expires 1914
JAMES H. BEAL, Scio, Ohio.....	Term expires 1915
MARTIN I. WILBERT, 25th and E Streets, N. W., Washington, D. C.....	Term expires 1916
JOHN C. WALLACE, 113 E. Washington St., New Castle, Penna.....	Term expires 1917
CHAS. CASPARI, JR., Maryland College of Pharmacy, Baltimore, Md.....	Term expires 1918

QUALITY OF MEDICINAL PRODUCTS.

(Appointed by the Chairman of the Scientific Section.)

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RECIPE BOOK.

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MARTIN I. WILBERT.....	Washington, D. C.	WILLIAM L. CLIFFE.....	Philadelphia, Pa.
CHARLES F. NIXON.....	Leominster, Mass.		

REGULATIONS FOR THE TRANSPORTATION OF DRUGS BY MAIL.

(Special Committee of the Section on Education and Legislation.)

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BENJ. L. MURRAY.....	Rahway, N. J.	JOHN C. WALLACE.....	New Castle, Pa.
		HENRY P. HYNSON.....	Baltimore, Md.

REVISION OF THE CONSTITUTION AND BY-LAWS.

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H. M. WHELPLEY.....	St. Louis, Mo.	G. M. BERINGER.....	Camden, N. J.
		J. C. WALLACE.....	New Castle, Pa.

STATUS OF PHARMACISTS IN THE GOVERNMENT SERVICE.

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WILLIAM C. ANDERSON.....	Brooklyn, N. Y.	CASWELL A. MAYO.....	Brooklyn, N. Y.
		FRED T. GORDON.....	Philadelphia, Pa.

TIME AND PLACE, NEXT MEETING.

THOMAS F. MAIN, <i>Chairman</i>	New York, N. Y.	GEORGE B. KAUFFMAN.....	Columbus, O.
ALBERT SCHNEIDER.....	San Francisco, Cal.	CHARLES H. PACKARD.....	Boston, Mass.
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A. B. LYONS, Detroit, Mich.....	Term expires 1914
WILLIAM MITTELBACH, Boonville, Mo.....	Term expires 1915
REID HUNT, Boston, Mass.....	Term expires 1916
L. D. HAVENHILL, <i>Chairman</i> , Lawrence, Kan.....	Term expires 1917
L. F. KEBLER, Washington, D. C.....	Term expires 1918
H. A. SEIL, Perth Amboy, N. J.....	Term expires 1919
E. FULLERTON COOK, Philadelphia, Pa.....	Term expires 1920
E. H. LAPIERRE, Cambridge, Mass.....	Term expires 1921
H. A. B. DUNNING, Baltimore, Md.....	Term expires 1922
HERMANN ENGELHARDT, Baltimore, Md.....	Term expires 1923

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 WILFRED F. ROOT, Brattleboro.
 LUCIEN J. TRUDEL, Rutland.

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 JOHN W. WOOD, Newport.

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 FREDERICK P. TUTHILL, Brooklyn.
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 HENRY A. B. DUNNING, Baltimore.
 MILBOURNE A. TOULSON, Chestertown.
 CHARLES HOLTZMAN, Cumberland.
 JACOB H. KELLER, Frederick.

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 LOUIS SAALBACH, Pittsburgh.
 PHILIP H. UTECH, Meadville.
 CHARLES F. KRAMER, Harrisburg.
 CHARLES L. HAY, Du Bois.
 WILLIAM O. FRAILY, Lancaster.
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 FRANK C. STUTZLEN, Elizabeth.

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 JOHN COLEMAN, Wheeling.
 GEORGE O. YOUNG, Buckhannon.
 FRANK B. HAYMAKER, Clarksburg.
 WALTER C. PRICE, Charleston.

Dist. of Col.—SAMUEL L. HILTON, Washington.
 MARTIN I. WILBERT, Washington.
 LOUIS FLEMER, Washington.

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 CHARLES S. ASHBROOK, Mansfield.
 WALDO M. BOWMAN, Toledo.
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 JOHN W. GAYLE, Frankfort.
 GEORGE EISELE, Louisville.
 JOSEPH B. WELSH, Paducah.
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 MAURICE P. SCHWARTZ, Indianapolis.
 CHARLES B. JORDON, Lafayette.
 EMIL REYER, South Bend.

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 LEONARD A. SELTZER, Detroit.
 MARTIN H. GOODALE, Battle Creek.
 WILLIAM C. KIRCHGESSNER, Grand Rapids.
 HENRY HEIM, Saginaw.
 FERN L. SHANNON, Lansing.

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 WILHELM BODEMANN, Chicago.
 PAUL G. SCHUH, Cairo.
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 EDWARD S. HEBBARD, La Crosse.
 EDWARD WILLIAMS, Madison.
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N. W. D. A., 1913.

A. M. A. SECTION ON PHARMACOLOGY, 1914.

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THE NATIONAL FEDERATION OF RETAIL MERCHANTS, 1914.

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AMERICAN PHARMACEUTICAL ASSOCIATION

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The Sixty-Second Annual Convention

Held at Detroit, Michigan, August 24-29, 1914

AMERICAN PHARMACEUTICAL ASSOCIATION

SIXTY-SECOND ANNUAL MEETING

DETROIT, MICHIGAN.

FIRST GENERAL SESSION.

The first general session was called to order Monday, August 19, at 3:20 p. m., by President George M. Beringer, of Camden, New Jersey, in the Convention Hall of the Hotel Pontchartrain, Detroit. The President called upon the Rev. Milton Lanyon Bennett, of Detroit, to invoke the Divine blessing upon the deliberations of the Convention.

The President then asked Vice-President Apple to take the chair while he presented his address, after which the President proceeded to deliver his address.

ADDRESS OF PRESIDENT BERINGER.

Friends and Fellow Members of the American Pharmaceutical Association:

For the third time, the American Pharmaceutical Association is convened in Detroit; the village of Cadillac that has now grown to be one of the most progressive of industrial centers and one of the world-renowned cities of the twentieth century. Detroit is noted for its commerce and manufactures, not the least of which are the drug products with which we are all more or less familiar. Likewise, is this city famous for its hospitality, and from the pre-convention reports we learn that the citizens have made great preparations for our entertainment during our present brief sojourn. Since we have been thrice cordially welcomed, we appre-

ciate that they have more than a neighborly interest in us. Doubtless we will, one and all, enjoy to the fullest their generous entertainment and carry home with us the most pleasant and enduring recollections of their overflowing goodfellowship and generous hospitality.

Custom and the By-Laws provide for an address by the President. I would gladly have availed myself of the latitude of the provisions of the By-Laws, and have addressed you on this occasion upon some erudite subject, but the immediate problems affecting the progress of pharmacy and the welfare of this Association are of paramount importance. Duty demands that personal inclination should yield to the necessities of the time, and so probably less congenial thoughts are presented for your consideration than was my original intent. I am aware that many of the subjects presented may have a familiar sound and that at times I may follow in the footsteps and repeat the advice of a predecessor. The very fact that such repetition is deemed necessary is my apology. I can only pray that my preachment may elicit your responsive interest so that such perennial presentations may be terminated.

I will request that each member of this Association and each friend of pharmacy, spare the time necessary to calmly and deliberately peruse this address when in print and further, that it be accepted as a personal appeal for each to assume a proper share in the responsibilities and problems confronting pharmacy. With the united, enthusiastic support of the membership of this Association every problem, whether commercial, educational or legislative, no matter how classified, can be rightly settled to the lasting benefit of all pharmacists.

Progress of the Year.—A year has elapsed since at Nashville you placed the responsibility of maintaining the integrity of our Association and of advancing its work upon a new executive. I assure you that wherever opportunity offered to further the interests of the Association, neither effort nor expense, so far as my ability permitted, has been spared.

I confess that the accomplishments of the year have not measured up to my expectation. Nevertheless, I am convinced that the Association has made some progress, the value of which must be determined in the future.

In matters pharmaceutic, the year has been one noteworthy for the progress made in the work of the revision of the United States Pharmacopœia and the National Formulary, and both of these revisions are now on the eve of going to press, and it is expected that before another meeting of this Association the publication of these legal standards will have been completed.

The War Cloud.—Trade conditions were likewise brightening until, suddenly, the horizon has become overcast with the appalling war cloud of a general European war. The immediate effect on the drug business has been a complete demoralization of the commerce in drugs and chemicals. Probably no other class of merchants are more dependent upon foreign producers and foreign markets than the druggists, and so the drug trade has more promptly and more extensively felt the interruption to normal trade conditions, the uncertainty of supplies and consequent skyrocketing of prices.

The aftermath is yet to come in that the destructive influences to peaceful callings that are coincident with or follow war, are yet to be experienced. Pharma-

cists are engaged in a peaceful avocation and are essentially peace loving, and we pray that the horrors of this war and of all wars may cease and that the world's progress in the arts, sciences, professions, manufacture, agriculture and commerce be no more disturbed thereby.

Fraternal Relations.—The American Pharmaceutical Association has always considered it to be a part of its mission to coöperate with any other organization for the betterment of pharmacy, the advance of the professions and the sciences or the welfare of society. It has exchanged fraternal delegates with many of the allied national societies. and with the various State Pharmaceutical Associations and our delegates to these organizations are uniformly received with marked courtesy and distinction. This is one of the very best means of keeping in touch with the work of other national and state societies whose work and problems are frequently those which likewise demand our attention. It broadens the influence of the A. Ph. A. and introduces our aims and work to the attention of others who would otherwise not become familiar therewith, and is still another avenue for increasing the membership of the Association.

The various Departments of the Government Service in recognition of the national, professional and scientific standing of our Association, have again accepted our invitation and appointed delegates, some of whom bring special messages of interest relating to our work. This pleasant reciprocity and fraternal coöperation should be encouraged and our programme arranged to provide ample time to receive their kind messages.

Our International Relation.—The American Pharmaceutical Association is respected by the foreign national pharmaceutical societies as the representative of the profession of pharmacy in the United States. Cordial fraternal greetings and best wishes for the year 1914 were exchanged between the officers of a number of these and your President. Our delegates to the Eleventh International Congress of Pharmacy, held at The Hague last September, no doubt, will present an interesting report on that convention.

The Association is in receipt of a communication from Dr. J. J. Hofman, General Secretary at The Hague of the Federation Internationale Pharmaceutique, inviting this Association to become an active member of the Federation. The importance of international agreements on many subjects directly associated with the practice of pharmacy is so well recognized that it is needless for me to present any argument thereon. It is very appropriate that in such an International Federation the American Pharmaceutical Association should become the representative of pharmacy in this country.

The financial obligation of such active membership depends upon the number of members we have. Membership would entitle the Association to representation in the Council of the Federation and to receive a number of its publications. I would urge that the Association express its endorsement of the objects of the International Pharmaceutical Conference, and that the Council be authorized to make application, at the appropriate time, for the active membership of the American Pharmaceutical Association.

Membership.—The membership of this Association is unique in that it admits all who are in any way associated with the various branches of pharmacy. Con-

sequently, its scope of work is broad and its opportunities for advancing the interest of every branch of the drug trade numerous. The retailer, the wholesaler, the manufacturer, the educator, the editor, the scientist, the tradesman, the proprietor and the clerk all have the same standing, and the Association is earnest in its efforts to serve the best interests of all. Despite the heterogeneous character of our membership we are a homogeneous body. The very composite nature of our membership gives us a more comprehensive view of the entire field of pharmacy, the needs and the progress in each line of work and permits the Association to wield an influence in coördinating such work to the material advantage of all.

Society is co-dependent, one nation upon another, one avocation upon another, one branch of a calling upon the other branches, and the greatest progress undoubtedly follows a coalition and coördination of their best efforts. Herein is the great opportunity of the American Pharmaceutical Association to serve the advancement of both professional and commercial pharmacy.

Pharmacy is a progressive calling requiring continuous study on the part of its followers to keep abreast of the ever-accumulating knowledge applicable to their work. The American Pharmaceutical Association through its meetings and publications is the great teacher of pharmacists. Its mission has been defined as that of the great post-graduate school of American pharmacy. It is ever earnest in its efforts to make better pharmacists, better business men, knowing that the advance of the individual is the advance of the profession. Its moral influence, its example, its leadership are factors that can not be measured by the money standards, but should inspire every druggist in the American continent to be a member.

There is nothing that would stimulate professional pharmacy more, nor be more beneficial to this Association, than the large membership that its efforts merit. During the year, a plan for a membership campaign along more comprehensive lines was inaugurated. This contemplated the presentation of the objects and aims of the Association and the advantages of membership to every druggist, chemist and pharmaceutical teacher and examiner. This plan was not offered as a sporadic effort for this year, but as a definite scheme to be tried out thoroughly by gradually extending each year the circle of its continued effort. Only by some such permanent plan for the guidance of the Membership Committee can we expect to secure the increase desired. In recent years, there has been a steady increase in our membership and this should be a record-making year. We have to date not more than ten percent of the eligibles enrolled in the Association. These figures should be reversed by continued effort until not more than ten percent remain outside the fold.

Local Branches:—Our Local Branches are additional centers from which the influence of the Association radiates, and which in return stimulate interest in the work of the Association and serve as recruiting stations for members.

During the year, two new Branches have been organized, one at San Francisco, the other at Columbus. Efforts have been made to induce the members living in other localities to organize Local Branches, but, so far, these efforts have not culminated in success. Additional Local Branches should be established in many of the larger communities in the United States, and we should likewise have

Branches in the Canadian Provinces and in Cuba and Porto Rico, and even in the Philippines.

In connection with Local Branches, I desire to make the following recommendations:

First, that the number of members necessary for the organization of a Local Branch be reduced from twenty-five to fifteen. This should encourage the formation of many additional Local Branches in centers outside of the larger cities.

Further, that the Chairman of the Committee on Local Branches shall provide for bulletins to be issued to the Local Branches suggesting topics of importance and general interest for discussion.

The Doing of First Things First.—If one reviews the history of the Association, he becomes impressed with the fact that certain questions that have been repeatedly presented to the Association are not yet recorded in our history as accomplished. Some of these problems date back ten or even twenty years or more. Some, like the question of tax-free alcohol for medicines, have in recent years been entirely neglected. Congress has found a way to grant tax-free alcohol for other manufactures, but not for the manufacture of medicines.

This lack of successful termination of many of these problems can be placed to several causes: the plan of our organization with only annual meetings and the continual changing of officers and their undefined authority; the lack of effective coördination of the work of the Association in the interim between meetings. With the changed conditions, with an active Council and a live Journal at our command, results should be achieved. Disjointed efforts are of little avail as the initial force is expended before the application of the new effort which is largely wasted in the recovery of lost ground.

Probably the principal cause is the failure to do the first things first. The late A. T. Stewart once declared to a large gathering of business men, that his success was due to insisting that first things be always done first and that each successive step be completed in its proper order. This rule is applicable to our work and it is just as essential for the success of the work of an association as for that of an individual.

The Pre-Requisite Laws.—The nation-wide adoption of a legal requirement that every pharmacist must be a graduate of a school of pharmacy before being licensed to practice, is the very first step essential for the professional elevation of pharmacy. It is not very creditable to American pharmacy that with its numerous schools of pharmacy, many of these of a high standing, that only six or seven States have yet enacted such pre-requisite laws. An anomalous situation exists in many of the States that are supporting universities with departments of pharmacy providing for a high type of students and then leaving the door to the practice of pharmacy, through its pharmacy boards, wide open for the registration of druggists without any collegiate education.

It is only too true that our Association has, from time to time, passed resolutions against such a condition. Resolutions are valueless unless it becomes the specific duty of some one to keep hammering away until they are driven home. A century of resolutions will be out-balanced by one year of activity.

It remains as an initial duty of this Association to see that this condition is

changed and changed promptly. The Sixty-Second Annual Convention should not adjourn until it is made the special duty of some committee or some officer to agitate in every State, where a pre-requisite law has not yet been enacted, for such an amendment to the pharmacy law. Such a committee should remain actively in the campaign until this blot on professional pharmacy in America, is entirely removed. When every State, or even a majority of the States, have adopted pre-requisite laws, it will be comparatively easy to make other desirable advances in the educational requirements of pharmacists.

The Extension of Pharmaceutical Education a Twentieth Century Need:—The great development of the past century has been general and practically along every line of human thought and application. With the development in the arts and sciences has come a corresponding enlightenment of the world. Ignorance is slowly but surely giving way to universal education. The tendency toward better education is common to all civilized nations and the citizens of our own country have been highly benefited by our public-school system. A high-school education is now the common privilege, and collegiate and university educations are annually fitting more of our young people to a higher plane of useful citizenship. A better elementary foundation and an extended higher education are the premises on which the greater success of a profession is predicated.

The trend of all modern professional training has necessarily been toward decided extensions of the educational courses. Law, medicine, dentistry, engineering, etc., have all responded to this evident necessity. In pharmacy, the advances in our own calling, as well as the advances in our sister profession and in the sciences on which our work is based, have multiplied many times the instruction to be imparted and to be acquired by the student before he can be properly equipped to satisfactorily perform his duties to the public. Honor and duty demand that we do not longer attempt to blindfold pharmacy to the necessity for extending the collegiate education of pharmacists.

The Pharmaceutical Syllabus.—The completion of the revised Pharmaceutical Syllabus has been one of the notable pharmaceutical events of the year. The book now presented shows material improvement over the first production under this title, and is well worthy of the critical study of each pharmaceutical teacher and examiner. Flattering reviews and laudatory reports, however, should not blind us to its shortcomings and defects.

This Association shares in the responsibility for this publication. Honor demands scrupulous honesty and permits no statement with the endorsement of the Association that we know to be incorrect, or that cannot be carried out.

There has been crowded into this volume "outlining a *minimum* course of instruction of twelve hundred hours" a wealth of instruction that cannot possibly be imparted by a conscientious faculty in the time specified, nor could it be properly acquired even by student prodigies. In pharmaceutical education, as elsewhere, prodigies are the exception and instruction must be based upon the ability of the average student to acquire knowledge. The teacher is too prone to measure the student by his own ability rather than by the student's. Students cannot be made uniform, they cannot all be cast in the same iron mold.

To allow each faculty or individual teacher to select what portions of the

"minimum" he will teach as coming within the possibilities of the time allotted, is very unfair to the student and places the responsibility of guessing aright thereon upon the examiner; an exceedingly dangerous precedent.

The idea of a pharmaceutical syllabus was first presented to this Association by Professor William Procter, Jr. It is to be regretted that the Association did not act upon the wise forethought of that illustrious educator. The appearance of the Ninth Revision of the U. S. P. and the new edition of the National Formulary will mark a new epoch in pharmacy and, no doubt, require a number of changes and additions in the teaching of pharmacy students. This would be a very appropriate time for the American Pharmaceutical Association to consider the preparation of a pharmaceutical syllabus expressive of the views of pharmaceutical educators and devoid of extraneous influences. I would recommend that this suggestion receives the careful consideration of the Council.

The Standardizing of Pharmaceutical Degrees:—From its organization, the American Pharmaceutical Association has rightly been the forum in which the problems associated with pharmaceutical education have been discussed. Not a few of these discussions have related to the subject of appropriate titles or degrees for pharmacists. When the first pharmacy school was established in this country, there was no precedent and this pioneer in the new field of education, adopted the ordinary scholastic title "Graduate." Considering the elementary condition of the pharmaceutical education of that period, and for some years thereafter, the academic degree of Graduate in Pharmacy was probably sufficient. With the development of pharmaceutical education and the claims of the educated pharmacist to professional rank, the appropriateness of such an academic title was seriously questioned.

Twenty-five years ago, it was commonly conceded that this title had outlived its usefulness and was unsuited for those who took up the improved courses of instruction in the better schools of pharmacy. The foremost thinkers and writers on the subject, advocated that the degree to be conferred upon the professionally educated pharmacists should be the doctorate degree the same as that conferred upon the practitioners of the other branches of medicine, so as to make parallel the degrees conferred in medicine, veterinary medicine, dentistry and pharmacy.

A number of the more prominent schools of pharmacy, then, adopted the Doctor of Pharmacy degree and have since conferred such diplomas upon their graduates. Many of the other schools, with less developed courses, or for some other reason, did not feel justified in following the example set by these leaders and, consequently, some retained the degree of Graduate and others sought new titles. As a result, we have a series of titles for pharmacy graduates given by the different institutions teaching pharmacy in the United States.

Unfortunately, heretofore, there has been no attempt made on the part of pharmacists themselves to properly standardize pharmaceutical degrees. The necessity for such action is now apparent. This is purely a pharmaceutical question, which can and should be settled by pharmacists themselves without undue influence from the outside.

In 1912, the New York Board of Regents, assuming that it had authority to promulgate regulations pertaining to the subject of degrees in pharmacy without

consulting with the schools of pharmacy outside of that State, issued regulations defining the conditions under which the various degrees in pharmacy should be conferred and made these new regulations regarding degrees a basis for the registration of schools of pharmacy by that State Board. This arbitrarily promulgated scheme of degrees, it is believed, covered all of the titles that had been conferred by the schools of pharmacy in America. Some of these degrees had been conferred, for many years by institutions outside of the State of New York, under entirely different conditions from those which were now prescribed. Moreover, very few of these degrees had been conferred by the schools within the State of New York. Thus the preëmption and prior use of these titles for many years, was entirely ignored.

The New York scheme of degrees is based upon an erroneous idea, that degrees in pharmacy must be in accordance with the degrees in the higher university courses. The peculiar position of pharmacy as an avocation combining professional education and practical business is lost sight of.

The New York scheme is subject to many criticisms. It proposes to perpetuate indefinitely the degree of Graduate in Pharmacy, a meaningless title for a professional practice, and likewise a two years' course as sufficient for the education of pharmacists.

The doctorate degree is only to be conferred upon the completion of six years of study in a school of pharmacy. It is apparent, that, under the present condition of society, such a degree would be only exceptionally conferred upon one actually engaged in the practice of pharmacy, yet its application to others than pharmacists, would be a misnomer. Thus would New York produce a pharmaceutical parody upon the Pinafore ruler of the Queen's Navy who never went to sea, in that her doctors of pharmacy will not be pharmacists.

The degree of Master of Pharmacy has been more frequently conferred in America, as an honorary degree upon those whose educational and professional standing and work in behalf of pharmacy has merited such distinction. For reasons not generally understood, New York would reduce this degree to rank below that of the Bachelor degree.

These criticisms indicate that the New York plan of degrees is far from perfect and that it cannot be accepted as a proper solution of the question of Pharmaceutical Degrees. Yet the endorsement thereof by the American Pharmaceutical Association has been covertly sought by insidious propositions presented to the Committee on Pharmaceutical Syllabus.

The most serious aspect of the situation, however, is due to the fact that the New York Board of Regents has made the acceptance of its decree regarding degrees, a prime requirement for registration of schools by the New York Board. Schools that had little to lose and hoped to gain much, promptly acquiesced and so those institutions which were subservient and complied with these pedagogic demands were promptly "registered." Those schools which have held out for their honor and for principle because they could not conscientiously approve of this scheme of degrees and would not agree to disrupt their well established plans of education and curriculum, have only been "accredited."

In that unique publication, known as Handbook No. 11, relating to Pharmacy, issued by the University of the State of New York, we have presented the anoma-

lous position, in which some of the schools of pharmacy which we all recognize as second or third rate schools, are registered in full and a number of our most prominent institutions, whose standing as leaders in pharmaceutical education is well recognized, are rated simply as "accredited."

A further exhibition of this arbitrary power is the ruling that the graduates of such recognized and prominent schools of pharmacy which are accredited, before being permitted to apply for examination to practice their profession in the State of New York, must take an additional year's instruction, possibly in one of the second class institutions registered by that Board. A graduate of a high class school of pharmacy with probably a three years' course of instruction of 2000 hours or more, may thus be asked to dishonor himself and his Alma Mater and belittle his profession by taking an extra year in a school with inferior equipment and in which the instruction amounts to not more than two years of 600 hours each. Thus New York promulgates as a new principle of its professional ethics, that the license to practice pharmacy in that State shall be based upon questionable regularity rather than upon thorough education and personal competency.

No less an authority than President Butler, of Columbia University, has declared that "the real measure of the efficiency of a university is the quality of the product it turns out." Yet this basic principle is ignored by the educational board of his own State.

The pioneer institution of pharmaceutical education in America whose work in behalf of pharmacy and its elevation has not been excelled anywhere, and whose graduates have been so highly honored by the American Pharmaceutical Association and which has given to American pharmacy such shining lights as Procter, Parrish, Ebert and Hallberg, not to mention those at the present time spared to us, is thus placed in the category of the dishonored institutions and its graduates forbidden to practice in the State of New York. Why? For the reason "that the recognition of its P. D. degree under other standards than that of New York would thereby have been involved."

This is not a fanciful picture, but an actual statement of the condition existing and of one of the most unwise exhibitions of power that any State Board could have made. It is so ridiculous that it is difficult to understand how those authorized to enforce a law with justice and equity, could be guilty of such a foolish outrage on pharmacy. It is a paradoxical exhibition of an honorable profession to be based upon the willingness of pharmacists to sell their honor and birth-right.

This is no longer a local question, but has become a national one fraught with grave possibilities of danger to the professional as well as the business interests of our calling. I would be derelict in my duty if I did not forcefully present it to you. One of the principles for which this Association has contended for years, has been that of the free interchange between the States of pharmaceutical license certificates. The action of New York is destructive of this principle and likewise interferes with the personal rights and liberty of the individual and with trade conditions which demand that a druggist shall have the right to employ competent help, educated either within or without his State. The pharmacists of America should condemn such an uncalled for exhibition of ultra-legislative power.

The decision that a pharmacist must be penalized and forbidden to practice in that State because he has chosen to exercise his right to select the school at which he shall obtain his education and degree is not in harmony with American ideas of personal or professional liberty. Such a status invites retaliation and an exhibition of state reprisals may be expected.

The conditions existing, demand that some national body shall prepare a comprehensive plan of standardizing the degrees to be conferred by the American Schools of Pharmacy. Such a national settlement of this question is essential to safeguard the interests of pharmacy and such a standardizing is probably the only way to arrive at a safe and definite scheme that would obtain nation-wide recognition. It is realized that this is a difficult problem to solve and calls for consideration by men of broad experience, practical knowledge, recognized probity and ability, who will judicially consider the subject and in their plan render a decision that shall be acceptable to all of the interests involved.

The American Pharmaceutical Association is the proper body to consider this subject and thereby render another signal service to pharmacy. One of its prime functions has always been, to inculcate correct theories of education. It has within its membership the proper *personnel* for such a committee. After giving to this matter earnest and careful consideration, I am constrained to recommend that the subject of the Standardizing of Pharmaceutical Degrees be referred to a Special Committee consisting of the President of the Association and the living former Presidents, with the request that this Committee give the subject prompt consideration with the hope that at the next meeting they may be able to present a report thereon.

Pharmaceutical Legislation:—Legislation continues to claim a large share of our attention. The drug trade is the target against which much unnecessary legislation is aimed. Well meaning enthusiasts, as well as fanatical agitators, consider themselves as especially commissioned to interfere with the duties and prerogatives of the pharmacist. They do not hesitate to question the honor of his calling, his integrity and the purity of his commodities, and even desire to prepare standards for his drugs.

The pharmacy laws, the anti-narcotic laws and the food and drugs laws are largely due to efforts of druggists themselves. The standards for drugs and medicines have likewise very largely resulted from their studies and investigations.

The Food and Drugs Act:—The drug trade, as a body, has been loyal in its support of the Food and Drugs Act. When the regulations for the enforcement of the Act of June 30, 1906, were framed, the representatives of the Government Departments sought the assistance of the drug interests and welcomed their advice in the framing of the regulations.

At great expense, labels were revised and reprinted to comply with the regulations then announced. In a few years, a new ruling was issued by the Department of Agriculture calling for a change in the wording of the Guaranty and again the loyal drug trade destroyed millions of labels and spent thousands of dollars in order to comply with these new regulations. The Department is now convinced that both of the Guaranty forms that it had directed to be imprinted on labels, were mistakes and have ordered that after a certain date their use be prohibited.

The vacillation of officials charged with the enactment of this law, is causing the drug trade serious annoyance and unnecessary waste of a large amount of money. A conference with the drug interests should have convinced the Department of the unjust position it was assuming in thus compelling merchants to destroy property and investments created through compliance with the Department's own ruling. Another complication arises from the fact that some of the States have passed Food and Drugs Acts closely copying the National Act and providing for the recognition on the labels of the guaranty statement of the National Food and Drugs Act.

The principles on which the food and drugs acts are founded are universally approved. The efficacy of these laws has been very largely in the educational and moral uplifting of trade conditions. The enforcement thereof should be on a high plane and free from any suspicion of unfairness. There should be no uncertainty as to the authority for the regulations promulgated or the legality thereof. Equally objectionable are prosecutions based upon trifling technicalities. In some respects the method of the enforcement of this law has been disappointing.

Postal Regulations Relating to Poisons:—The recent decision of the Post Office Department prohibits from the mails poisons. A regulation originally issued for the very proper purpose of excluding from the mail poisons of a volatile or corrosive or explosive character that would destroy other mail matter with which these might come in contact, has been extended in its meaning to preclude all forms of poisons. The handling of poisons is a necessary part of the druggists' service and his merchandise if properly protected by packing, and of a non-volatile and non-corrosive or non-explosive character should be admitted to the parcel post. Our Association should join the other trade associations in urging a modification of the postal regulations to permit of such shipment.

The Harrison Bill:—The measure providing for the control of the sale and distribution of narcotic habit-forming drugs, which in a very large measure, has been shaped by the Drug Trade Conference, has just passed the Senate. While some of the features and amendments may not meet with the unanimous approval of the drug trade, the object aimed at has had the hearty and continued support of this Association. The control by law of the sale of medicines, is admittedly a difficult problem, yet the better element of our calling have stood ready to subject themselves to no little annoyance, espionage and expense to aid in the accomplishment of this purpose.

The hope is expressed that a wise administration of the law may prove it to be entirely satisfactory to the drug trade and also a successful means of preventing the illicit trade in habit-forming drugs.

The Pharmacists in the Army Service:—Your Committee on Status of Pharmacists in the Government Service will, no doubt, present a report on their efforts to have the Hughes-Bacon Bill providing for a re-organization of the Army Hospital Corps, enacted at the present session of Congress. They deserve the thanks of the entire Association for their untiring efforts.

It has been my pleasure to keep in touch with the Committee and to coöperate with them to the limited extent possible. I am convinced that their continued

efforts have made a favorable impression and that there is a substantial foundation for the expectation that success will crown the efforts of the Association to obtain proper rank and remuneration for the pharmacists in the Army Hospital Corps.

The Chairman of the Committee on Military Affairs of the House, has written to me: "The bills which have heretofore been introduced for the purpose of this re-organization have had for their object the re-organization of the entire Corps and have assumed that the Corps is composed altogether of pharmacists. The Army Hospital Corps consists of thirty-five hundred men; comparatively few of these men are pharmacists and the bill for a general re-organization of this Corps does not at all reach what is desired for the pharmacists. The Hughes-Bacon Bill does not confer commissioned rank and that is what is desired I suppose. If commissioned rank is desired for the pharmacists of the Army a bill should be drawn with that purpose in view."

A recent issue of the Army and Navy Register, stated that it was proposed to grant to apothecaries in the Army Service commissions as second lieutenants. I do not know who inspired this article, but it is probably indicative of the idea advanced in the Department.

I would recommend that the Committee be instructed to prepare and introduce at the next session of Congress a new bill drafted in accordance with the suggestion of Chairman Hay and with all diligence work for its enactment.

The Bichloride Question:—The agitation in the public press over the subject of poisonings by Bichloride of Mercury Tablets, has served to direct attention to the possibility of additional protection to human life by restricting the shape of these tablets.

The suggestion made by Vice-President Apple, in a paper presented to the Pennsylvania Pharmaceutical Association, that Bichloride of Mercury Tablets be made in the shape of a coffin and with the word "Poison" stamped thereon, attracted more than usual attention, and has been favorably acted upon by a number of the manufacturers. Two manufacturers claimed to have a priority in the manufacture of these and have endeavored to secure patent rights thereon. In addition, Mr. Apple likewise claims a prior right and his publication seems to sustain this claim.

The interest of the public demands that if such a design is to serve the purpose for which it was proposed, that it should be free for use by all legitimate manufacturers and that the use of tablets of this shape be restricted to poison tablets. As a result of correspondence and interviews, the Norwich Pharmacal Company first proposed to prosecute its claims to completion and to assign to the Association all its claims and rights to the patent. Your officers fully explained that the Association could accept such a proposition solely in accordance with one of its declaration of principles, "the promotion of the public welfare" and not as a business proposition.

The effort to confine poison mercuric chloride tablets to a distinctive shape, not used for other medications or for foods or confections, is proving very acceptable to the manufacturers, a number of whom are already marketing the coffin shape tablet. Likewise is this shape of tablet rapidly gaining favor with

the medical profession and the drug trade. In this matter, the American Pharmaceutical Association has undoubtedly exercised its influence in the proper manner for the public good.

The A. Ph. A. Headquarters:—For several years, the proposition to establish a headquarters building has been talked of, but it has, so far been largely a matter of growing sentiment without taking definite shape. Before we can hope to make material advance on such a project, our sentiment must be replaced by well defined ideas as to the actual needs of the Association, the character of its past and future services to society, the scope of the work that it is desired to accomplish in the way of research and education, the value of such investigation to commercial interests and to the public welfare, the character and size of buildings and of grounds, the probable cost of establishing such a headquarters and the cost of its maintenance.

These are some of the questions that must first be decided and on which a few timely suggestions are offered. Our plans should contemplate ample room and facilities for carrying on the secretarial and clerical work necessitated by the activities of the Association and ample accommodations for the editorial staff of the Journal and other publications of the Association.

Well-equipped laboratories for research and study in which questions of scientific and of practical trade value, and of public health and sanitation can be systematically taken up and investigated. Many of the problems of the U. S. P. and N. F. revisions are in need of such careful study and investigation.

The formation of a Bureau of Education and Information, for the collection of data, valuable information as to drugs, such as source of supply, preparation, proper uses and dosage and to prepare and distribute to the trade reliable information on trade questions and to educate the press and the public to the proper duties of pharmacists and to give wider publicity to popular information relating to our calling and the public welfare. The Educational Bureau of the Paint and Varnish Manufacturers' Association of the United States is notably performing a similar service to those industries. The scientific investigation and the practical application should be closely allied.

A Museum must be provided for the collection, preservation and exhibition of drugs, adulterations, research results, etc., and likewise the historical data and archives that the Association is collecting.

A Library must be founded and supplied with the standard works, books of reference and current scientific and trade journals. There can be no research investigation without access to the literature.

Ground either attached to the buildings or accessible for experimental work in drug plant cultivation.

The buildings should be commodious, fire-proof and well ventilated. Ample funds should be guaranteed or, preferably, provided by endowment, to assure the successful carrying out of a comprehensive plan along the lines of these suggestions.

An Endowment for Pharmaceutical Research:—The preceding subject touches upon one of the great needs of American Pharmacy. In foreign countries, research in pharmacy is stimulated through government aid, endowments and

special funds provided for students under the guidance of national societies and universities. In the United States, we have been compelled to depend for such original research upon the individual efforts and encouragement of a few teachers or upon the work of the laboratories of the manufacturers. The vast field of possibility for systematic original research in pharmacy has, as yet, been only indifferently opened. Medicine has been generously endowed by the Rockefeller Endowment for Medical Research, but pharmacy is yet to be provided for. This is an age of bequests and endowments and we are not without hope that the equally important pharmaceutical research will be founded by some philanthropic person or persons.

Our Ex-Presidents:—Quite a goodly number of our former Presidents have been spared to us. Where health permits, they are usually in attendance at our annual meetings and their loyalty and interest in the affairs of the Association continues throughout life. No man has yet been honored with the high office of President of this Association who has not concentrated his thought toward the betterment of the Association. The duties of the office have given him opportunities for observation and obtaining knowledge of men and affairs relating to pharmacy. The question has arisen, what are we doing to profit the Association by their special knowledge and ability? What shall we do with our Ex-Presidents?

I would advise that they be constituted as an Advisory Council to which certain questions calling for wise consideration and mature judgment may be referred by the Association or the Council.

The Committee on Publication:—The Committee on Publication will present a detailed report of its work for the year and in connection therewith, I desire to submit a few additional comments:

The Year-Book of the A. Ph. A. for 1912 was issued in June, 1914, and contains the usual excellent abstracts for which the Report on the Progress of Pharmacy under the editorship of Professor C. Lewis Diehl has been noted. The delay in its issuance, however, has created considerable comment. It is to be regretted that the Year-Book of the Association cannot be completed and published within a reasonable time after the expiration of the year which it commemorates. The immediate publication of the Year-Book for 1913 should be directed. My attention has been directed to the absence of the Code of Ethics in our publications. It is very appropriate that this be published annually in the Year-Book.

The Committee on Publication have been confronted this year with unusual difficulties. The illness of our Secretary and Editor compelled him to present his resignation, which was the most serious misfortune that could have possibly overtaken our Association. Every member of this Association appreciates the earnestness, the fidelity, the sincerity and ability exhibited by Dr. James H. Beal in the discharge of his official positions and the success of our Journal must largely be attributed to his indefatigable efforts. The Association should express in no uncertain terms its high appreciation of the services rendered by Secretary and Editor Beal.

I believe that the time has come when the A. Ph. A. must arrange for the work

of its Committee on Publication to be carried on under a more comprehensive business plan than has yet been attempted. The Committee should be given considerable more latitude than other Committees because of the character of the work assigned to it and the business problems it has to contend with. During the year, it has been necessary, at times, for the Acting Secretary to advance large sums of money to prepay postage, the expenses of the distribution of the Year-Book, for clerical assistance, etc., etc. The Association should not place the burden of carrying its finances upon any individual.

I would recommend that the Committee on Publication be given more extended powers. That it be authorized to organize an effective editorial staff and clerical force to satisfactorily carry on the work of the publication office.

That the appropriation for the use of the Committee be paid to the Committee in quarterly sums in advance. That the Committee be authorized to select one of its members as treasurer who shall disburse its funds on vouchers approved by the contracting official and countersigned by the Chairman. That the accounts of the Committee be subject to the approval of the Auditing Committee of the Association and of the Council.

National Formulary.—We are justified in our expectation that the National Formulary will be issued before our next meeting, and the Committee on Publication should have ample authority to contract for its publication and sale.

With the appearance of the new edition of the National Formulary, the first prepared as a legal standard, its importance will be greatly increased and the sale should be very extensive and the Association should reap a substantial profit.

An organized effort should be made to make it a more popular book and to acquaint the physicians as well as the drug trade in general with its character, importance and usefulness.

I would recommend that the Committee on National Formulary be instructed to appoint a specialist or else a sub-committee to prepare an epitome to be used in advertising and popularizing the work, and that subject to the approval of the Committee on Publication and the Council, an edition sufficient for these purposes be published.

Also that either an independent committee or a sub-committee of the Committee on National Formulary be appointed as a Committee on Propaganda, whose duty it shall be to acquaint the physicians with the character of the N. F. preparations, to prepare literature for distribution through our members and the drug trade in general, explaining the formulas, uses and dosage of a selected list of the more desirable preparations. Such a system of advertising the book should add very materially to its usefulness and considered solely from an advertising standpoint the Association should be amply reimbursed for the expenditures.

Association Reforms.—The discussions in the pharmaceutical journals and in the Council during the past year on the necessity of reforming the methods of transacting the business at our annual meetings and for co-ordinating the work of the Sections, are welcome evidences of the interest of the members in the internal affairs of the Association.

Some observations and suggestions are offered with the hope that they may aid

in improving the procedures of the Association. We must bear in mind that in recent years the scope of the activities of the A. Ph. A. has been greatly broadened and new avenues of usefulness to pharmacy and to the public are continually opening up to us. No line of useful activity should be discontinued until the work is accomplished.

The composite character of our membership requires equal service to many interests. What is of primary importance to one class of members is only of secondary interest to others. Our duty is plainly to serve and to protect all pharmaceutical energies and interests and to co-ordinate these to the advancement of the entire calling. The success of one line of work is a progressive influence to all.

The A. Ph. A. has a distinct field of work and this calls rather for the outlining of a distinct method of procedure and not the copying too closely of the methods and plans of procedure adopted by other national societies.

The proposition to eliminate from our meetings the customary addresses of welcome and responses is contrary to the procedure of most national organizations and deprives the Association of the public recognition that it deserves and that is usually appreciated by both the visitors and the host.

There are those who propose to eliminate from our annual programme all of the entertainment features. This is the only vacation that many of our members take and, in the attendance at our meetings, they seek a relaxation from the strain of their usual occupations. The elimination of the usual entertainments and social functions would make our meetings exceedingly dry to these fellow members and we would lose their interest and attendance and the Association would undoubtedly suffer materially from such a procedure. These entertainments are a means of getting pharmacists closer together, of encouraging good fellowship, and firmly cementing the bonds of friendship. Prof. Procter rightly declared that one of the needs for the organization of the A. Ph. A. was "that such an association is calculated to enlist the feeling of brotherhood."

The great trouble at our annual meetings is the attempt to crowd entirely too much business into the time allotted. The orderly presentation of the business of the Association and its proper consideration require time and the time must sooner or later be given, even if the meetings have to be lengthened. There are many problems regarding the general welfare of the Association which must be discussed in general session; yet we have curtailed the work of the general sessions by eliminating therefrom everything possible. As a consequence, there has been crowded out of the general sessions the consideration of many problems which should be decided therein. As an example, the report of such an important committee as the Committee on Revision of the Constitution and By-Laws, which must be considered in general session because it proposes amendments, has remained an unfinished order of business for two years because there was no time at the Nashville meeting for its just consideration. Some of our problems could have been solved if time had been given to the proper consideration of this important report.

I fear that in many ways our By-Laws go entirely too much into details. To legislate many years in advance for the number of general sessions and for the

number of Sections and their meetings, results in fixed and rigid programmes. More flexibility and variability is desirable to permit, from time to time, of the introduction of new and interesting features. The assignment of time to each Section should be made annually in accordance with the actual needs of the Section for that year. At present, the By-Laws fix the number of sessions for each Section. The Chairman solicits a sufficient number of papers to fill the entire time allotted and thus quantity and not quality becomes the gauge of his success.

The Committee on Programme should have the authority to arrange such details in accordance with existing conditions and requirements.

The Duties of the President:—The By-Law relating to the duties of the president, would seem to indicate that his main duty was to preside at the general sessions and to present an address. I have assumed that this was not the intent and that his function was also to keep in close touch with all of the various activities of the Association.

The power of appointing committees should be vested in either the President of the Association or in its Council. The system of the promiscuous appointment of committees should be discontinued. Committees recommended by the Sections should, upon approval, be appointed by either the President or the Council.

On March 26th, Mr. Gus Lindvall, who had been elected at Nashville, Chairman of the Commercial Section, asked to be relieved of that chairmanship as he contemplated going abroad and on April 9th presented his resignation. Your president was somewhat uncertain as to his right to accept the resignation or to appoint a successor as our by-laws do not provide for the filling of such vacancies. The matter was very happily adjusted by Mr. Harry B. Mason consenting to accept the position and the success of this Section's meetings was thereby assured. There should be no uncertainty as to the authority of your officers and the by-laws should clearly provide for the filling of all vacancies.

The Committee on Nominations:—The success of an organization depends very largely upon the character and ability of its officers and no more important duty is left to a committee than the selection of nominees for the executive officers. Calm, deliberate consideration of the needs of the Association and the fitness of the candidates for the duties of the office should take the place of the hasty and inconsiderate action that at times has marked the meeting of the Committee on Nominations. This Committee appointed at the first session, is required by the By-Laws to report at the second session. Consequently, its meeting is usually after the first general session and, if the hour is late and other appointments are scheduled shortly thereafter, its work is expedited in an unseemly rush and at times with many of the members of the committee absent. Since our elections are now held by mail, some weeks after the meeting, the report could be made at a later meeting and thus more time given to perform this important duty.

The Installation of Officers:—In most organizations, the installation of officers is considered as an important function and is attended by more or less ceremony. It is recalled that President L. C. Hopp recommended that a general session be held on the evening preceding the last day of our annual meeting for the special purpose of installing the officers. In recent years, the importance of this feature

has been minimized. The induction into office occurs at the close of the last general session and, not infrequently, in the presence of an exceedingly small audience and the new president assumes his duties with a strange feeling of vagueness and uncertainty. The iconoclast has now appeared and would destroy even the small vestige of ceremony remaining. I can not conceive that the success of the Association is going to be enhanced by such utilitarianism.

The Council:—The intent of the creation of the Council was to have a compact body to take charge of the business of the Association so that this could be promptly dispatched. As a result of amendments to the original idea, the Council is becoming too large and unwieldy and so the object of its creation, promptness of action, is being defeated. We annually elect three new members at large so that representation is assured and the communications and acts of the Council are published in the Journal and are subject to the approval of the Association. Further, the right to comment on the published proceedings and to attend the meetings of the Council, is open to any member. The custom of permitting each Local Branch to elect a member of the Council should be discontinued and I recommend that the By-Laws be so amended.

House of Delegates:—The idea associated with the creation of this House was that it was to provide for the reception of delegates and for the discussion of general topics which they might introduce. Also, that it might be developed into a sort of general governing body bearing the same relation to the Council that the House of Representatives bears to the Senate. The desirability of retaining such an organization where delegates may meet and discuss common problems is dependent entirely upon the development of a need therefor.

The suggestion that the reception of delegates be by the House of Delegates is untenable and might be construed as discourteous. The delegates bring the greetings of their societies to the American Pharmaceutical Association and not to other delegates.

It must also be recognized as contrary to accepted parliamentary proceedings to refer to a body composed of delegates, many of whom are not members of the A. Ph. A. or especially interested in its internal affairs, the consideration of resolutions relating to the policies and affairs of this Association.

I suggest that the function of the House of Delegates be restricted to the consideration of topics of general interest to the societies that they represent and that a place on the annual programme be reserved for a meeting of these delegates where they may discuss such appropriate subjects.

Committee on Resolutions:—The Association does need and should have its own Committee on Resolutions. I propose that such a Committee be appointed at each annual meeting to consist of ten members, five appointed by the President and five by the Chairman of the Council. To this Committee shall be referred by either the Association or the Council, resolutions and motions. The Committee shall hold open sessions for the discussion of matters submitted to them and learning the views of members thereon. This would materially save the time of the general sessions and of the Council.

The Women's Section:—The Women's Section was organized, by resolutions adopted at the Denver meeting, to fill a want and the interest and enthusiasm of

our lady members since this Section was formed, indicates that it is going to be a potent factor in popularizing the Association, increasing its membership and extending its usefulness. There is no necessity to have all of the Sections of the Association working along the same lines. The Women's Section has a distinct field of its own for work in behalf of the Association. Its status should now be determined. I strongly urge that it be continued and established as a permanent Section of the Association.

This raises a question, however, as to what class of membership should be provided for the ladies who are not actively engaged in the drug business and who are not active members of the Association. We cannot expect the wife or daughter of an active member to also become an active member and to contribute the full annual dues. Neither can we consider that the membership of the Association covers the ladies of a member's family nor that members of the Women's Section shall be exempt from membership in the Association and the payment of any dues. It has been suggested that we create a class of members to be known as Auxiliary Members, to which shall be eligible the women members of the families of our active members and other women engaged in pursuits associated with pharmacy and that a nominal dues only be fixed for such members. I heartily approve of such a recommendation.

The Sections:—The number of Sections should not unnecessarily be increased. By a systematic classification and re-arrangement of the other Sections, the present work can be continued and a place found for the proposed new Sections.

I would recommend that the Section on Scientific Papers be renamed the Scientific Section; that its work be divided into sub-committees: (a) Chemistry; (b) Botany and Pharmacognosy; (c) Biologic Assays; (d) Bacteriology; and that the chairman of these sub-committees be named as the associates of the Chairman of the Section to co-operate with him in securing papers and arranging the programme.

I would recommend that the Sections on Practical Pharmacy and Dispensing and on Commercial Interests be combined under one title, the Section on Practice of Pharmacy, and that its work be divided into sub-committees; (a) Commercial Interests and Methods; (b) Operative Pharmacy and Dispensing; (c) Pharmacopœias and Formularies; and that the chairmen of the sub-committees be named as the associates of the Chairman of the Section to co-operate with him in securing papers and the preparation of the programme.

The Section on Pharmaceutical Legislation and Education should be continued with two sub-committees; (a) Legislation, and (b) Education, with the chairmen of the sub-committees as associates of the Chairman of the Section to co-operate with him in securing papers and the preparation of the programme.

The Section on Historical Pharmacy should likewise be continued.

Affiliated Associations:—It is very desirable that the various pharmaceutical bodies, whose work is more or less associated with the work of the A. Ph. A. and whose membership is largely composed of members of our Association, should hold their meetings at the same place and about the same time as our own annual conventions. Their meetings, however, should be arranged so as not to conflict with the meetings of our Association or its Sections. I will suggest

that, wherever possible, such affiliated Associations should hold their meetings either just in advance or immediately after the meetings of this Association so as not to interfere with our business.

I am aware, that in the presentation of this address, I have departed, in some respects, from the conventional lines.

It has appeared to me, that the best interests of pharmacy and of this Association would be served by following the dictate of duty rather than that of tradition. Forgive me for having tried your patience and wearied you by such a lengthy address and I will promise never again to repeat it.

I desire to record my grateful acknowledgment for the uniform courtesy, support and co-operation that has been so generously given by the Treasurer and the Secretary and by each officer and member with whom I have corresponded or seen in person.

In conclusion, permit me to express my appreciation and sincere thanks for the honor that you have bestowed upon me, the highest honor in the gift of American pharmacy, the Presidency of the American Pharmaceutical Association. As your presiding officer, I beseech your kind consideration and indulgence during this convention week.

During the reading of his address the President said:

"I want to depart just a little from my text to say a word to these pharmacists of Michigan who are gathered together with us in this Convention during the present week. Michigan has forged ahead this year with a large increase in membership. I believe that every member of the Michigan Pharmaceutical Association should likewise be a member of the American Pharmaceutical Association. Would it not be a glowing example, an inspiration to the entire country, if the Michigan Pharmaceutical Association were to set an example this year of being the first Association to affiliate with the American Pharmaceutical Association, in its entirety? I leave this thought with you, members of the Michigan Association. I believe that a year's trial will convince you that the moderate cost of a few dollars a year will not measure the benefits that each and every one of you will receive from a year's membership and perusal of its publications."

Vice-President Apple then said: "Members of the American Pharmaceutical Association; you have heard the very able, comprehensive and valuable address of the President, which contains a number of recommendations which you must make some provision for when you dispose of this address. What is your pleasure in this matter?"

Dr. F. E. Stewart then moved that the Vice-President appoint a committee of five to consider the President's address; motion seconded.

Mr. Harry B. Mason, of Detroit, then moved an amendment that the portion of the address beginning with the sub-head "The Reforms of the Organization," or some similar title, be referred, not to this committee of five, but to the Council. Mr. Mason explained that at a meeting of the Council, held in the morning, it was made a special order of business on Tuesday evening at 9 o'clock to discuss and decide definitely certain questions of internal reform embodied in the recommendations of the President. Mr. Mason felt that it would be an in-

justice to the President if the address were left entirely to this committee of five, because the committee appointed by the Chair would not report until Saturday morning at the last general session, to be ultimately acted upon. He offered the amendment out of courtesy to Mr. Beringer. Amendment seconded and carried.

The motion as amended was then put to a vote and carried.

Vice-President Apple then appointed as a Committee to consider the President's address, the following members:

Joseph P. Remington, Philadelphia;
Otto Raubenheimer, Brooklyn;
Joseph L. Lemberger, Lebanon, Pa.;
Robert H. Walker, Gonzales, Texas.
Thomas F. Main, New York.

[Mr. Main declined to serve and the vacancy was not filled.]

The President then resumed the Chair. The President then read a cablegram from the Cuban Pharmaceutical Association.

Havana, August 23, 1914.

George M. Beringer, Hotel Pontchartrain, Detroit:—

Cuban Pharmaceutical Association sends its greetings to the members of the American Pharmaceutical Association, and appoints as delegates Messrs. Gerardo Fernandez Abreu and F. Herrera.
E. C. BELLO, President.

The President, on behalf of the American Pharmaceutical Association, extended its greeting to the Cuban representatives.

Senor Gerardo F. Abreu, of Havana, then addressed the Association, in Spanish, as follows:—

Ladies and Gentlemen:

The Cuban National Pharmaceutical Association, of which I have the honor to be President, on accepting the kind invitation sent by you, conferred upon us, the honor of representing it, in this act of professional solidarity and scientific work which you hold annually.

And on accepting this duty in deference to the fulfillment of this mission, I must acknowledge the unwisdom of the Cuban institution in nominating me as one of its delegates, even more so when my lack of familiarity with the English language prevents me from transmitting to you, in a language understood by all, the message of greeting and sympathy which the Cuban pharmacists send to you through us.

We are well aware of the distinction conferred on our association in inviting us to this national convention; a distinction which you have bestowed on our nation—a nation which, although small in geographical extent, is great in its desire for progress and scientific culture—for although of distinct origin, the Cuban people and the North American people are united by old and intimate ties of affection.

From those lands, in fact, came to us the splendor of your free institutions which awoke in us the desires for liberty and progress. In American soil the Cuban patriots found in the days of our heroic struggles for independence, fond affection which gave them strength to continue it. It was in North American

soil that the greatest of our poets found inspiration for the greatest of his conceptions, the beautiful ode, which the magnificent spectacle of Niagara Falls suggested to him. It was in North American soil where that great apostle of our independence—Jose Marti—preached the sacred creed of our rights for liberty. And last of all, it was in American soil and by American legislative bodies, where it was proclaimed to the world the right of our country to be independent, defending this right with money and blood, blood which, spilled in our fields, has like sacred seed germinated and brought forth as its fruit a great and undying love and affection.

And this development of political and social sympathies in the existence of these two countries, could not but reflect itself in the professional lives, and it is for this reason that we are here in this national convention, feeling as if we were at home.

We feel sure that this Association works for the same ideals which ours do, which are those of exaltation and progress, to be accomplished solely by noble and scientific means, thus deserving the esteem and approval of the public, for which reason we feel satisfied in being associated in attaining the same aims. And on these grounds in which we feel ourselves united, we would suggest to you, since you are powerful enough to initiate it, to try to establish a Pan-American Pharmacy with the same course of studies and one and the same ideals in the whole continent.

To accomplish this, the first stone has been already laid in the translation into Spanish of the American Pharmacopoeia, translation made by a Cuban of merits, very learned and kind and who should have been Cuba's worthy representative in this Convention, Dr. José Guillermo Diaz.

I have abused, ladies and gentlemen, your kindness, and allow me, therefore, to beg your pardon for having done so; and after expressing my most sincere thanks to the members of the Director's Committee in Dr. Herrera's name and in mine as well for the many kindnesses which we have received, may I express in the name of the National Cuban Pharmaceutical Association, my most sincere wishes for the enlargement and progress of your Association, that it may be able to carry out its purposes, and may the United States continue the wonderful development of its scientific and industrial progress.

The Secretary then announced that at a meeting held at 2 o'clock by the Chairmen and Vice-Chairmen of the various sections of the Association, it was unanimously decided to call all sessions promptly to order on scheduled time, and to have 9:30 mean 9:30, and 2 o'clock to mean 2 o'clock, and that every Chairman agreed to start his section work on the stroke of the clock, regardless of how many people were in the room; and also that it was generally decided that no speaker should be given more than five minutes in extemporaneous discussion; that no speaker should be permitted to talk twice on the same question until everybody else had been heard from who desired to express himself, and that papers whose authors were not in the room when called upon in regular order should be put automatically at the end of the section program, and that the Chairmen appealed to the Association at large to coöperate with them in this movement and to be prompt in their attendance.

This statement of the Secretary was greeted with applause.

President Beringer next read a communication from the British Pharmaceutical Conference.

British Pharmaceutical Conference, 17 Bloomsbury Square,
London, W. C., August 6, 1914.

Dear Sir:—I am directed by the President, Mr. E. Saville Peck, to acknowledge with thanks the invitation to attend the meeting of the American Pharmaceutical Association, and to say that we regret we are unable to send a delegate this year.

We trust that your meeting will be a great success and that your deliberations will add materially to our common stock of pharmaceutical knowledge.

Yours faithfully,

H. FINNEMORE, Honorable Secretary.

George M. Beringer, Esq.

This communication was received with applause.

The Chair then read a communication from the Pharmaceutical Society of Ireland.

The Pharmaceutical Society of Ireland.
67 Lower Mount St., Dublin, August 6, 1914

My Dear Sir:—I am directed by the President to cordially thank you for your kind invitation to appoint a delegate to attend the forthcoming meeting of the American Pharmaceutical Association, and to explain that, as our monthly Council falls on the 11th instant, it does not seem possible to avail of your kindness on this occasion; in any case, I expect the state of war existing would interfere with a delegate proceeding.

Wishing your meeting every success, I remain, my dear sir,

Yours fraternally,

ARTHUR J. FERRALL, Registrar.

Mr. George M. Beringer, American Pharmaceutical Association, 501 Federal Street, Camden, N. J., U. S. A.

The Chair next read a communication from E. M. Holmes, Esq.

Ruthven, Sevenoaks, Kent, August 4, 1914.

G. M. Beringer, Esq.:—

Dear Sir:—I wish to thank you and the officers of the American Pharmaceutical Association for your kind invitation to the annual meeting on August 24th. I only wish it were possible for me to do so and to meet so many American pharmacists whom I have not yet had the pleasure of seeing. Professor Remington, Professor Rusby, Mr. Squibb and some other of your pharmacists of world-wide fame, and some of your leading botanists,—Professor Asa Gray, Professor Farlow, Professor Greene, etc., I have had the pleasure of seeing and conversing with in this country, but there are so many others who, I am sure, like Professor Uri Lloyd, could teach me and show me much if I could only manage to cross the barriers that hinder one. When your invitation was received neither you nor I anticipated that European war would commence this year. I fear the crush to obtain passage to America will hinder many from attending the meeting this year. None the less I hope it may prove a very successful meeting so far as American pharmacists and excellent papers are concerned. I am looking forward to the pleasure of perusing the report when published. I am, dear sir,

Yours faithfully,

E. M. HOLMES.

The Chairman then asked the Secretary to read communications from the various departments of the Federal Government and requested that the delegates

mentioned in the communications come forward and present the wishes of their respective departments to the Association.

The Secretary then read a communication from W. C. Braisted, Surgeon General U. S. Navy.

Washington, D. C., July 15, 1914.

Dear Sir:—I have to acknowledge your letter of July 6th, in which you ask that a duly appointed delegate be nominated for the forthcoming meeting of the American Pharmaceutical Association, to be held at Detroit, Michigan, August 24th to 29th.

In reply, I would say that this Bureau nominated Passed Assistant Surgeon Willard G. Steadman, Jr., U. S. Navy, Navy Recruiting Station, Detroit, Michigan, for this duty, and orders were issued to him by the Navy Department on July 14, 1914.

I would therefore suggest that you communicate with him at your earliest convenience and inform him of the place in Detroit where the meeting will be held.

Very respectfully,

W. C. BRAISTED,
Surgeon General, U. S. Navy.

Mr. George M. Beringer, President, American Pharmaceutical Association, 501 Federal Street, Camden, N. J.

The President asked if Mr. William G. Stedman was present. No response being received, the Secretary proceeded to read a communication from D. F. Houston appointing Dr. Hoover as a representative of the Bureau of Chemistry, Department of Agriculture.

July 11, 1914.

Mr. George M. Beringer, President, American Pharmaceutical Association,
Camden, N. J.:—

Dear Sir:—Replying to your kind invitation of July 7th to appoint a delegate from this Department to attend the meeting of the American Pharmaceutical Association at Detroit, Mich., August 24th to 29th, I beg to state that I have designated Dr. George W. Hoover, of the Bureau of Chemistry, to represent this Department.

Respectfully,

D. F. HOUSTON, Secretary.

After the reading of the communication, Doctor Hoover addressed the Convention as follows:

“Mr. Chairman, Friends and Members of the American Pharmaceutical Association:—I wish to say I am very glad of the opportunity of being with you at this meeting in the capacity of representing the Department of Agriculture. I wish to say that the Bureau of Chemistry, with which I am connected, of the Department of Agriculture, feels very grateful for the assistance which this Association has extended to the Bureau in its work. I was particularly interested in the remarks that our President made, especially as they refer to the enforcement of the Food and Drugs Act. It has been my lot to have been associated with the work in connection with the enforcement of the Food and Drugs Act, especially as it refers to the enforcement of that part of the law which applies to drugs.

“I am very glad to be here, especially in view of the impression that our President’s remarks created in my mind. He referred especially to the discontinuance of the serial number and guarantee legend causing great hardship

among the trade, and to the attention of officials to technicalities. I am perfectly satisfied that our President is very sincere in the remarks that he made, but I am frank to confess that I believe he is mistaken in some particulars. I wish to explain that portion in which, to my mind, he is mistaken. I have been connected with the Department since the passage of the Food and Drugs Act, and I am going to tell you of a few things to which the Department has given the greatest attention in the enforcement of the law, and I am going to leave the matter to you gentlemen to decide whether or not the Department is unjust, and whether it has devoted its time to technicalities. The Department has devoted its time to the examination of imported drugs and interstate drugs, and especially with regard to crude drugs and secret medicines that are brought into this country, devoting its time, for illustration, to testing belladonna root obtained from poke root up to eighty percent, and products sold as saffron, which were entirely spurious; products that are represented to cure tuberculosis, diphtheria, cancer, diabetes, Bright's disease, etc., products which would be virtually worthless for these ailments,—these products being interstate products. It has devoted its time to the examination of the same class of products which I have just mentioned that are represented to the subject as cures for cancer, diphtheria, typhoid fever, and other infectious diseases. It has devoted its time to the examination of tablets that are represented to contain a certain percentage of ingredients, for example, nitro-glycerin, 1/100 of a grain found to be deficient from a hundred percent down,—some containing no nitro-glycerin at all. I am only citing that as an example. The Bureau has spent a great deal of time in the examination of preparations of cocaine, morphine, codeine, heroin, cannabis indica, chloroform, ether, etc., represented to be harmless, and some of them represented to produce natural sleep, which we all know is not true. That is the class of products that this Department has been working upon in the main.

We have devoted considerable time, probably, to technicalities. It seems necessary and it is not by choice. We would rather not refer to technicalities at all. In so far as this guarantee legend is concerned, it has been unfortunate all the way through. I am in full sympathy with our President's remarks with regard to the guarantee legend, and it appears now it was a mistake from the start in the regulation. The department has tried to correct that feature by amending the regulations but has failed, and the annoyance that that has given the manufacturers of drugs and dealers in drugs, and manufacturers of food products has been tremendous. It has cost a tremendous amount of money, for all of which we are very sorry. Of course, that does not remedy the difficulty; but, after the mistake was made it appears there was nothing else to do except to eliminate it and get it off our hands as soon as possible. I am sure that the Department regrets very much the inconvenience and expense that that feature has entailed. I am very glad to have had this opportunity to address these few words to the Association." (Applause.)

Secretary Marshall then read a letter from the Surgeon General appointing M. I. Wilbert and G. A. Morris as representatives to the Convention, as follows:

Washington, D. C., August 11, 1914.

Dr. George M. Beringer, President, American Pharmaceutical Association, 501 Federal Street, Camden, N. J.:—

Dear Sir:—Referring further to your letter of the 6th ultimo, I desire to state that Technical Assistant M. I. Wilbert of the Hygienic Laboratory of this Service, and Pharmacist G. A. Morris have been detailed to represent the Service at the meeting to be held by your Association at Detroit, Mich., August 24-29, 1914.

Very truly yours,

RUPERT BLUE, Surgeon General.

Mr. M. I. Wilbert, of Washington, D. C., then addressed the Association as follows:

“Mr. Chairmen, and Members of the American Pharmaceutical Association:—It gives me great pleasure indeed, to be able to present to you the felicitations of the Surgeon General of the Public Health Service, and I am sure I am correct in assuring you of his hearty coöperation in any feature of your work that pertains to the progress of furthering of public health, and on the other hand, to request of you, your coöperation in that feature of the public health work that relates more specifically to your calling. The efforts that have been and are being made in connection with the various organizations or parts of the organizations of public health work are of interest to you, and I am sure are of material benefit to some of you in the progress of your business, and are of direct benefit to all of you in your every-day affairs.

I thank you again for the opportunity of being here, and trust that you will peruse the work being done by the service and exercise your own judgment in giving such coöperation as you may be able to do.” (Applause.)

The Chair then called upon Mr. Morris, the other representative of the Department. Mr. G. A. Morris responded to the Chair's request and said that he had no specific instructions from the Surgeon General of the Service relative to the meeting, and that his colleague, Mr. Wilbert, had covered the ground thoroughly and for that reason he did not desire to take up any further time except to say that he was very pleased to be present and meet with the Association.

The Secretary then read correspondence had with the Department of Commerce, as follows:

Washington, D. C., July 17, 1914.

Dear Sir:—In reply to yours of July 7th, suggesting that representatives of this Department, and especially of the Bureau of Standards, be delegated to represent the Department at the meeting of your Association in Detroit on August 24th to 29th, I have to state that it will give me great pleasure to name one or more delegates to represent the Department at your Conference.

The representative from the Bureau of Standards will probably be Mr. Louis A. Fischer, and a suggestion from you as to what subject you would like to have him discuss will be appreciated. I will also be glad to receive any further suggestions from you in regard to this matter. Respectfully,

WILLIAM A. REDFIELD, Secretary.

Mr. George M. Beringer, American Pharmaceutical Association, No. 501 Federal Street, Camden, New Jersey.

Washington, D. C., August 11, 1914.

Sir:—In reply to your letter of July 22d, in regard to sending a delegate to represent the Department of Commerce at the meeting of the American Pharma-

ceutical Association at Detroit, August 24th to 29th, I have to say that the Department will be represented by Mr. L. A. Fischer of the Bureau of Standards, who will be prepared to suggest subjects in which the Bureau might coöperate with the Pharmaceutical Association either at present or in the future.

Among such are:

1. The adoption of the present international atomic weights based upon oxygen as 16, instead of those based upon hydrogen as 1. Such a change would involve a revision of many of the tables of the Pharmacopœia and the U. S. Dispensatory.
2. Methods for the standardization and use of solutions for volumetric analysis.
3. The possibility of improving the purity of chemicals, especially those used in analytical work and bearing analytical labels.
4. The adoption of standard tables such as those showing the relation between specific gravity and percentages of alcohol, and tables showing the relation between specific gravity and degrees of the Baumé scale.
5. The adoption of a standard temperature or temperatures at which volumetric apparatus, and hydrometers shall be standard.

Several other lines of the work of the Bureau might also be of interest to the members of your Association, but the above are sufficient to illustrate the nature of the questions our representative will briefly discuss.

It is suggested that some one from the Department of Agriculture would be best qualified to give information respecting the source of drugs, and the methods of collecting, curing, and marketing them. Respectfully,

E. F. SWEET, Acting Secretary

American Pharmaceutical Association, No. 501 Federal Street, Camden, New Jersey.

In connection therewith the Secretary read the following telegram:

Washington, D. C., Aug. 19, 1914.

Geo. M. Beringer, 501 Federal Street, Camden, N. J.:—

Please change name of delegate to represent Bureau of Standards from L. A. Fischer to Dr. F. A. Wolff. E. B. ROSA.

Dr. Wolff, who was appointed by the Secretary of Commerce to attend the Convention, was not present at the time the above correspondence was read, and the Chair stated that it was to be hoped that Dr. Wolff would be present at another session to present the greetings of the Department.

The President then asked the Secretary to read a communication from the Secretary of War, in which the Secretary of War explained why he was unable to send a representative to the Convention. The letter is as follows:

Washington, D. C., August 5, 1914.

My Dear Sir:—Upon the receipt of your letter of July 24th, suggesting that this Department appoint delegates to attend the meeting of the American Pharmaceutical Association to be held in Detroit, August 24th to 29th, I took the matter up with the Surgeon-General of the Army and find the situation to be as follows:

In the appropriation act passed by Congress, and approved on June 26, 1912, there was a provision forbidding the expenditure of any of the money appropriated therein for, among other things, the attendance of officers of the government at any meeting or convention of any society or association, unless there was a specific authorization for such expenditure. There is no such specific authorization under which we could pay the expenses of any of our officers while attending your Convention. There is, therefore, no way in which we could send delegates, unless the officers saw fit to make the expenditure out of their own pockets.

From the above, I think you will realize the difficulty we have to face in this connection.

Sincerely yours,

LINDLEY M. GARRISON, Secretary of War.

Dr. George M. Beringer, President, American Pharmaceutical Association, 501 Federal Street, Camden, New Jersey.

The Secretary then read the following communication, signed by N. H. Martin:

Ravenswood, Low Fell, Gateshead, August 13, 1914.

American Pharmaceutical Association, via Frank G. Ryan, Esq.

My Dear Mr. Ryan:—The near approach of the meeting of the A. Ph. A. in Detroit brings back so vividly the memory of my former enjoyable and profitable visits to your city that I feel that I must write to you personally and express my great regret that it is not possible to come to the meeting, a regret which is shared by my daughter, who was with me in 1905, and who would much like to come to the meeting and again renew her acquaintance with your fine city and its beautiful surroundings, as well as to meet again many of the friends whose acquaintance she made at Atlantic City.

From the program which has been published in the Journal you are sure to have one of the most, if not the most, successful meeting in the history of the Association. That is saying a great deal. I have the Journal of the Association complete since 1874 and the odd volume for 1859, so I have had an opportunity of keeping very much in touch with all the work of the Association and know its value to pharmacy.

My daughter joins me in very kind regards to you and tells me to say she retains a very happy recollection of the enjoyable time you and your wife and daughter gave her in 1905. Yours always sincerely,

(Signed) N. H. MARTIN.

The Chair then called for the delegation of the American Medical Association. Prof. William A. Puckner responded and addressed the Convention as follows:

"Mr. President of the Association, Ladies and Gentlemen:—I beg to acknowledge that I am not a delegate from the American Medical Association. Unfortunately, their Association is organized entirely along business lines. Its business is carried on by a House of Delegates, and this House has not authorized the appointment of delegates. It has been customary, however, for this Association to send a delegate to its section on Pharmacology and for this Section to send its delegate to you, and the Chairman of the Section on Pharmacology has asked me to present the greetings of the Section. First, I should say that the American Medical Association conducts its scientific program through various sections, and the section which takes up pharmaceutical matters, the action of medicines, is the so-called section on Therapeutics and Pharmacology.

On behalf of this section, and I may safely say on behalf of the entire medical profession, there is a growing need of high-class pharmacists, and the medical profession recognizes that pharmacy is striving to fill this demand. Wherever I go I hear about, from physicians in medical colleges, the recognition that the pharmacist is striving for higher things, and that this striving is thoroughly appreciated by the medical profession. Much has been said in pharmaceutical circles about drug nihilism. The medical profession, as a profession, does not recognize it. It is striving toward the intelligent use of drugs and striving with its best effort, and if anybody tells you that the medical profession is working for the abandonment of drugs, it is not true.

At this time it seems to me that the medical and pharmaceutical professions should take steps to coöperate more closely in certain directions, and I have in mind at the present time the revision of our patent laws, which medicine feels,

though pharmacy feels it still more. I think the present scarcity of drugs is bringing home to the people of the United States the need of a revision of our patent and trademark laws, and I hope that this Association will take some step toward securing a reform in these matters. I am sure that if you will take the first step, and the medical profession feels that you are better fitted to take up this work than they are,—if you will take the first step, I am sure you will receive the heartiest support from the medical profession of the country. I thank you.” (Applause.)

The Chair then called for delegates from the National Wholesale Druggists’ Association. Dr. William J. Schieffelin responded as follows:

“Mr. Chairman, Ladies and Gentlemen:—I am very proud to be here to-day as a delegate of the National Wholesale Druggists’ Association, and to convey their greetings and best wishes for the success of this Convention. We have long realized the importance of the work of this Association; we have long revered the leaders of this Association as the men who have not only set a standard in pharmaceutical science, but who have made it a business to be proud of, rather than to be ashamed of; a business of dealing in drugs and chemicals. When we remember Maisch, Prescott and Squibb, and when we see that work that has been done constantly for over sixty years by this Association, an association that was founded in order to combat the adulteration of drugs and to defend the health of the people of the country, we simply must say ‘God speed’ to this great organization, and we say that we are glad that the organization exists, and we are glad that it is developing along such progressive and such sane lines as have been outlined to-day in the able address of the President. It seems to me, if I may speak personally, that I have seldom, if ever, heard a more comprehensive, and a more intelligent address given by any presiding officer, even if it did take a long time; it was worth staying to hear it. (Great applause.)

It is too bad that the greetings given by the other delegates were not subject to,—I won’t say question, and I won’t even say debate, but to discussion. It would have interested me very much to have had a discussion on the remarks made by the first representative from the Bureau of Chemistry of the Department of Agriculture, and also to have had Doctor Puckner tell us in regard to the direction in which he wanted us to step relative to the patent laws. We would be glad to do it if we only knew, but the time is getting late and it is not exactly proper now to raise this question. In conclusion, I want to say that I am glad to be here and express the lively interest and sympathy which the wholesalers have for your great Association.” (Applause.)

The Chair then asked if there were any delegates present from the National Association of Pharmaceutical Manufacturers. Mr. C. M. Woodruff responded and said:

“Mr. Chairman, Ladies and Gentlemen:—Mr. Lovis of New York, President of the National Association of Pharmaceutical Products, has appointed Doctor A. R. L. Dohme of the well-known firm of Sharp & Dohme, Mr. Merck, of Merck & Company, and myself, as delegates to the House of Delegates, to represent our Association. I am disappointed to receive a communication from Dr. Dohme this morning advising me of his inability to be present, for I had expected he would extend the best wishes of our Association on this occasion.

Mr. President, we congratulate you upon your meeting, and upon the magnificent and thorough address you have delivered to your Association to-day. It is all that Doctor Schieffelin said of it and a little more. There are many questions that you alluded to that are close to the hearts of the manufacturers, but time will not permit me to speak of them now.

The question of the reform in patent legislation is very vital at the present moment, and if we only had the law that Canada has, and that most of the European countries have, we would not only have a revenue to save us the necessity of perhaps a stamp tax, but we would also be able either to make the synthetics in this country for which we have to depend upon Germany now, or they would have to make them here themselves. Under the patent laws in Canada we have reason to know, if you import into Canada a patented article after a certain period, you lose your rights under the patent. That is wisely devised to insure the manufacturer in Canada of the article for which you impose a tax, and within a certain time you must manufacture in Canada or lose your patent. And that is true with respect to the patent laws in some of the European countries, notably France. If we had such a law here it would not be long before we would be making these synthetic products with respect to which there is going to be a famine pretty soon.

But, sir, I will not prolong my remarks. We are going to be with you in the House of Delegates to do what service we can to promote the interests of this Association. Mr. Main claimed very rightfully at one of our meetings that the American Pharmaceutical Association was really the parent of the National Association of Medicinal Products and we want to do honor to our parent." (Applause.)

The Chair then called for the representative of the National Association of Retail Druggists. Mr. Mann addressed the Convention as follows:

"Mr. Chairman and members of the American Pharmaceutical Association:—Unfortunately I lost my voice at the meeting of the National Association of Retail Druggists last week and I know that I cannot make myself very audible, but I am very greatly pleased indeed to be able to appear before you at this time to extend the greetings of the National Association of Retail Druggists. So many of our members are members of the American Pharmaceutical Association that it would seem almost that the two organizations ought to be one great united brotherhood. In fact, all of the problems of the National Association of Retail Druggists are problems of the American Pharmaceutical Association, and in order that the two great organizations may work out the best salvation for all concerned, there can only be one way that the two organizations should travel, and that must be in union. I think in the main we have been successful in traveling along the same lines of endeavor. While it is only natural that occasionally individuals of the two organizations may have slight differences, I think the organizations constituted as a whole, do not have any differences, and that we really are working as one great brotherhood.

The meeting of the National Association of Retail Druggists held in Philadelphia last week was a most harmonious one. I do not believe there ever was a time when the work of that body was expedited with less friction than it was at that time, and I believe that in the matter of legislation, the two bodies are really

commencing to get a little closer together, and that it will not be long before we really will have some narcotic legislation that seems to be the fitting thing for all of us.

The President then stated that there were a number of organizations that had not as yet been heard from. One was the American Association of Pharmacal Chemists, a new organization. President Beringer said that the President of the organization, Mr. George C. Hall, had appointed as a delegate Mr. E. N. Webb, of the Columbus Pharmacal Company. The Chair called for Mr. Webb, but Mr. Webb was not at that moment in the room. President Beringer also called for Mr. Ralph R. Patch of the E. L. Patch Company; Mr. Jacob Wein-kauff, of the Sutcliff & Case Co., Peoria; the delegate from the Proprietary Association of America, none of whom were at that time in the room.

The Secretary then read the following telegrams:

Baltimore, Md., Aug. 22, 1914.

Mr. Geo. M. Beringer, Hotel Pontchartrain, Detroit, Mich.

Dear Mr. President:—Unfortunately I cannot attend the meeting of our time-honored Association this month, but this will not prevent me from sending cordial fraternal greetings through you to those assembled in Detroit during the coming week. I shall be with you in spirit although absent in flesh for the first time since 1891. Kindest regards and best wishes for a pleasant and successful meeting to all the officers and members present, especially my good old friend, Prof. Diehl.

Sincerely,

CHAS. CASPARI, JR.

San Francisco, Calif., Aug. 23, 1914.

Secretary American Pharmaceutical Association, Hotel Pontchartrain, Detroit.

May the 62d convention of the American Pharmaceutical Association be dominated by the spirit of human progress toward which the science and art of pharmacy has contributed much. May it not be unduly influenced by trade interests which detract from the dignity of the organization and the status of pharmacy as a profession; may it recognize the physician and the pharmacist as co-workers, each entitled to the other's respect, both striving for the common good. I regret my inability to take part in the proceedings. We shall meet, I hope, in San Francisco in 1915.

FRED I. LACKENBACH.

The Chair then called for the report of the Committee on Drug Reform, L. E. Sayre, Chairman. Mr. Sayre stated that, as has been the custom in the past, he would suggest that this report be made at the meeting of the Section on Education and Legislation. The suggestion of the Chairman was followed.

The President called for the report of the Committee on Patents and Trade Marks. Dr. F. E. Stewart, Chairman of the Committee, stated that the custom had been simply to acknowledge the report as being ready and appoint a time when it shall be presented, either to the Association or some Section for consideration, this report being made to the Section on Education and Legislation. Dr. Stewart said that since he had been in the city he had conferred with several representatives of other associations; that there had been some suggestions made and the committee contemplated incorporating some, at least, of these suggestions in their report, and asked for a time when the matter could be discussed before the General Session.

The Chair asked for the wishes of the Convention in regard to this report.

Mr. Sayre said that he was impressed with the importance of this report and he really thought it would facilitate the business of the Association if the author of the report would consent to it first being read at the meeting of the Section on Education and Legislation and at their meeting an epitome or summary of it could be made and formulated to be presented to the General Session. Therefore, in order to save time, Mr. Sayre moved that this report be presented at the meeting of the Section on Education and Legislation. This motion was seconded by Mr. Harry B. Mason, and carried.

Mr. Mason then suggested that as it was now six o'clock, the further reading of reports be dispensed with and a recess taken in order to have the Committee on Nominations appointed in the regular way. Mr. Caswell A. Mayo moved that the by-laws be suspended and that the Association proceed with the election of the Nominating Committee, which motion was duly seconded.

President Beringer stated that he did not think it would really expedite business to do this, and he had some doubt as to the legality of the proceeding.

Upon a vote of the Association, Mr. Mayo's motion was carried.

President Beringer then announced that in accordance with the motion as adopted the Association would proceed to the selection of the Nominating Committee, and that a motion to take a recess to enable each set of delegates to select its members on the Committee would be in order.

On motion of Dr. William Mansfield of New York City, duly seconded and carried, a short recess was taken.

The President then proceeded to call the roll, and each State filed two names as a Nominating Committee.

The Chair then appointed as the five members at large on the Nominating Committee, the following:

Henry M. Whelpley, of St. Louis;
Joseph P. Remington, of Philadelphia;
Harry V. Army, of New York, N. Y.;
Charles Holzhauer, of Newark, N. J.;
Edmund N. Gathercoal, of Chicago, Ill.

Mr. Mayo then moved that the report of the Committee on Credentials be received and referred to the House of Delegates; motion duly seconded and carried.

The following telegram was read and the Secretary was directed to reply that the business of the Association precluded the acceptance of the offer it embraced:

New York, Aug. 24, 1914.

G. M. Beringer, President of American Pharmaceutical Association, Pontchartrain Hotel, Detroit.

If program can be arranged we offer an address by Wm. J. Burns as a follow to his Philadelphia address before convention of National Association of Retail Druggists. Address contains no solicitation of business—strictly professional matter of general interest to pharmacists. Wire our expense fourteen fifteen one Broadway.

MEDICAL LEGAL PROTECTIVE CORPN.

Thereupon a motion to adjourn was put and carried, and the Association stood adjourned to meet Tuesday morning, August 25, 1914, at 9:30 a. m.

INSTALLATION ADDRESS OF PRESIDENT C. A. MAYO.

DELIVERED AT THE LAST GENERAL SESSION.

Fellow Members of the A. Ph. A.:—

I thank you for having bestowed on me the highest honor which may come to an American pharmacist—the Presidency of the American Pharmaceutical Association.

Deeply conscious as I am of how far short I fall of the lofty standard of knowledge and ability set by my illustrious predecessors in the presidency, I can assure you that not even the greatest of them can outdo me in the sincerity of my devotion to the best interests of the Association of which all Americans, whether pharmacist, physician or layman, may justly feel proud.

It is with a profound sense of the gravity of my task that I assume the direction of the affairs of this continent-wide organization. No, not the direction of its affairs, but rather a part in its affairs. For my dear friends—and I honestly feel that I may so regard every person in the sound of my voice—this is no autocracy that I am called upon to rule. This is the purest form of democracy and as the president I realize that I am but one of scores of eager, willing, able and thoughtful workers toiling for the good of the American Pharmaceutical Association, which means for the good of every phase of pharmacy.

I fully realize and shall during my brief term of office endeavor to accentuate the fact that this association is all-embracing, all-including. From the humblest village drug-store to the most palatial emporium on Broadway, from the struggling beginner striving to wrest a meager livelihood from an unwilling public, to the vast hives of industry whose thousands of skilled workmen have made American pharmaceuticals known in the remotest markets of the world, all who have to do with honest pharmacy, are under the ægis of the American Pharmaceutical Association.

I deem it a most happy omen that it was in this city, just twenty-six years ago, that I first attended a meeting of the American Pharmaceutical Association. Unknown and abashed I came and listened to the words of wisdom which fell from the lips of Lloyd, of Bedford, of Maisch, of Shepard, and of all that brilliant galaxy of men who then guided the fortunes of this organization. I was profoundly impressed with the knowledge, the fervor, the devotion of these leaders to the highest ideals for pharmacy. Let us hope that the young men now in the sound of my voice who have come for the first time to the meeting of the American Pharmaceutical Association may be impressed now as I was then, by the sincerity of our devotion to the cause of pharmacy and may we be able to light in their hearts, as these leaders of 1888 lit in mine, a fire of enthusiasm for this Association which may burn unceasingly to the end of life.

I am conscious that I take up the obligations of this high office at a serious juncture. We find ourselves suddenly cut off from sources of supply upon

which we have long depended for many important drugs. It is incumbent on the American Pharmaceutical Association to assume leadership in the effort to supply these deficiencies so that the sick and the suffering may not be deprived of those drugs which will cure their illness and alleviate their pain. We have already initiated this movement and shall press it unceasingly to a successful issue.

The commerce of the world has been paralyzed by the stroke of the mailed fist of war. But that paralysis is only temporary. The millions of men engaged in mutual slaughter are the men who have furnished the greater part of the manufactured products of the world. Now their looms are idle, their anvils silent, their factories closed, but

There is some soul of goodness in things evil
Would men observingly distil it out.

And we in America, happily far from war's alarms, must earnestly endeavor to distil out the "soul of goodness" from this evil thing of war. We must carry on the commerce of the world. We must provide the products for the world's consumption which have come from European factories and laboratories. American pharmacy and chemistry must do their share of supplying the medicines of the world. We have in this crisis a wonderful field of work for all our educated and skilled pharmacists and chemists. And if our manufacturers fully utilize this opportunity we shall have such a commercial and industrial awakening as will make American pharmacists the most prosperous in the world and place this Association in such a condition of prosperity as will insure its future for all time.

Our field is the world. Our schools will be filled with foreign students, our laboratories busy with foreign orders and both our intellectual and our commercial life given an impetus which will make the United States the leader among the nations and the American Pharmaceutical Association the most powerful agent for good in pharmacy throughout the world.

REPORTS FROM THE SECOND SESSION.

REPORT OF THE RETIRING GENERAL SECRETARY AND EDITOR OF THE JOURNAL.

J. H. BEAL.

By consent of the Council and of the Committee on Publication, the active conduct of the Journal was turned over to Mr. Ernest C. Marshall, June 1, 1914, since which date Mr. Marshall has attended to the editing and publication of the papers therein contained and has written all of the editorials. The excellent manner in which this work has been accomplished speaks for itself.

On June 1st the transfer of the duties which relate particularly to the office of General Secretary was also begun, and was carried out as rapidly as circumstances permitted. Much correspondence has continued to come to my office, which has been disposed of either directly or by reference to the Acting General Secretary, Mr. Marshall.

As a matter of course, the salary of the General Secretary terminated at the time of the transfer of the active duties of that office to Mr. Marshall, since which time bills have been rendered only for postage and such other incidental expenses as were necessary to the transfer of materials from Scio to Columbus.

Report of Financial Transactions Through the General Secretary's Office:— Shortly after June 1st the retiring General Secretary placed in the hands of the Auditing Committee an itemized account of the financial transactions of his office for the fiscal year 1913, and for the first five months of the fiscal year 1914, accompanied by the corresponding books of record and vouchers. These accounts have been passed upon by the Auditing Committee and the report of such committee, together with the original itemized account of the General Secretary, are in the hands of the Acting Editor and General Secretary for report and publication.

*Storage of Proceedings and Historical Material:—*The accumulated volumes of Association Proceedings formerly in care of the Wickersham Printing Company, of Lancaster, Pa., and those formerly kept in a storage warehouse at the city of Baltimore, together with certain boxes containing documents of historical interest have, for nearly three years past, been stored in the building formerly occupied by the Scio College of Pharmacy, at Scio, Ohio, in which building the General Secretary's office has also been located. This building is the property of the Pittsburg College of Pharmacy and has been occupied by the Association free of rent.

As the building had been vacant for some years prior to our use of it, some minor repairs upon the roof and spouting were necessary, as was also the purchase of coal for the purpose of drying out the building after prolonged

spells of wet weather. In view of the generous action of the Pittsburgh College of Pharmacy in granting us the free use of the building, I feel that the expenses incurred in these incidental repairs and for fuel should be met by the Association.

When the building is once more closed (as it will be when the retiring Secretary ceases to occupy an office therein, it is probable that the rooms will again become damp, through lack of ventilation, and the volumes of proceedings and other materials there stored will be liable to mould and mildew. The necessity of arranging for the proper care of this material has been placed before the Publication Committee and will no doubt be given proper attention.

Suggestions Concerning the Journal:—Article 2 of Chapter X of the By-Laws provides that papers presented to the Association and its branches are reserved for first publication in the Journal, except by consent of the Publication Committee. This rule has been liberally interpreted, and the privilege of advance publication by other journals has been granted whenever asked for. Since it has been proposed that the rule requiring the consent of the Publication Committee be abolished, and since such action might materially interfere with the future prosperity of the Journal, it is desirable that the matter be seriously considered before any such action be taken.

The papers and communications presented at the annual meeting and before the local branches may be roughly divided into those which are of a general or popular nature, and consequently interesting to the casual reader, and those of a strictly scientific character which, notwithstanding their great usefulness to the progress of pharmacy, appeal only to a limited class of technical workers. If the rule requiring the consent of the Publication Committee be abolished, the probable result would be that the papers of a popular character would receive early publication in other journals and, consequently, would be considered stale when printed in the official Journal; while to the latter would fall the exclusive publication only of such papers as were of a technical and scientific nature.

The rule reserving the exclusive right to first publication in the official organ is a common one among scientific and professional organizations and, as far as my observation extends, has never been seriously objected to except in the case of the American Pharmaceutical Association.

Unless very good reasons can be cited to the contrary, it would seem better that the present rule be continued, with the understanding that the Editor shall have liberal discretionary power to give consent to prior publication in other journals of papers presented at the annual meetings and before the local branches.

It should be remembered in this connection, that the Journal is in no sense a competitor of other drug publications. The necessity for requesting permission to print a paper before its appearance in the Journal certainly does not impose any serious hardship, and since the Journal is an exclusive Association organ, and does not infringe upon the general field of drug journalism, there should be no more objection to quoting from its pages than to quoting from a government publication.

The Program for the Annual Meetings:—From his intimate relation to the internal affairs of the Association, the General Secretary is in a position to realize acutely the necessity for a rearrangement of the annual program so as to better conserve the time available for the presentation of papers and discussions, and for the conduct of the routine activities of the Association at the annual convention.

Very wisely, it was early decided to place the business and financial affairs of the Association, and the direction of routine matters generally, in the hands of the Council, which body has generally been made up of members well experienced in the affairs of the Association by service in various official capacities. It was also wisely provided that the acts of the Council should always be subject to revision by the Association. Though not expressly so provided in the by-laws, it has been the custom to read the Council proceedings in full at the general sessions. This may have been satisfactory at a time when the activities of the Association were few in number, but at the present time the matters brought up for Council consideration are so multifarious, and frequently so lengthy, that the reading of these minutes has come to consume a large and undue proportion of the time allotted to the General Sessions.

In order to secure the undoubted advantages of the general direction of the affairs of the Association by a select body of experienced members, and at the same time retain a full measure of control in the hands of the general membership, while relieving the General Sessions from the burden of listening to the recital of Council minutes, I make the following suggestions:—

(1) That the portion of Article 1, Chapter VII of the By-Laws, which provides that any member of the Association may attend the meetings of the Council, be elevated to the dignity of a separate article, so as to emphasize the fact that Council meetings are open to attendance by all members of the Association; and also that the requirement of a vote of the Council in order to permit non-members of the Council to speak, be changed so as to require only the consent of the presiding officer.

(2) That Section 3, Article 8, of Chapter VII be changed by striking out the requirement that the names of candidates for membership be read at the general sessions. Under our present practice there exists the anomaly that between annual meetings members are elected exclusively by vote of the Council, while if elected during the annual meeting, they must also be voted upon by the Association.

(3) That the practice of reading the minutes of the Council at the general sessions, which seems to be a matter of custom only and is not an express requirement of the by-laws, be done away with, and the Council left free to present to the general sessions only such matters as it deems of sufficient importance to require such reference.

The same suggestion has been offered by Mr. Harry B. Mason, and has my hearty approval.

(4) Add a new by-law to Chapter VII, giving to any member of the As-

sociation, during any general session, the right to call for a report from the Council upon any matter which has received its consideration.

Such a rule, coupled with the provision permitting all members to attend the Council sessions, and the reserved right of the Association to reject or modify Council action would provide ample means for full control of the Council by the Association and, at the same time, eliminate from the general sessions the tedious reports of the trifling, though necessary, details of general business affairs.

The House of Delegates:—The suggestion that the House of Delegates be abolished, prompts the retiring Secretary to recount some of the reasons which induced the Council to provide for its establishment at the Denver Convention.

(1) The by-laws for a long period of time have provided for the reception of delegates from various pharmaceutical institutions and associations, and for the examination and acceptance of the credentials of such delegates, but have failed to express the status of such delegates at the convention or to provide for them any proper function. Each year numerous delegates have appeared at the annual meeting and presented their credentials, and when they inquired as to their status in the convention, were advised that they were simply delegates and nothing more. Naturally, many of those who had been appointed by their local associations, and had received instructions as to the lines of policy which they should advocate, felt that the situation was more or less farcical, and some of them have been offended by the apparent lack of consideration which they received. By the creation of a House of Delegates these appointees were provided with certain definite functions and were made to realize that a delegate was something more than an empty name.

(2) Those who have closely observed the workings of the Association have realized that there should be some more decided and effectual method of acquainting the association in annual convention assembled of the requirements of pharmacy in the different sections of the United States. The creation of the House of Delegates provided a natural and easy means whereby the different sections of the country and the various divisions of pharmaceutical activity may present in a formal and effectual manner their recommendations for the formulation of the general policy of the Association.

(3) Associations such as ours have usually provided for a body known as the Committee on Resolutions, the principal function of which is to formulate general declarations concerning the policy of the Association. Considering the constitution of the House of Delegates, with its representation from the various branches of pharmacy and from the various geographical divisions of the United States, it is most admirably adapted to serve as such a General Committee on Resolutions and to prepare for final consideration and adoption the formulated expressions of the Association upon matters of general pharmaceutical and public interest.

(4) It was believed that the House of Delegates was the natural and logical place for receiving the credentials and recommendations of the representa-

tives of sister pharmaceutical organizations. The Association cannot, without a near approach to rudeness, recognize the credentials of delegates from institutions and organizations and then deny them a place on the program. If it receives the greetings and reports from some of these delegations, it should receive them from all; while if it receives reports from all of the delegations in the General Sessions, the time devoted to the latter will be unduly prolonged. Thus a House of Delegates is not only the logical place for the reception of these delegations, but affords the Association the opportunity of learning the sentiments of the various organized branches of pharmacy and of the trade in general in various parts of the country.

The Various Sections.—While it is true that sections should not be needlessly multiplied, we should not lose sight of the fact that it is quite impossible for all of our members to be equally interested in the same topics, and that those who are deeply interested in closely related lines of work will prefer to come together in a section especially devoted to such related subjects.

The real test as to the necessity of a section seems to me to be the degree of interest manifested by the members who take part in the work of that section. If these are sufficient in number to insure the preparation of interesting programs and well attended sessions, the necessity for the existence of such a section would seem to be well established.

Regarding the Section on Pharmacopœias and Formularies, to the continuance of which some objection has been made, I take the liberty of calling attention to the fact that the establishment of such a section was for a long time one of the favorite ambitions of one of our most distinguished and useful members, the late Oscar Oldberg; that its establishment was the subject of his last communication to the Association, and that this Section is practically a memorial to Professor Oldberg's faithful services to the Association and to the cause of professional pharmacy in general.

The creation of this Section has enabled us to appeal to the interests of food and drug chemists and officials charged with the administration of food and drug laws in a more effective manner than ever before, and has brought home to such persons in a most emphatic way a knowledge of the fact that the American Pharmaceutical Association is an important factor in the development and establishment of practical and rational standards for drugs and chemicals.

In my opinion, if any change is made in this Section, it should be to broaden its title to the "Section on Pharmacopœias, Formularies and Drug Standards," all of which are closely related topics and can better find representation in a section devoted to their especial consideration than in any other section of the Association.

In conclusion, it is a matter of deep regret to me that I am unable to be present with you in person, this making the first annual meeting which I have been unable to attend since the meeting held in Chicago in 1893.

My interest in the welfare of the Association has not lessened, however, and, though circumstances will not permit my again undertaking any official duties that would impose serious and continuous responsibility, I hope to be

able to take active part in the proceedings of the Association, as a plain member in the ranks, on many future occasions.

In retiring finally from office, I wish to assure you of my profound gratitude for the official honors received at your hands in the past, which I cannot help but realize have been much in excess of my deserving, and to express my appreciation for the helpful and sympathetic consideration received from the members and officers during the period of my service as your General Secretary and Editor of the Journal.

Respectfully submitted,

J. H. Beal.

REPORT OF FUNDS RECEIVED BY THE GENERAL SECRETARY AND REMITTED TO THE TREASURER.

From January 1, 1914 to June 30, 1914.

National Formulary.

January	15.....	\$170.46
"	23.....	14.70
"	31.....	76.17
February	26.....	312.14
March	13.....	95.63
"	31.....	124.80
April	16.....	29.15
"	22.....	198.15
"	30.....	84.71
May	15.....	134.29
"	30.....	306.56
June	30.....	195.31

\$1,742.07

Proceedings.

January	15.....	\$ 3.50
March	13.....	3.00
"	31.....	3.00
April	16.....	4.00
May	30.....	63.79

\$77.29

Journal Advertising.

January	15.....	\$120.00
"	23.....	293.47
"	31.....	199.00
February	26.....	191.63
March	13.....	8.50
"	31.....	150.00
April	16.....	123.00
"	22.....	228.00
"	30.....	237.25
May	15.....	98.13
"	30.....	32.50
June	30.....	136.25

\$1,818.01

Journal Subscription.

January	15.....	\$ 3.50
"	23.....	.50
"	31.....	.25
February	26.....	76.00
March	13.....	10.50
"	31.....	7.00
April	22.....	6.81
"	30.....	83.53
May	30.....	45.75
June	30.....	3.00

\$236.84*Annual Dues and Miscellaneous.*

January	15.....	\$ 5.00
February	26.....	.50

\$5.50

SUMMARY OF RECEIPTS.

From January 1st, 1914 to June 30, 1914.

National Formulary	\$1,742.07
Proceedings	77.29
Journal Advertising	1,818.01
Journal Subscription	236.84
Dues and Miscellaneous	5.50

Total \$3,879.71

REMITTED TO TREASURER.

From January 1 to June 30, 1914.

January	15.....	\$302.46
"	23.....	308.67
"	31.....	275.42
February	26.....	580.27
March	13.....	117.63
"	31.....	284.80
April	16.....	156.15
"	22.....	433.24
"	30.....	405.49
May	15.....	232.42
"	30.....	448.60
June	30.....	334.56

\$3,879.71

REPORT OF THE TREASURER OF THE AMERICAN PHARMACEUTICAL
ASSOCIATION.

JANUARY 1, 1913, TO JANUARY 1, 1914.

Receipts.

Cash on hand January 1, 1913.....			\$7665 18
Annual dues, 1910 (July 1, 1910, to July 1, 1911).....	\$5 00		
Annual dues, 1911 (July 1, 1911, to July 1, 1912).....	20 00		
Annual dues and Journal, 1912 (July 1, 1912, to Jan. 1, 1913) ..	292 50		
Annual dues and Journal, 1912 (July 1, 1912, to July 1, 1913) ..	15 00		
Annual dues and Journal, 1913 (Jan. 1, 1913, to Jan. 1, 1914) ..	6255 00		
Annual dues and Journal, 1913 (July 1, 1913, to Jan. 1, 1914) ..	127 50		
Annual dues and Journal, 1914 (Jan. 1, 1914, to Jan. 1, 1915) ..	3195 00		
Annual dues and Journal, 1914 (Jan. 1, 1914, to July 1, 1914) ..	2 50		
Annual dues and Journal, 1915 (Jan. 1, 1915, to Jan. 1, 1916) ..	5 00		
		\$9917 50	
Dues only, of the A. Ph. A.....		59 25	
Journal only, of the A. Ph. A.....		13 00	
Sale of 4 parchment certificates @ \$5 00.....	\$20 00		
Sale of 4 paper certificates @ 3 00.....	12 00		
		32 00	
National Formulary		3192 82	
Badges and bars.....		29 00	
Proceedings		121 59	
Journal advertising.....		2956 33	
Journal subscriptions.....		445 32	
Miscellaneous		2 00	
Interest on bonds.....	\$400 00		
Interest on deposit, International Bank.....	278 52	678 52	
Bank exchange.....		2 24	
A. Ph. A. Home.....		5 00	
			17,454 57
Centennial Fund.....	30 00		
Life Membership Fund.....	480 00		
Procter Monument Fund.....	1568 19		
Ebert Legacy Fund, interest on bonds.....	\$80 00		
Ebert Legacy Fund, deposited for disbursement.....	131 82	211 82	
Ebert Prize Fund.....	25 00		
			2315 01
Total			\$27,434 76

Disbursements by Voucher Checks.

Jan.	4.	Check 2077	Buxton & Skinner, printing, postage and stationery (1912)	\$ 1 75
"	4.	" 2078	Stoneman Press Co., Journal (1912).....	440 45
Feb.	1.	" 2079	E. F. Greathead, printing, postage and stationery (1913) ..	11 90
"	1.	" 2080	Stoneman Press Co., printing, postage and stationery (1912)	5 00
"	1.	" 2081	Louis C. Hesse, printing, postage and stationery (1912) ..	1 60
"	1.	" 2082	Wickersham Printing Co., miscellaneous expenses (1912) ..	15 61
"	1.	" 2083	George M. Beringer, unofficial standards (1912).....	24 91
"	1.	" 2084	J. H. Beal, clerical.....(1912)	\$77 00
			Printing, postage and stationery.....	24 82
			Miscellaneous	24 37
			Proceedings	8 00
			Journal	20 32
"	3.	" 2085	E. F. Greathead, printing, postage, stationery..	154 51
"	3.	" 2086	Buxton & Skinner, printing, postage and stationery	6 90
"	3.	" 2087	Wickersham Printing Co., printing, postage and stationery	3 75
			National Formulary	7 50
"	3.	" 2088	Stoneman Press Co., printing, postage and stationery	10 47
"	3.	" 2089	A. H. Clark, Committee on Membership.....	5 50
"	3.	" 2090	John C. Wallace, Legislation Conference.....	10 00
"	3.	" 2091	J. H. Beal, Legislation Conference.....	45 70
				52 50
			Forward	\$798 05

			Forward		\$798 05
"	10.	"	2092 Louis C. Hesse, printing, postage and stationery		3 00
"	10.	"	2093 H. M. Whelpley, printing, postage and stationery		22 00
"	10.	"	2094 E. F. Greathead, printing, postage and stationery		3 25
"	10.	"	2095 Stoneman Press Co., printing, postage and stationery		5 00
"	20.	"	2096 A. H. Fetting, badges and bars.....		2 10
"	20.	"	2097 Louis C. Hesse, printing, postage and stationery		9 00
"	20.	"	2098 Stoneman Press Co., Journal.....	429 52	
			Printing, postage and stationery.....	8 00	437 52
"	20.	"	2099 W. A. Puckner & L. E. Warren, Ebert Prize..		25 00
"	20.	"	2100 J. H. Beal, clerical.....	87 00	
			Printing, postage and stationery.....	16 00	
			Journal	28 52	
			Miscellaneous expense.....	3 27	
			Freight, express and drayage.....	4 58	
			Pamphlet covers.....	32 30	171 67
March	10.	"	2101 Wickersham Printing Co., Proceedings.....	33 77	
			National Formulary	46 04	79 81
"	10.	"	2102 L. D. Havenhill, Pharmacopœias and Formu- laries		8 22
"	10.	"	2103 Stoneman Press Co., Women's Section.....	8 00	
			Printing, postage and stationery.....	10 50	18 50
"	18.	"	2104 Louis C. Hesse, printing, postage and stationery		22 50
"	18.	"	2105 Freck Stenographic Bureau, Membership Com- mittee		4 00
"	18.	"	2106 John Mors Co., Membership Committee.....		2 74
"	18.	"	2107 A. H. Clark, Membership Committee.....		5 00
"	18.	"	2108 Stoneman Press Co., Journal.....		535 83
April	1.	"	2109 Stoneman Press Co., Journal.....	17 75	
			Printing, postage and stationery	6 00	23 75
"	1.	"	2110 Wickersham Printing Co., National Formulary Proceedings	94 32	
			.....	60 50	154 82
"	1.	"	2111 Buxton & Skinner, printing, postage and sta- tionery		12 25
"	1.	"	2112 J. H. Beal, clerical.....	77 00	
			Journals for Report on Prog. Pharm.....	18 89	
			Journal	10 50	
			Freight, cartage and express.....	5 19	
			Printing, postage and stationery.....	32 00	
			Miscellaneous expense.....	6 33	149 91
"	1.	"	2113 Louis C. Hesse, printing, postage and stationery		4 50
"	1.	"	2114 A. H. Clark, Membership Committee.....		10 00
"	3.	"	2115 Stoneman Press Co., Journal.....		422 77
"	3.	"	2116 W. T. Robinson, Membership Committee.....		31 00
"	3.	"	2117 Treasurer Cincinnati Branch, A. Ph. A., Mem- bership Committee.....		20 00
"	18.	"	2118 Wickersham Printing Co., National Formulary.....		154 00
"	18.	"	2119 Henry L. Taylor, Syllabus Committee.....		25 00
"	18.	"	2120 John Block, engraving certificates.....		5 00
"	18.	"	2121 J. H. Beal, clerical.....	77 00	
			Journal	17 57	
			Printing, postage and stationery.....	20 16	
			Freight, express and cartage.....	35 52	
			Miscellaneous	1 25	151 50
"	19.	"	2122 E. F. Greathead, printing, postage and stationery		11 90
"	19.	"	2123 Stoneman Press Co., printing, postage and sta- tionery		8 00
"	19.	"	2124 Louis C. Hesse, printing, postage and stationery		7 50
"	19.	"	2125 Benson Printing Co., Membership Committee..		40 00
"	19.	"	2126 H. M. Whelpley, printing, postage and sta- tionery	64 40	
			Miscellaneous expense.....	24 20	88 60
"	24.	"	2127 National Drug Trade Conference, Detroit, ...		25 00
"	24.	"	2128 A. H. Clark, Membership Committee.....		5 00
"	24.	"	2129 Freck Stenographic Bureau, Membership Com- mittee		6 25
"	24.	"	2130 E. F. Greathead, printing, postage and stationery		4 00
			Forward		\$3513 94

				Forward		\$3513 94	
May	10.	"	2131	Louis C. Hesse, printing, postage and stationery			2 20
"	10.	"	2132	J. H. Beal, clerical.....	\$77 00		
				Printing, postage and stationery.....	16 19		
				Journal	16 42		
				Freight, express and cartage.....	6 15		
				Miscellaneous expense.....	3 65	119 41	
"	10.	"	2133	Stoneman Press Co., printing, postage and stationery	3 00		
				Miscellaneous expense.....	7 42		
				Journal	4 50		
				Printing, postage and stationery.....	2 00		
				Journal	416 73		
				Printing, postage and stationery.....	8 50	442 15	
"	15.	"	2134	J. H. Beal, salaries.....		1000 00	
June	3.	"	2135	John Mors Co., Membership Committee.....		2 90	
"	3.	"	2136	Stoneman Press Co., miscellaneous expense....	50		
				Printing, postage and stationery.....	2 25		
				Printing, postage and stationery.....	2 25		
				Women's Section.....	4 00		
				Journal	11 50	20 50	
"	3.	"	2137	Buxton & Skinner, printing, postage and stationery		3 50	
"	3.	"	2138	Louis C. Hesse, printing, postage and stationery		17 40	
"	3.	"	2139	John C. Wallace, National Drug Trade Conference		72 75	
"	3.	"	2140	J. H. Beal, National Drug Trade Conference..		50 00	
"	3.	"	2141	Wagenfuehr Bookbinding Co., miscellaneous expenses		2 55	
"	3.	"	2142	Midland Publishing Co., printing, postage and stationery	\$10 63		
				Freight, express and cartage.....	1 50	12 13	
"	3.	"	2143	E. N. Gathercoal, Membership Committee.....		20 00	
"	3.	"	2144	A. H. Clark, Membership Committee		10 00	
"	3.	"	2145	H. M. Whelpley, salaries.....		500 00	
"	3.	"	2146	C. Lewis Diehl, salaries.....		600 00	
"	3.	"	2147	J. W. England, salaries.....		150 00	
"	16.	"	2148	J. H. Beal, clerical.....	\$97 00		
				Printing, postage and stationery.....	16 50		
				Journal	16 38		
				Miscellaneous expenses	2 85		
				Freight, express and cartage	3 58		
				Journals for Reporter on Progress of Pharm...	5 15	141 46	
"	16.	"	2149	J. W. England, miscellaneous		18 32	
"	16.	"	2150	Ernest C. Marshall, Proceedings		5 24	
"	16.	"	2151	Stoneman Press Co., Women's Section	6 00		
				Journal	350 31		
				Printing, postage and stationery	10 00	366 31	
"	19.	"	2152	Stoneman Press Co., Printing, postage and stationery	11 00		
				Journal	1 25	12 25	
"	19.	"	2153	Louis C. Hesse, Printing, postage and stationery		31 00	
July	1.	"	2154	J. H. Beal, National Drug Trade Conference...		25 00	
"	1.	"	2155	John C. Wallace, National Drug Trade Conference		88 63	
"	1.	"	2156	Midland Publishing Co. Printing, postage and stationery	5 00		
				Freight, express and cartage	2 88	7 88	
"	1.	"	2157	A. H. Clark, Membership expenses		10 00	
"	7.	"	2158	Louis C. Hesse, printing, postage and stationery		12 25	
"	7.	"	2159	Wickersham Printing Co., Proceedings		3063 54	
"	7.	"	2160	Stoneman Press Co., Journal		417 41	
Aug.	1.	"	2161	Wickersham Printing Co., Proceedings.....	1 97		
				National Formulary	37 49	39 46	
"	1.	"	2162	H. V. Arny, Proceedings		5 75	
"	1.	"	2163	J. H. Beal, clerical	90 50		
				Journal	78 26		
				National Formulary	5 00		
				Printing, postage and stationery	6 45		
				Miscellaneous	4 45		
				Freight, express and cartage	12 86	197 52	
				Forward		\$10981 45	

			Forward	\$10981 45	
"	1.	"	2164 H. M. Whelpley, printing, postage and stationery	44 38	
"	1.	"	2165 Louis C. Hesse, printing, postage and stationery	25 10	
"	1.	"	2166 E. F. Greathead, printing, postage and stationery		11 90
"	7.	"	2167 Stoneman Press Co., Journal	397 10	
"	7.	"	2168 A. H. Clark, Membership committee	27 00	424 10
"	7.	"	2169 Wickersham Printing Co., National Formulary		10 00
"	7.	"	2170 J. H. Beal, National Formulary		94 32
"	7.	"	2171 Anna G. Bagley, Women's Section		157 77
"	15.	"	2172 M. I. Wilbert, National Formulary		30 43
"	15.	"	2173 Frank R. Eldred, Scientific Section		13 94
"	15.	"	2174 J. H. Beal, clerical	90 00	25 35
			Journal	19 77	
			Printing, postage and stationery	10 90	
			Freight, express	1 40	122 07
Sept.	9.	"	2175 Stoneman Press Co., Journal	299 06	
"	9.	"	2176 J. W. England, traveling expense	62 00	361 06
"	9.	"	2177 Wickersham Printing Co., National Formulary	83 25	
"	9.	"	2178 Tennessee membership committee	14 27	97 52
"	9.	"	2179 Arthur W. Linton, membership committee		132 00
"	9.	"	2180 Geo. M. Beringer, unofficial standards		58 87
"	9.	"	2181 Midland Publishing Co., printing, postage and stationery		3 15
"	9.	"	2182 Anna G. Bagley, Women's Section	5 00	18 07
"	9.	"	2183 Wilber J. Teeters, section on Education and Legislation	3 72	8 72
"	9.	"	2184 L. D. Havenhill, section on Pharmacopœias and Formularies		8 20
"	9.	"	2185 F. T. Gordon, Historical Section, (made out to wrong party, see check 2218)		9 55
"	9.	"	2186 C. Lewis Diehl, National Formulary		11 50
"	9.	"	2187 J. H. Beal, traveling expenses	14 65	
"	9.	"	2188 J. H. Beal, salaries	14 80	29 45
"	9.	"	2189 A. V. Pease, Commercial Section	92 50	
"	9.	"	2190 A. H. Fetting, badges and bars	90 00	
"	9.	"	2191 Stoneman Press Co., Proceedings	39 56	
"	9.	"	2192 Louis C. Hesse, printing, postage and stationery	30 00	
"	9.	"	2193 The Gresimer Printing Co., printing, postage and stationery	6 34	
"	9.	"	2194 Stoneman Press Co., printing, postage and stationery	10 00	
"	9.	"	2195 Louis C. Hesse, printing, postage and stationery	1 70	270 10
"	9.	"	2196 E. F. Greathead, printing, postage and stationery		1000 00
"	9.	"	2197 J. Leon Lascoff, Sec. on Practical Pharmacy and Dispensing		8 10
"	9.	"	2198 H. M. Whelpley, printing, postage and stationery		78 75
"	9.	"	2199 Nashville Branch, membership		57 20
"	9.	"	2200 E. Fullerton Cook, National Formulary, revision		9 00
"	9.	"	2201 Ben R. Vardaman, Sec. on Commercial Interests		13 50
"	9.	"	2202 Ernest C. Marshall, Journal		
"	9.	"	2203 F. T. Gordon, Historical Section		
"	18.	"	2204 Stoneman Press Co., printing, postage and stationery	8 00	
"	18.	"	2205 Wickersham Printing Co., Proceedings	4 80	12 80
"	18.	"	2206 National Formulary	1 28	
"	18.	"	2207 National Formulary	167 63	168 91
			Forward		\$15037 56

			Forward	\$15037 56	
"	16.	"	2206 Anna G. Bagley, clerical		30 00
"	16.	"	2207 J. H. Beal, clerical	60 00	
			Printing, postage and stationery	82 50	
			Freight, express and cartage	9 07	151 57
"	27.	"	2208 Buxton & Skinner, printing, postage and stationery		1 65
"	27.	"	2209 E. F. Greathead, printing, postage and stationery		13 15
"	27.	"	2210 H. M. Whelpley, miscellaneous	2 05	
			Printing, postage and stationery	85 00	87 05
Nov.	3.	"	2211 Gast Bank Note Co., certificates		37 50
"	3.	"	2212 Anna G. Bagley, clerical		30 00
"	3.	"	2213 Stoneman Press Co., Journal		429 20
"	3.	"	2214 Wickersham Printing Co., National Formulary		126 00
"	3.	"	2215 Louis C. Hesse, printing, postage and stationery		4 00
"	3.	"	2216 A. H. Fetting, badges and bars		3 75
"	3.	"	2217 Ernest C. Marshall, Journal		15 00
"	3.	"	2218 John G. Godding, Historical Section		3 95
"	12.	"	2219 Gresimer Printing Co., printing, postage and stationery		6 00
"	12.	"	2220 The Fidelity and Deposit Co., treasurer's bond, (10-27-13 to 19-27-14)		37 50
"	17.	"	2221 Midland Publishing Co., printing, postage and stationery	5 00	
			Freight, expressage and cartage	6 44	11 44
"	17.	"	2222 J. H. Beal, clerical	67 50	
			Journal	46 07	
			Printing, postage and stationery	23 57	
			Miscellaneous	75	
			Freight, expressage and cartage	5 62	143 51
"	25.	"	2223 Title Guaranty Trust Co., miscellaneous		5 00
"	25.	"	2224 Stoneman Press Co., printing, postage and stationery		3 00
Dec.	2.	"	2225 Stoneman Press Co., Journal	452 55	
			Sec. on Education and Legislation	6 50	
			Sec. on Commercial Interests	6 50	
			Sec. on Scientific Papers	6 50	
			Printing, postage and stationery	8 00	480 05
"	2.	"	2226 H. M. Whelpley, traveling expenses		73 55
"	10.	"	2227 Stoneman Press Co., printing, postage and stationery	27 00	
			Journal	25 25	52 25
"	10.	"	2228 Anna G. Bagley, clerical		30 00
"	10.	"	2229 W. B. Day, committee on Status of Pharmacists		15 00
"	10.	"	2230 W. T. Robinson, committee on Status of Pharmacists		14 00
"	10.	"	2231 J. H. Beal, clerical	60 00	
			Printing, postage and stationery	7 28	
			Freight, expressage and cartage	3 13	
			Miscellaneous	90	71 31
"	20.	"	2232 Stoneman Press Co., Journal	10 00	
			Printing, postage and stationery	5 75	15 75
"	20.	"	2233 Louis C. Hesse, printing, postage and stationery		15 00
"	29.	"	2234 J. W. England, salaries	150 00	
			Printing, postage and stationery	18 29	168 29
"	29.	"	2235 H. M. Whelpley, salaries		500 00
"	29.	"	2236 C. Lewis Diehl, salaries		600 00
"	29.	"	2237 J. H. Beal, salaries		1333 33
					\$19545 36

Cash Received and Disbursed for Ebert Legacy Fund by Check.

Feb.	4.	Check	2112 Carlton Prouty, collector taxes	\$15 60	
Sept.	5.	"	2115 Theodore Flynn, village collector, concrete side walk	61 24	
Nov.	11.	"	2116 Theodore Flynn, village collector water pipe...	54 98	\$ 131 82
Forward					\$19677 18

Forward		\$19677 18
<i>Cash Received and Disbursed Without Checks.</i>		
Centennial fund	\$ 30 00	
Life membership fund	480 00	
Ebert legacy fund	80 00	
Procter monument fund.....	1568 19	2158 19
Total amount of disbursements		<u>\$21835 37</u>

SUMMARY OF DISBURSEMENTS.

Salaries	\$5833 33	
Journal	5465 83	
Printing, postage and stationery	1157 69	
National Formulary	1095 20	
Clerical expense for secretary's office	1040 00	
Miscellaneous expenses	125 17	
Traveling expense	249 30	
Committee on membership	338 91	
Committee on unofficial standards.....	42 98	
Proceedings	3237 25	
Badges and bars	84 60	
Certificates	42 50	
Premium on treasurer's bond	37 50	
Freight, expressage, drayage	107 98	
Journal for Reporter on Progress of Pharmacy	24 04	
Section on Scientific Papers	31 85	
Section on Education and Legislation	16 05	
Section on Commercial Interests	64 60	
Section on Practical Pharmacy	24 90	
Women's Section, A. Ph. A.	56 63	
National Drug Trade Conference	261 38	
Delegate to legislation conference	98 20	
Committee on Pharmacopœias and Formularies	19 72	
Committee on National Syllabus	25 00	
Section on Historical Pharmacy	7 45	
Pamphlet cases	32 30	
Ebert Prize Fund	25 00	\$19545 36
Payment out of Ebert legacy fund, taxes		131 82
To Ebert legacy fund.....	80 00	
To Centennial fund	30 00	
To Life Membership fund.....	480 00	
To Procter Monument fund.....	1568 19	2158 19
Total amount of disbursements		<u>\$21835 37</u>
Cash on hand, January 1, 1914.....		5599 39
Total		<u>\$27434 76</u>

A. Ph. A. Appropriations and Disbursements. January 1, 1914.

	APPROPRIATIONS	EXPENDITURES
Salaries	\$ 6500 00	\$ 5833 33
Journal	5000 00	5465 83
Printing, postage and stationery	1000 00	1157 69
Clerical expense for secretary's office	1000 00	1040 00
National Formulary	1000 00	1095 20
Miscellaneous expenses	300 00	125 17
Stenographers	250 00	
Traveling expenses	200 00	249 30
Committee on membership	500 00	338 91
Committee on unofficial standards	300 00	42 98
Committee on pharmacopœias and formularies.....	25 00	19 72
Proceedings	3300 00	3237 25
Badges and bars	85 00	84 60
Certificates	50 00	42 50
Premium on treasurer's bond	37 50	37 50
Freight, expressage and drayage	150 00	107 98
Journal for reporters	35 00	24 04
Section on scientific papers	25 00	31 85
Section on education and legislation	25 00	16 05
Section on commercial interests	75 00	64 60

Section on practical pharmacy	25 00	24 90
Section on historical pharmacy	50 00	7 45
Women's Section, A. Ph. A.	50 00	56 63
National Drug Trade Conference	250 00	261 38
Delegates to National Legislation Conference	100 00	98 20
National syllabus committee	25 00	25 00
Pamphlet cases	32 30	32 30

Appropriation	\$22089 80	\$19520 36
Expenditure	19520 80	

Unexpended balance\$ 2569 44

The Permanent Funds January 1, 1914.

	1913	1914
Life membership fund	\$18969 25	\$19699 03
Endowment fund	5601 79	5828 07
Ebert legacy fund	3166 14	3144 22
Centennial fund	2639 13	2735 95
Ebert prize fund	1023 56	1039 40
	<u>\$31399 87</u>	<u>\$32446 67</u>
		31399 87

Net increase during fiscal year \$1046 80

The Association Assets, January 1, 1914.

Cash in bank	\$ 5599 39	
Bonds	10000 00	
Available assets	\$15599 39	
Permanent funds	32446 67	
Total Association assets		\$48046 06
Proctor monument fund (held in trust)	\$ 6628 46	
College prize fund (held in trust)	34 18	
Rice memorial fund (held in trust)	168 21	6830 85
		<u>6830 85</u>
Grand total		\$54876 91

DETAILED STATEMENT OF THE SEVERAL FUNDS.

Life Membership Fund. (Established in 1870.)

Balance from old account viz.:

Massachusetts State bonds.....		\$13000 00
Boston Penny Savings Bank, January 1, 1913.....	\$5969 25	
Interest on deposit in Boston Penny Savings Bank.....	\$249 78	
Interest on Massachusetts State bond.....	390 00	
Life membership fee, Wm. Gray.....	40 00	
Life membership fee, Emerson R. Miller.....	50 00	
Deposited in Boston Penny Savings Bank (January 1, 1913, to January 1, 1914).....	729 78	6699 03
		<u>6699 03</u>

Total on hand January 1, 1914.....\$19699 03

Ebert Prize Fund (Established in 1873).

Balance from old account.....		\$1023 56
Interest on deposit in Boston Penny Savings Bank.....	\$40 84	
Prize to W. A. Puckner and L. E. Warren.....	25 00	15 84
		<u>15 84</u>
Total on hand, January 1, 1914.....		\$1039 40

Centennial Fund (Established in 1877).

Balance from old account, viz.:

Massachusetts 3% registered bond.....		\$1000 00
Boston Penny Savings Bank, January 1, 1913.....	\$1639 13	
Interest on bond.....	\$30 00	
Interest on Boston Penny Savings Bank.....	66 82	
Deposited in Boston Penny Savings Bank (January 1, 1913, to January 1, 1914).....	96 82	1735 95
		<u>1735 95</u>
Total on hand, January 1, 1914.....		\$2735 95

Endowment Fund (Established in 1906).

Balance from old account, January 1, 1913.....	\$5601 79
Interest on deposit in Boston Penny Savings Bank.....	226 28
Total on hand, January 1, 1914.....	\$5828 07

Ebert Legacy Fund (Established in 1909).

St. Louis City registered gold bond.....	\$2000 00
Balance from old account.....	\$1166 14
Interest on St. Louis.....	\$80 00
Interest on deposit, International bank.....	29 90 109 90
	\$1276 04
Disbursed for taxes	\$15 60
Disbursed for sidewalk	61 24
Disbursed for water-pipe	54 98
	\$131 82
Cash on hand, January 1, 1914.....	\$1144 22
Total on hand, January 1, 1914.....	\$3144 22

Procter Monument Fund (Established in 1904).
Held in Trust.

Balance from old account, viz.:

Placed on time deposit in International Bank, January 1, 1913.....	\$4449 88
Interest on time deposit at 4%, January 1 to December 31, 1913.....	177 49
Certificate No. 61358.....	\$4627 37
Deposited in International Bank, January 1, 1913.....	\$405 60
Interest on deposit in International Bank, January 1 to December 31, 1913.....	27 30
Contributions, viz.....	1577 29
	\$2010 19
Aug. 5. Johnson & Johnson.....	\$100 00
" 5. Charles Pfizer & Co.....	100 00
" 5. H. K. Wampole & Co.....	100 00
" 5. Roessler & Hasslacher Chemical Co.....	50 00
" 6. Eli Lilly & Co.....	100 00
" 6. The Hayden Chemical Works.....	100 00
" 6. Fred. W. Connolly.....	5 00
" 6. H. S. Richardson.....	5 00
" 6. C. H. Packard.....	5 00
" 6. E. C. Marshall.....	1 00
" 6. G. H. Knowlton.....	2 00
" 6. H. W. DeCoster.....	2 00
" 6. L. C. Ellis.....	1 00
" 6. Henry W. Perry.....	2 00
" 6. F. R. Partridge.....	1 00
" 8. Powers-Weightman-Rosengarten Co.....	100 00
" 8. Parke, Davis & Co.....	100 00
" 9. Armour & Co.....	50 00
" 9. Merck & Co.....	100 00
" 9. Sharp & Dohme.....	100 00
" 11. Mallinckrodt Chemical Works.....	100 00
Sept. 9. E. L. Patch.....	20 00
" 9. Fred. W. Archer.....	5 00
" 9. H. L. Emerson.....	1 00
" 9. Lyman W. Griffin.....	2 00
" 9. James O'Hare.....	5 00
" 9. Linville H. Smith.....	5 00
" 9. George G. Williams.....	5 00
" 18. Texas Pharmaceutical Association.....	32 65
" 18. Abbott Alkaloidal Co.....	50 00
" 18. The Upjohn Co.....	100 00
" 18. E. R. Squibb & Son.....	50 00
" 18. The Norwich Pharmacal Co.....	50 00
" 18. Oregon Pharmaceutical Association.....	50 00
" 18. Maryland College of Pharmacy.....	40 14
" 18. West Virginia Pharmaceutical Association..	25 00
" 18. Mississippi State Pharmaceutical Association	2 50

Nov. 28. Charles L. Davis.....	5 00	
" 28. William H. Glover.....	5 00	
Paid out for printed matter.....		9 10

Cash on hand, in International Bank, January 1, 1914.....	\$2001 09
Total on hand, January 1, 1914.....	\$6628 46

College Prize Fund (Established in 1905).
Held in Trust.

Balance from old account, January 1, 1913.....	\$32 88
Interest on Boston Penny Savings Bank.....	1 30
Total on hand, January 1, 1914.....	\$34 18

Rice Memorial Fund (Established in 1913).
Held in Trust.

Deposited in International Bank of St. Louis.....	\$168 21
Total on hand, January 1, 1914.....	\$168 21

H. M. WHELPLEY, Treasurer.

	Aug. 15, 1913.	Jan. 1, 1914.	Aug. 15, 1914.
Life Membership Fund.....	\$19,520 58	\$19,699 02	\$20,122 51
Endowment Fund	5,713 81	5,828 07	5,944 63
Ebert Legacy Fund.....	3,193 09	3,206 46	3,235 52
Centennial Fund	2,702 81	2,735 95	2,800 65
Ebert Prize Fund.....	1,019 02	1,039 40	1,060 18
Total	\$32,149 31	\$32,508 91	\$33,163 49
Total January 1, 1914.....			32,508 91

August 15, 1914, Net Increase from January 1, 1914..... \$ 654 58

The Association Assets, August 15, 1914, may be summed up as follows:

Cash in Bank.....	\$ 5,372 95	
Bonds	10,000 00	
Available Assets	\$15,372 95	
Permanent Funds	33,163 49	
Total Association Assets.....		\$48,536 44

FUNDS HELD IN TRUST.

Procter Monument Fund.....	\$ 7,048 90	
College Prize Fund.....	34 86	
Rice Memorial Fund.....	169 91	
		7,253 67
Grand Total		\$55,790 11

HENRY M. WHELPLEY, Treasurer.

REPORT ON INVESTED FUNDS OF THE ASSOCIATION.

St. Louis, Mo., July 11, 1914.

To the Officers and Members of the American Pharmaceutical Association:

We, the undersigned, have, in accordance with Rule 8 of General Rules of Finance, examined the securities contained in the Association Box (4227) at the Title Guaranty Trust Co., St. Louis, and found the following:

Ebert Legacy A. Ph. A. Fund Bond.

St. Louis City Reg. Bond No. 766.....	\$ 2,000.00
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A. Ph. A. General Fund Bonds.

5 St. Louis City Reg. 4 percent Bonds, Nos. 705, 706, 707, 708, 709	5,000.00
1 St. Louis City Reg. 4 percent Bond, No. 717.....	5,000.00
Total	\$10,000.00

A. Ph. A. Centennial Fund Bond.

1 Mass. State Reg. 3 per cent Bond, No. 1705.....	\$ 1,000.00
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A. Ph. A. Life Membership Fund Bonds.

1 Mass. State Reg. 3 percent Bond, No. 1701.....	10,000.00
3 Mass. State Reg. 3 percent Bonds, Nos. 1702, 1703, 1704.....	3,000.00
Total	\$13,000.00

A. Ph. A. Procter Monument Fund.

Certificate of Deposit, No. 61358, dated January 27, 1914, International Bank of St. Louis (Principal).....	4,627.37
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H. M. WHELPLEY, Treasurer.

FRED W. SULTAN, Member, Auditing Committee.

Subscribed and sworn to before me this eleventh day of July, 1914.

(Seal)

STANLEY B. SIMPSON,
Notary Public, City of St. Louis, Mo.

My term expires June 11, 1917.

REPORT OF THE COMMITTEE ON THE WILLIAM PROCTER, JR.
MONUMENT FUND.

The Committee on the William Procter, Jr. Monument Fund is pleased to report that sufficient money has now been subscribed for the erection of the proposed monument, and the amount that has been collected will be reported by the Treasurer of the American Pharmaceutical Association at the proper time.

The membership of the Association can well appreciate the pleasure and the relief to your committee in having attained this condition after ten years of patient



THE PROCTER MEMORIAL.
(MODEL BY EDWARD BERGE.)

and persistent effort. At first we felt disappointed in this project because of a certain lack of interest. A small subscription from each pharmacist would have secured the required sum in the first year of our work, but on reflection we realized that this lack of interest was due to the fact that the character and the history of William Procter, Jr., and the services that he rendered to Pharmacy were naturally not a matter of common knowledge to the pharmacist of this day and generation. He was so conspicuously the early leader of that important period in the development of Pharmacy in this country. Our appeals have been in keeping with his character and the proposition to venerate the memory of the Father of American Pharmacy has been without intention of annoying or embarrassing anyone, and no scheme or other device has been adopted by your committee which was undignified or unprofessional.

Mr. Edward Berge has been selected by your committee as the sculptor for the work, and during the past year we have devoted much time to the details of the monument and can now report a model that is surprisingly exact. On May 3rd a meeting was held at the Philadelphia College of Pharmacy and particular pains were taken to have in attendance those friends and former students of Prof. Procter, who had known him in life. The object of this meeting was to give those intimates of William Procter, Jr. an opportunity to inspect and criticize the model which Mr. Berge had developed from photographs of him and the expressions of approval were very gratifying.

The following resolution was unanimously adopted by that meeting:

Resolved, That the work of Mr. John F. Hancock in connection with the Procter Memorial be approved, and that the model and design of Mr. Edward Berge, of Baltimore, for the statue be accepted.

Personal contact with Mr. Berge has been of material advantage in the evolution of this monument and it is the opinion of all who have seen the model that the likeness to Prof. Procter is more than is usual for work of this kind.

We have every assurance that we can obtain a selected site in the Smithsonian Grounds for this statue, but the time of Congress has been so taken up by special legislation, this year, that it was thought advisable by your committee to postpone our efforts in that body until the next session.

With these details attended to, the American Pharmaceutical Association can make its preparation for the unveiling of this monument in Washington in 1917—the Centennial of the birth of William Procter, Jr.

In furtherance of which is appended the following:

Resolved, That the Committee on the William Procter, Jr. Monument Fund be authorized and empowered to contract for the monument in all of its details of completion, dedication and transference to the National Government with the power to draw on the Treasurer of the American Pharmaceutical Association from the moneys belonging to the William Procter, Jr. Monument Fund to pay for all resulting expenses.

J. F. HANCOCK, Chairman,
CHAS. CASPARI, JR.,
ALFRED R. L. DOHME,
PARKER COOK,
THOS. F. MAIN,

LEWIS C. HOPP,
E. G. EBERLE,
CASWELL A. MAYO,
FRANK G. RYAN,
JOSEPH P. REMINGTON.

REPORT OF THE COMMITTEE ON STATUS OF PHARMACISTS IN
THE GOVERNMENT SERVICE.

The efforts of our committee during the past year were chiefly devoted to an attempt to secure more equitable treatment for the men responsible for the pharmaceutical service in the army.

Our members are already acquainted with the provisions of the Hughes-Bacon bill which was drafted in accord with the recommendations of the Surgeon-General, to the Chief of Staff (August 3, 1911) and introduced into the 62nd Congress by Representative Hughes and Senator Bacon. This bill is intended to promote the efficiency of the pharmaceutical division of the army known as the Hospital Corps. It provides for the creation of a higher class of non-commissioned officers to be known as sergeants-major, thereby affording opportunity for promotion such as already exists in other staff corps of the army. The bill also provides slight increases in pay for the lower grades of non-commissioned officers of this corps, so as to remove the discrimination against the Hospital Corps which has existed since the enactment of the Army Pay Bill of 1908.

Resolutions urging support of our bill were passed by this association also by the N. A. R. D. and by many state associations. The bill was favorably commented on by the Journal of the American Medical Association. (See Journal A. Ph. A., Vol. 1, pages 95, 98, 427 and 1183.)

Notwithstanding the efforts of our committee assisted by our members no action was taken by the 62nd Congress. With the co-operation of Dr. Payne, the bill was re-introduced in a slightly modified form at the 63rd Congress by Representative Hughes and Senator Bacon, being the first bill in the calendar in the House. Meanwhile, the Surgeon-General of the army again called attention to the need for this legislation in his annual report to the Chief of Staff for 1912. (See Journal of the A. Ph. A., Vol. 3, page 13.)

The bill was referred to the sub-committee on Military Affairs of the House, a hearing was granted; a brief and argument were filed. Dr. Payne, Mr. Hilton and Mr. Richardson appeared before the sub-committee. Colonel Gandy, the acting Surgeon-General, was called before the committee and the outlook seemed bright. At this time, we wrote to many members of the Association urging them to address communications to their senators and representatives asking support for this bill. Our members responded in a most satisfactory manner and in many cases enclosed favorable replies which they had received from their senators and congressmen. Then, when all seemed favorable, we found that our efforts were blocked. The sub-committee delayed its report and after some investigation we found that the opposition came from the Secretary of War whose powerful influence has been sufficient to nullify our efforts up to this time.

Apparently there is now no prospect of favorable action on our bill. Evidently, we must draw up a new bill, one that will meet the approval of the Secretary of War before we can hope for success.

Our committee is in favor of asking *commissions* for pharmacists in the Hospital Corps. We believe that the military committees of Congress would consider such a proposal with favor. The advantage would be two-fold: it would provide a class of commissioned officers for the Army Hospital Corps—the only corps in the army which lacks such officers—and it would be a recognition of the professional status of pharmacists. We urge that the active efforts of our association be devoted to this cause.

While in Washington, Dr. Payne appeared before the comptroller of the treasury in behalf of the pharmacists of the United States Public Health Service and urged an increase in their commutation of \$25 per month which has been granted within the past few weeks.

W. B. DAY, Chairman.

REPORT OF COMMITTEE ON WEIGHTS AND MEASURES, AMERICAN PHARMACEUTICAL ASSOCIATION.

To the American Pharmaceutical Association:

Your Committee on Weights and Measures begs leave to submit the following report of its activities during the year.

Appreciating that the primal purpose of this committee when created by the Association over twenty years ago, was the furtherance of activities designed to promote legislation in favor of the metric system in this country, your chairman felt the best work that could be done this year was the re-opening of the question of a campaign of publicity on behalf of the metric system.

Accordingly, as soon as the president of the American Association for the Advancement of Science, and the president of the American Chemical Society were elected for the current year, the following letter was sent to each of these gentlemen.

Dear Sir: As chairman of the Committee on Weights and Measures of The American Pharmaceutical Association, I take the liberty of writing you to ask whether the time is not ripe for those national associations interested in the metric system to start a systematic and persistent campaign toward the ultimate adoption of the metric system as the official standard of weights and measures in this country.

I am not unmindful of former legislative action in this direction culminating in the Stone Bill of 1896. Having assisted in a modest way in the work on the part of the pharmacists to secure such legislation, I fully realize the difficulty in approaching the problem of legislation on the subject unless backed by intelligent public opinion and my thoughts just now turn to a campaign of education as a prelude to a campaign of legislation.

Some six years since, when a metric bill was before Congress, I wrote, as secretary of a pharmaceutical association to Congressman (now Senator) Burton of Ohio, and received from him a very courteous reply expressing interest in, if not approval of the adoption of metric units by our country but also stating that he had received many more protests against the bill than requests for its passage.

And, in closing, he put his finger right on the weak spot of such legislation by saying the opposition came chiefly from manufacturers of machinery whose thread-cutting devices were on the inch basis instead of gauged to millimeters. He further intimated that the education of manufacturers was pre-requisite to the passage of metric legislation.

What I have in mind is something like this.

We pharmacists have, during the last twenty years, been educated to the metric system by the adoption of metric units in the Pharmacopœia of 1890 and their retention in the edition of 1900 and in the one of 1910, which we are now preparing. While there was much opposition at first, (even to the extent of the dispensaries providing alternate recipes with quantities in the old systems.) I have reason to believe that 90% of the druggists are now preparing their pharmaceuticals by metric recipes. Of course, all chemists and physicists use the metric system, so, in the organization of which you are president, in the American Chemical Society and in the American Pharmaceutical Association we have three organizations that believe firmly in the metric system and whose members practice what

they preach by daily use of metric units. And, likely, you can suggest other national bodies who, like us, favor the metric system.

If Senator Burton's view is a correct one, we must secure the co-operation of the national engineering societies and in order to win and to do this, these national bodies favoring the metric system should through a joint committee first attempt the winning of the engineering societies to our side and then, the combined forces should start a campaign of education through the manufacturers' associations, through chambers of commerce and through the press. The three associations—A. C. S., the A. A. S., and the American Pharmaceutical Association—could conduct such a campaign with great efficiency through local committees, since, in practically every important city, such organizations have local branches or sections to which members of the A. A. S. belong. We might also secure the coöperation of the American Medical Association with its powerful network of local sections. Certainly, we can get the help of those A. M. A. members who belong to the A. A. S.

The appeal to commercial organizations should be made on a dollars-and-cents basis. The great South American continent has been barely scratched by the American business man who has permitted the Germans to largely monopolize the trade. And that, if reports are to be credited, largely because the South American merchant, familiar with the metric system, prefers to get his goods marked in that system rather than in our cumbersome system of units.

Winning the coöperation of the commercial bodies, the passage of a metric bill by Congress will be practically assured.

Very sincerely yours,

A similar letter was sent to the President of the American Chemical Society on Jan. 8th, and the replies to the two communications are given below:

Dear Sir: I have your letter of Dec. 29th relating to the question of the metric system. The matter is certainly a very important one and I should think that it might very well be taken up by the American Association for the Advancement of Science. I will place your letter on file and bring the matter up before the Council of the Association when the opportunity offers. It is probably impracticable to take any further action at present but the Council meets in April, when perhaps something can be done.

Very truly yours,

(Signed) EDMUND B. WILSON.

Dear Sir: Your letter interests me, and I shall be glad to bring the matter before the Council of the Society in September. There is not much opportunity for doing anything in the summer when everybody is away, in the country or in Europe. The points which you make are good.

Although of course on the whole I favor the metric system, especially for scientific work, I can't help feeling that the nomenclature is very cumbrous. The names of common measures ought to be monosyllabic or at least not more than disyllabic, whereas "cubic centimeter" has six syllables. I think that this difficulty has militated seriously against the use of the system. For many purposes also the metric system is inconvenient because of the complication in computing quarters, thirds, sixths, and eighths.

Very sincerely yours,

(Signed) T. W. RICHARDS,
(President American Chemical Society.)

An interesting report of Chairman F. R. Drake, of the Committee on the Metric System of the National Wholesale Grocers' Association led not only to correspondence with this gentleman, but also to a personal interview with him and his colleagues, Mr. A. W. Beckmann, secretary of the Association, and Mr. Dana T. Ackerly, the Association's counsel. These three gentlemen were found to be very enthusiastic over the metric system and pointed out that the National Wholesale Grocers' Association passed, two years since, a resolution directing that the proper committee take up work for the metric system along educational lines with the eventual purpose of the compulsory adoption of the metric system in the United States; that this action was approved at the meetings of wholesale grocers of Pennsylvania, New Jersey, Delaware, West Virginia, Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, Nebraska and Wisconsin, and that the National Retail Grocers' Association went on record this year favoring the metric system.

Correspondence with Dr. S. W. Stratton, Director of the Bureau of Standards has not yet brought a response.

The present revival of interest in the metric system in this country, as shown above, is encouraging and it is hoped that the campaign that is now beginning will be along sane lines of education for some years to come, rather than an attempt to rush legislation before the public opinion has been shaped to accept metric units.

The American Association for the Advancement of Science and the American Chemical Society can likely be counted on for support in a campaign of education; our association has worked for the system for almost a score of years; the grocers, both wholesale and retail, at their national conventions have gone on record in favor of the system and it should not be difficult to enlist the aid of the National Wholesale Druggists' Association. These bodies acting together should wield considerable influence among the chambers of commerce and similar business bodies throughout the country and if the coöperation could be secured—which is by no means impossible—a long step will be made toward putting this country among the metric nations of the world.

As some of the members of the committee think we should submit a summary of legislative activities during the past year that affected weights and measures, information concerning the Federal Net Weight Law and the new Massachusetts law is appended.

THE FEDERAL WEIGHT LAW passed last year is the topic discussed in Food Inspection Decision No. 154, in which are published regulations for the carrying out of the law.

These regulations apply to foods shipped in interstate commerce or sold in the District of Columbia or the territories, and become effective at once, although the law, passed March 3d, 1913, as an amendment to the food and drugs act, defers the exacting of penalties for violations until September 3d, 1914.

The regulations in general require that the manufacturer of foods shall plainly mark all packages, bottles or other containers holding more than 2 ounces avoirdupois, or more than 1 fluid ounce, to show the net weight or volume of the contents. The measure must be stated in avoirdupois pounds and ounces, U. S. gallons, quarts, pints, or fluid ounces, U. S. standard bushels, half bushels, pecks, quarts, pints, or half pints. The contents by a like method may be expressed in terms of metric weight or measure. The volume of liquids must be computed at 68° F.

The quantity stated on the container must represent the actual quantity of food exclusive of wrappings and container.

In general solids must be stated in terms of weight and liquids in terms of volume, except that where there is a definite trade custom otherwise any marking of the package in terms that are generally understood to express definite quan-

tities will be permitted. The quantity of viscous or semi-solid food or of mixtures of solids and liquids may be stated either by weight or measure, but the statement must clearly indicate whether the quantity is expressed in terms of weight or measure.

In the case of certain articles the contents may be stated by numerical count, provided such numerical count gives accurate information as to the quantity of food in the package. Under this requirement it would not be enough to state that a package of candy contained 24 cream peppermints, as candies vary in size, and this would not be a statement of the actual quantity of candy in the package.

The regulations also permit the statement of minimum volume or weight as "Minimum weight, 12 ounces," "Minimum volume, 1 gallon;" "Not less than 4 ounces." In such cases the amount stated must approximate the actual quantity. No variations below the stated minimum quantity will be permitted.

The statement of weight or measure must be marked in terms of the largest unit contained in the package; for example, if the package contains a pound and a fraction, the contents must be expressed in terms of pounds and fractions thereof, or pounds and ounces, and not merely in ounces.

As to tolerances and variations from quantity of contents marked on the package, the following are allowed: Unintentional errors in packing; discrepancies in capacity of bottles, when it can be shown that as many bottles are over size as under size; discrepancies in weight due to effervescence.

Packages containing 2 avoirdupois ounces or less, 1 fluid ounce or less or six units or less are exempt from the labeling of the law.

MASSACHUSETTS' WEIGHT LAW.

As a result of the sensational statements made by the Sealer of Weights and Measures of Massachusetts relative to the large number of inaccurate weights and measures found by him and his deputies, the legislature of that state recently passed a law providing for the testing of weights and measures used by apothecaries. So far reaching is the scope of the bill that it applies to the graduates and weights and measures of any and all kinds used by hospitals, private sanatoriums and other retreats, physicians and district nurses.

The act takes effect immediately. This is the salient section: "Apothecaries and all other persons dealing in or dispensing drugs or medicines or merchandise sold or given away, by apothecaries' weights and measures so used to be tested and sealed by the sealers of weights and measures in the respective cities and towns in which they carry on business; provided, however, that if a graduated glass measure has once been sealed by a sealer of weights and measures, it shall not in any case be necessary to have it sealed again at any time while it remains in the same conditions in which it was first sealed."

The bill provides that any person who uses apothecaries' weights and measures in any form and who does not comply with the provision of this law in having the weights tested shall be punished by a fine of not less than \$5 nor more than \$50.

Resolved, That the American Pharmaceutical Association is pleased to hear of a revival of a campaign aiming to make the metric units the official system of weights and measures in this country.

Resolved, That this Association, now, as in the past, stands ready to aid in accomplishing this purpose and hereby direct the next committee on weights and measures to coöperate with the American Association for the Advancement of Science, the American Chemical Society, the National Wholesale Grocers' Association and all other interested bodies in an educational campaign in interest of the metric system.

Resolved, That this Association take steps to enlist the support of the National Wholesale Druggists' Association in the proposed campaign on behalf of the metric system.

H. V. ARNY, Chairman.

REPORT OF DELEGATES TO THE NATIONAL DRUG TRADE
CONFERENCE.

To the Officers and Members of the American Pharmaceutical Association:

The report of the delegates to the National Drug Trade Conference submitted at the last meeting of this Association covers briefly a history of the organization and the purposes of the Conference; and was necessarily devoted largely to the work of the Conference in connection with H. R. 6282.

From this it might appear that the main purpose of the Conference was to effect appropriate anti-narcotic legislation. Nothing could be further from the truth. The Harrison Bill is merely an incident, and yet, because of the situation that has existed in Congress for more than a year, it is practically the only legislation that the Conference has had much to do with.

Since the last meeting of the Association the Conference has held one session; the full proceedings of which were published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, for February, 1914; and are therefore not repeated at length in this connection. It may be pointed out, however, that the Form of the Organization was changed so as to provide for an Executive Committee of seven instead of five, thereby insuring representation on the Executive Committee of each constituent association of the Conference.

That the Association may have a better understanding of the scope of the work of the Conference, it is remarked at this point that besides the Harrison Bill, consideration was given to legislation regarding Bichloride Tablets, a regulation for the mailing of poisons, price standardization, and some fifteen bills amending the Food and Drugs Acts of June 30, 1906. Much of this proposed legislation is regarded as inimical to the interests of the drug trade, and, as the Proceedings will show, the Executive Committee was instructed to frame and file briefs with the proper committees of Congress, which work was divided between sub-committees at a subsequent meeting of the Executive Committee of the Conference, held March 18, 1914. The necessity of immediate action was eliminated by the fact that individual members of the Conference had been assured that Congress would not consider any of the several measures during the present session. The sub-committees are preparing to be heard when an opportunity is afforded during the next session of Congress, and the interests of the drug trade are being most faithfully conserved. It is almost superfluous to inform the Association of the present status of the Harrison Bill. The Bill, as it passed the House, was amended by the Senate in several particulars, and then passed. The House refused to accept the amendments of the Senate, and conferees were duly appointed. In the Senate a record-keeping-provision was put in the Bill as a result of the action of the Executive Committee at the meeting held March 18, 1914. The record-keeping-provision as adopted by the Executive Committee was not intended to compel the physician to make a record of administrations, but did require him to make a record of narcotics dispensed, sold, distributed, or given away. Unfortunately, as your delegates think, Senator Nelson introduced an amendment requiring physicians to make a record of narcotics administered, as well as those dispensed, sold, distributed, or given away. This unreasonable amendment brought out the determined opposition of the medical profession of the country, and resulted in an amendment being introduced by Senator Pomerene exempting the physician and his nurse from the operation of the act altogether, practically nullifying the law. To save the bill, because if there were a serious contest it would go over the present term, Senator Thomas consented to the elimination of the record-keeping-provision, otherwise the Beal amendment; whereupon Senator Pomerene withdrew his amendment.

Protest has been made against the Bill as it now stands on account of the absence of this record-keeping-feature; but as it was not in the Bill as adopted by the House or Senate, the question of putting the record-keeping-provision back in the Bill cannot come up before the conferees.

To repeat what already has been stated the real difference between the Senate and House appears to be the Senate's amendment to section (a), striking out the words "personal attendance upon such patient," and substituting therefor: "having been employed to prescribe for the particular patient receiving such drug." It is possible that the House conferees may yield to the Senate; but, anticipating that both sides may desire to compromise, the Secretary of the Conference has suggested the adoption of the following in lieu of paragraph (a):

"To the dispensing or distribution of any of the aforesaid drugs by a physician, dentist or veterinarian registered under this act to a patient, in the course of his professional practice only; or by a nurse or attendant of such patient in accordance with the directions and instructions of such physician, dentist, or veterinarian, and in regular pursuance of such professional practice; provided that such drug shall be dispensed in good faith, and not for the purpose of avoiding the provisions of this Act."

There seems to be no real difference between the House and the Senate respecting the intended effect of the provision. The real question has been: what construction will the courts put upon the words "personal attendance"? If it were certain that the courts would adopt the interpretation that the House intends, the Senate would not object to the language; and the change made by the Senate is intended only to make the intent of the House certain. The language of the Senate, however, seems to those who object to it, to leave the way open to obvious abuses. The Secretary's effort has been to provide language that can not be misunderstood.

Before concluding, the Association should be informed that the Bill as adopted by the Senate provides that a physician must register under the Act, in order to lawfully administer, dispense, distribute, or give away; so there will always be a record of what the physician purchases, since no one can obtain narcotics without using the official order blank delivered only to those who register. On the other hand, likewise at the instance of the Drug Trade Conference, the words "registered under this Act" in Section (b) have been stricken out; thereby relieving the pharmacist from the necessity of knowing whether the prescription he receives comes from a physician who is registered under this Act.

In conclusion, your delegates would say that they believe that the operation of H. R. 6282 will prove the wisdom of the action of the Conference; especially if it is supplemented by appropriate state legislation equally effective and less complicated and less burdensome than now exists in many states. The Harrison Bill will remove the necessity of many of these burdensome and complicated provisions of state legislation by the very fact that it automatically provides a record of sales in interstate commerce.

It is the purpose of the Conference to suggest amendments to present state laws which the Harrison Bill will make feasible and safe, and we recommend a continued affiliation with the N. D. T. C.

Respectfully submitted,

JOHN C. WALLACE.

J. H. BEAL.

S. L. HILTON.

REPORT OF THE GENERAL COMMITTEE ON MEMBERSHIP.

Mr. President and Members of the American Pharmaceutical Association:

Your committee on Membership for the year ending August 29th, 1914, makes the following report:—

The Chairman, upon receipt of the names of the Committee, appointed by President Beringer immediately notified each of her or his appointment and at the same time asked their co-operation for a larger membership in our Association; with this letter, was sent a very comprehensive plan for a campaign outlined by President Beringer. This plan is an excellent one, has given good results and should be tried again, with more effort on the part of the succeeding Chairman, in obtaining the attention and work of the Committee along the lines suggested in the plan.

The Committee was a large one (285 members) and almost to a man they accepted the appointment and, in general, responded in an earnest way of their desire and anticipation of a large increase in our number of members.

By the number and tenor of the responses, one would be led to believe that we would have a very large number of new members to report at the end of the year. The Committee have been alive throughout the year, as shown by letters received by the Chairman with copies of their communications in many instances.

Lately, however, I have received word from a number of the Committeemen that it is a hard matter to secure new members, that the ground has been thoroughly worked before; that they are disappointed, have not been very successful although they have brought the matter to the attention of every pharmacist in their District. Some States have fallen down badly, not even the courtesy of a reply being received to several letters sent out.

So, after the Committee had been working a few months, a rally-day was named for the Committee, the notice of which was followed by two letters as follow-ups for this rally-day, and considerable interest was aroused with good results.

A few weeks afterwards another rally-day was set, this time for the entire membership, with the thought, that it would be well to place in the hands of every member of the Association, an application-blank and a short story on the benefits of our Association. This would not only secure new members but would show the workers and loyal men in the Association, "not known to the Officers," who would be of great benefit in future work.

To this end letters were sent out with follow-up letters twenty days apart; thus the membership was thoroughly circularized and application blanks were also placed in the hands of every member.

From this action very good results have been obtained and further returns are expected from this campaign as many of the Committee have recently been very active.

The lady members of our Committee have added their quota to our list of members and are at the present time using every effort to increase the number.

The Chairman is lead to believe by the experience he has had, that the subject of increase in membership must be worked out along the line of interesting the young people, for, as stated by one of the Committee, the members of our calling have been thoroughly solicited.

So it is to the recent graduate and the young business man we must look to and in this we are already receiving considerable help from some of our schools and colleges of pharmacy, which are awarding prizes for excellence in scholarship, in the form of memberships. I hope the number of such prizes will increase, for it brings into our Association the brightest young men.

The work of our Committee has lately been interested in procuring applicants from among the pharmacists in the Government service, where there is yet quite a field for recruits. The Island possessions have answered to our call very well, having a much larger proportion of their men enrolled, than the States. The Philippines, for instance, have recruited about sixty percent, with only about twenty-five percent of the Corps in the Islands. So there is work here in the States among the men in the service.

I wish to thank the President and every member of the Committee for their assistance and endeavors, and to say to them that we have done very well considering how well the ground has been covered in the past years and the calls and conditions the men of pharmacy have to-day.

Your Chairman regrets very much not to be able to make a better showing and report; perhaps this is due in part to the fact that he was ill and away from his office for over two months at the most important time of the year for membership work. However, this feeling is somewhat compensated for by the fact that we have broken the record of previous years, and, although the campaign has cost more than the original appropriation, the amount brought in by the number of new members in excess of previous years is more than enough to pay the whole expense.

Membership at the close of the annual meeting, 1913.....	2409
Loss by death.....	18
" " resignation	124
" " suspension	98
Total number dropped out the past year.....	240
	<hr/>
	2169
Added in 1914.....	429
	<hr/>
Total membership.....	2598

New Members Elected 1913-1914, By States.

Alabama	4	New Jersey.....	23
Arkansas	4	New Mexico.....	1
California	5	New York.....	52
Colorado	4	North Carolina.....	1
Connecticut	3	North Dakota.....	..
Delaware	1	Ohio	40
D. C., Washington.....	2	Oklahoma	4
Florida	3	Oregon	2
Georgia	4	Pennsylvania	27
Idaho .....	..	Rhode Island.....	1
Illinois	20	South Carolina.....	..
Indiana	8	South Dakota.....	4
Iowa	11	Tennessee	9
Kansas .....	..	Virginia .....	..
Kentucky	11	Vermont	2
Louisiana	4	Washington	5
Maine	5	West Virginia.....	2
Maryland	3	Wisconsin	3
Massachusetts	25	Wyoming	2
Michigan	55	Texas	11
Minnesota	2	Asia Minor.....	1
Mississippi .....	..	England	1

Missouri	36	Hawaii	1
Montana	6	Cuba	11
Nebraska .....	..	Canada	1
Omaha .....	..	Panama	1
Nevada .....	..	Philippine Islands.....	6
New Hampshire.....	1	Porto Rico.....	1
			<hr/> 429

Statement of Expenses for the Year Ending August 29, 1914.

Stationery, Folders, Blanks and Circulars.....	\$220 13
Postage and Expressage.....	128 94
Stenographer	56 00
<hr/>	
	\$405 07

Respectfully submitted,

C. H. PACKARD.

REPORT OF THE COMMITTEE ON THE FORMATION OF LOCAL
BRANCHES.

In looking over the membership roll of the Association, your Committee on the Formation of Local Branches decided upon Detroit and Buffalo as the best locations for new branches. But we regret to report that our efforts to inaugurate Branches in these cities have been unavailing. From Detroit we got the information that a Branch could easily be started, but that there was lacking the sort of enthusiasm essential to its permanency. It was the belief of the active local members of the Association that the necessary enthusiasm would come after this annual meeting. This belief is shared by your committee.

Your committee found that several attempts had been made to start a Branch in Buffalo without success. There were not, and are not, sufficient enthusiastic local members to maintain interest in a Branch.

During the year two new Branches were inaugurated: one at Columbus, Ohio, and one at Jacksonville, Fla. And, following some correspondence from your committee, the activity of the Branch of San Francisco was revived.

As a result of its experience, your committee believes that the number of members required to inaugurate a local Branch should be reduced below twenty-five, and would suggest that it might be advisable to restrict representation in the Council to Branches having twenty-five members.

Respectfully submitted,

HUGH CRAIG, Chairman.

FRANKLIN M. APPLE.

REPORT OF SPECIAL COMMITTEE ON RULES AND BY-LAWS.

A special committee of three was appointed by the Council on Tuesday evening to carry out its will and to put in definite form certain measures voted upon and approved at that time. The Committee now reports as follows:

1. We recommend that the general rules of the American Pharmaceutical Association, as they stand at present, be numbered from one to seven inclusive, and that the following rules be added to the list:

Rule 8. Addresses of welcome and responses thereto at the opening general session shall be omitted.

Rule 9. The meetings of the Council shall be held in the evening with the exception of the first and the last sessions.

Rule 10. The work of the various sections shall start promptly in the morning at 9:30, lasting until 12 o'clock, and in the afternoon at 2 o'clock, lasting until 5 or 6.

Rule 11. The section and association meetings shall be confined to mornings and afternoons.

Rule 12. The principle of concurrent meetings of the sections shall be established. There shall be used a series of bulletins in the section rooms notifying members what papers are being read and discussed in the different several sections.

Rule 13. The chairmen of the sections shall use every endeavor to secure all manuscripts within four weeks of the annual meeting, and shall immediately send them to the general secretary.

Rule 14. The general secretary shall have accepted manuscripts printed in advance of the annual meeting, whenever in the judgment of the chairmen of the sections and the general secretary it is desirable.

Rule 15. With all manuscripts in hand three or four weeks before the annual meeting, the general secretary shall prepare a collective program containing the detailed programs of the different sections and indicating at what particular session any given paper shall come up for reading and discussion.

2. We recommend that Article 8, Chapter 9 of the By-Laws be amended to read as follows:

Article 8. The chairman of the Section on Practical Pharmacy and Dispensing shall appoint a committee of three on pharmacopœias and formularies to co-operate in the work of the section by obtaining papers on the subjects of pharmacopœias and formularies and discussions thereon. The officers shall arrange in advance of the meeting the business to come before the section.

3. We recommend that Article 2 of Chapter 9 of the By-Laws be amended to read as follows:

Article 2. To expedite and render more efficient the work of the Association, the following sections are provided:

1. Scientific Section, with four subdivisions: (a) chemistry, (b) botany and pharmacognosy, (c) biologic assays, (d) bacteriology.

2. Section on Commercial Interests.

3. Section on Practical Pharmacy and Dispensing.

4. Section on Pharmaceutical Legislation and Education.

5. Section on Historical Pharmacy.

6. Women's Section.

Upon the approval of the Council additional sections may be organized from time to time as necessitated. Each section, through its officers, shall solicit papers and propose suitable subjects for discussion at the annual meeting, arrange the business of the section in advance, and perform such duties as may be referred to it. It shall make reports to the Council or Association if requested. The conduct of the work of each section shall be under by-laws, rules and regulations approved by the Council. All committees proposed or appointed by the sections shall be subject to the approval of the Council.

4. We recommend that Article 1 of Chapter 7 be made into two sections, and that Section 2, at present the final sentence in Article 1, be made to read as follows:

Section 2. Any member of the association may attend the meetings of the Council and may, by permission of the presiding officer, be permitted to speak on any subject under discussion.

5. We recommend that Section 3 of Article 8 of Chapter 7 be eliminated from the By-Laws.

6. We recommend that Section 2 of Article 8 of Chapter 7 be amended to read as follows:

Section 2. The secretary of the Council shall submit to the Council the names of the candidates who have been proposed for membership, when a majority vote shall be sufficient to elect them.

7. We recommend that Section 6 of Article 11 of Chapter 9 be amended to read as follows:

Section 6: An abstract of the minutes of the Council shall be read at the annual meeting of the association, and the acts of the Council shall be approved, amended or revised so as to be acceptable to the association. At any general session, a member may request further information upon any matter reported on by the Council.

8. We recommend the introduction of a new article in Chapter 9 of the By-Laws, to be known as Article 11, and to read as follows:

Article 11. The Women's Section shall consist of women who are regular members in good standing in the American Pharmaceutical Association, and the women of the families of regular members in good standing, united for the purpose of promoting the aims of the American Pharmaceutical Association and for advancing the interests of women engaged in pharmaceutical pursuits.

9. We recommend that the articles in Chapter 9 of the By-Laws, beginning with and following Article 11, be renumbered as follows: Article 11 be made Article 12, and Article 12 be made Article 13.

10. We recommend that Article 1 of Chapter 10 of the By-Laws be amended to read as follows:

Article 1. There shall be appointed or elected standing committees as follows: A Committee on United States Pharmacopœia, a committee on transportation, and a committee on resolutions, each to consist of ten members; a committee on the Pharmaceutical Syllabus to consist of seven members; a committee on the time and place of meeting; a committee on Ebert Prize, and a committee on general prizes, each to consist of three members; and a committee on program.

11. We recommend the addition of a new article to Chapter 10, to be known as Article 8, and to read as follows:

Article 8. The reports of all committees of the Association must be sent to

the general secretary in time for presentation at the first general session of the annual meeting of the association.

12. We recommend the addition of a new article to Chapter 10 of the By-laws, to be known as Article 9, and to read as follows:

Article 9. The Committee on Resolutions shall be appointed at the first session of the annual meeting, five members by the president of the association, and five by the chairman of the Council. The committee shall hold open session for the consideration of matters referred to it either by the association, any section, or by the Council, and to obtain the opinion of the members thereon and report to the referring bodies.

13. We recommend the addition of a new article to Chapter 10 of the By-laws, to be known as Article 10, and to read as follows:

The Committee on Program shall consist of the local secretary, the general secretary and the secretary of the Council. It shall be the duty of the committee to prepare and submit to the Council the program for the annual meeting so that same can be published in the Journal at least two months in advance of the annual meeting.

HARRY B. MASON, Chairman.

JOS. W. ENGLAND,
F. W. NITARDY.



EUGENE G. EBERLE
CHAIRMAN OF THE COUNCIL.



JOSEPH W. ENGLAND
SECRETARY OF THE COUNCIL.

Scientific Section

Papers Presented at the Sixty-Second Annual Convention

REPORT OF COMMITTEE ON QUALITY OF MEDICINAL PRODUCTS—AUGUST, 1914.

The Chairman waited until July 16th for the usual valuable contributions of the other members of the Committee, at which time that of Prof. Scoville was the only one obtained. As the Chairman was to leave on a vacation the 31st it became necessary to leave each other member to submit a separate report.

The continued activities under pure food and drug legislation are undoubtedly working toward better standards and greater carefulness, but there is still a tendency to allow the enforcement of regulations to become one-sided and work serious and uncalled for injustice. In the near future this will result in reaction or in the establishment of better methods on the part of the authorities.

There is no good reason why goods sampled should not be sampled in duplicate and the sealed duplicate be given to the person supplying the sample. In the event of the department official finding his sample defective, the holder of the sealed duplicate should have the privilege of having it examined by an experienced chemist to learn if the original report is correct, and the result of this examination be made known to the department official. This might do away with some very serious mishappenings such as have transpired in the past. It is stated that one firm of manufacturers was widely advertised as adulterators and a quantity of goods destroyed, when subsequent investigation proved that they were of standard quality, but the department chemist had made an error in placing his decimal point, so that the goods were ten times too weak on paper only. Some restitution should be made in such cases, without putting the sufferer to still more expense in an effort to secure justification.

In another instance the product of a manufacturer was condemned in a department publication. The statement was spread broadcast and placed in the hands of every physician in the state. The chemist of the manufacturer called upon the official chemist for an explanation, but received scant courtesy. Later the manufacturer received a statement that the goods had been re-examined and found 66%, 76% and 87% from the same analysis. The chemist of the manufacturer finally obtained permission to assay the same sample in the official laboratory under the immediate supervision of the Asst. Dept. Chemist. The analysis which was signed and certified as to accuracy by the Asst. Dept. Chemist, made the product 109%. No one was authorized to undo the damage to reputation and business but the sufferer himself.

Other instances could be cited where products were said to contain ingredients that were not present and could not have been present. Prof. LaWall in the Am. Druggist is quoted as saying—"A great deal of money has been wasted by the Government and a great deal of unnecessary expense has been entailed upon manufacturers by prosecution on trivial charges which if true involved on real damage to the cause of pure food and pure drugs. A prosecution based upon 4 percent deficiency in the alcoholic content of tincture of opium, though the morphine content was fully up to the standard, a ruling that the presence of one vetch seed in a million of coriander would necessitate the labeling of a sausage in which this was present as "containing leguminous starch," a ruling against a sample of cresol because it differed one decimal figure in the third or fourth place

from the requirements as to specific gravity, though exceeding those requirements in germicidal power, are instances of a kind of meticulousity which has no place in so serious a business as the enforcement of the food and drugs act."

An editorial in the July Am. Druggist calls attention to rulings and interpretations that seem to be far-fetched and unreasonable. It states—"It is not the law; it is the man who administers it that counts, and unfortunately too many of the officials who interpret, administer and try to enforce our laws relating to foods and drugs are theorists, not practical men. The graduate from a college put in charge of a state laboratory may be able to detect one part of salicylic acid in a million parts of strawberry jam, but unless he knows that salicylic acid is a normal constituent of many berries he may cause expensive trouble by over zeal. It might be a good idea to require at least one year's practical experience in a manufacturing laboratory, canning or preserving plant, as a requisite for appointment as analytical chemist in the public service." The most scrupulous and painstaking manufacturer may suffer from the inattention or misdoing of his employees but he should not be subjected to the injustice of being advertised for variations from the standard which do not exist.

Reports of various boards show that there is still remarkable variation in the strength of simple products as supplied by the retailer.

Spirit of Peppermint	1% to 80%	of official strength.
Tinct. of Iodine	56% to 89%	" " "
Spirit of Anise	9% to 81%	" " "
Spirit of Camphor	55% to 75%	" " "

but these cases of variation are comparatively few in number compared to the total number of samples examined. In some states the character of the balances, weights and measures in common use in drug stores is very severely condemned, a serious number being found defective.

Many lots of Oil of Birch and Oil of Wintergreen have been condemned as mixtures of Methyl Salicylate and other distillates. New tests have been published which claim to give the presence of such sophistications. One of these tests is 5 drops of a five percent solution of vanillin, 5 drops of suspected oil and 2 cc. C. P. concentrated Sulphuric Acid. With Methyl Salicylate a very pale green color results; with Oil of Birch a blood red, and with Oil of Gaultheria a deep crimson red. Another form of the test adds 1 cc. of alcohol. The use of drops is a gross inaccuracy to start with and all color reactions are of no value unless the absence of other bodies that might give similar reactions is first determined. With the wide range of organic matter an unknown, unexpected or unfamiliar vegetable principle may vitiate the test.

To determine its value the test was applied using the following materials.

ONE A 5% alcoholic solution of Vanillin.

TWO A mixture of pure Methyl Salicylate 300 parts and Oil Cedar Wood 1 part. This mixture gives the optical rotation and responds to the other pharmacopœial tests for true oil of Wintergreen Leaf.

THREE Pure Methyl Salicylate.

FOUR Oil of Birch guaranteed to be strictly pure by a dealer who does not market Oil of Wintergreen Leaf.

FIVE Sample of Oil of Birch guaranteed by a dealer to be pure to his certain knowledge.

SIX Oil of Birch from a prominent manufacturing chemist.

SEVEN Oil of Birch from a distiller guaranteed absolutely pure.

EIGHT Oil of Birch from a distiller guaranteed absolutely pure.

NINE Oil of Birch from a dealer who has assured himself by observation and tests that it is absolutely pure.

TEN Methyl Salicylate 99 parts, Oil Cedar Wood 1 part.

ELEVEN Oil Gaultheria Leaf from dealer who guarantees it absolutely pure from investigation of its source and by chemical examination.

TWELVE Oil Gaultheria Leaf from a distiller.

THIRTEEN Oil Gaultheria Leaf from a distiller.

FOURTEEN Oil Gaultheria Leaf from a dealer who has assured himself of reliability of source and has had it carefully examined for purity.

In applying the test 3 minims each of the Vanillin reagent and the oils were mixed with 2 cc. of C. P. Sulphuric Acid and the color noted on mixing (Column A.) After 17 hours color was noted (Column B.) One cc. of alcohol was added and color noted (Column C.) After 24 hours color was noted (Column D.) A separate test was made by mixing 1 cc. of each product with one cc. of C. P. Sulphuric Acid not using any Vanillin reagent with the oils (Column E).

TABLE

	A	B	C	D	E
1	Pale green.	No change.	No change.	Dark green.	Deep red soon changing to olive green.
2	Pale cherry or dark amber.	Little darker.	Deep crimson like No. 14.	Deep crimson	Very pale straw.
3	Pale green.	No change.	No change.	Dark green.	No color.
4	Deep cherry red.	Much darker inclining to crimson.	Deep violet red	Violet.	Deep blood red.
5	Deep cherry red.	Little darker.	Darker red.	Deep red.	Amber.
6	Amber only.	Little darker.	Some darker.	Deep red.	Pale Amber.
7	Amber only.	Little darker.	No violet.	Deep red.	Dark Amber.
8	Amber only.	Little darker.	No violet.	Deep red.	Amber.
9	Between No. 4 & No. 6	Little darker.	No violet.	Violet red.	Very pale Amber.
10	Darker red than 3. 6. 7 or 8.	Little darker.	Violet crimson red.	Deep crimson.	Straw color.
11	Deep cherry red.	Little darker.	More crimson.	Deep violet blue.	Deep blood red.
12	Amber red.	Little darker.	More crimson.	Violet red.	Light blood red.
13	Dark amber red.	Little darker.	More crimson.	Violet red.	Light blood red.
14	Deep crimson red.	Little darker.	Violet red.	Violet blue	Blood red

By studying this table it will be seen that No. 4 and No. 5 Birch Oil gave the deep cherry red with "A" test but No. 4 became very much darker and with "E" test gave a deep blood red while No. 5 gave amber only.

The mixtures of Cedar Wood Oil and Methyl Salicylate gave a good test for pure oils with test "A" but an entirely different and characteristic reaction with test "E." All but two of the birch oils would be rejected by tests "A," "C" and "E" yet were all specifically guaranteed to be pure. Is it not probable that the oils in their color giving contents vary by different methods and the varying amount of care used in distillation? Is a color test that can be so easily modified by the addition of other substances to be depended upon?

After standing 36 hours the mixture of equal parts of the sample and C. P. Sulphuric Acid gave the following—

No. 2	Decided separation of Salicylic Acid.
No. 3	Greater " " " "
No. 4	Moderate " " " "
No. 5	Slight " " " "
No. 6	Decided " " " "
No. 7	" " " "
No. 8	" " " "
No. 9	No apparent " " " "
No. 10	Decided " " " "
No. 11	Small " " " "
No. 12	Decided " " " "
No. 13	" " " "
No. 14	Very little " " " "

Later on all gave a decided separation of Salicylic acid.

Martin I. Wilbert has accomplished a table reporting the examination of 10,524 samples, of which 3288 or 31.2% were rejected. He also presents an interesting table showing the wide variation in the active constituents of drugs.

	No. of samples	Minimum %	Maximum %
Belladonna leaves	144	0.175	0.563
Belladonna root	115	0.110	0.780
Guarana	41	3.720	5.160
Hydrastis	114	2.30	4.85
Hyoscyamus	120	0.043	0.234
Ipecac	253	1.240	2.750
Jalap	173	3.67	21.76
Stramonium	127	0.140	0.470

He also calls attention to deterioration caused by heat, by constituents of the air, by ferments, by micro-organisms and by combination with inorganic bodies.

Of 718 prescription balances examined in Kansas 195 were unfit for use, nearly one-half of the prescription weights were condemned. He states that tablets under most favorable conditions may vary from 10 to 30% from the quantities claimed.

In the Chemical Laboratory of the Am. Med. Association of 20 samples of 5 gr. Tablets of Potassium Iodide only two were below 94% of stated strength, one was 106.6% of stated strength, average 99.75%. Fl. Ext. of Goldenseal ranged in strength from 82% to 135% of official alkaloidal contents, while the declared alcohol contents varied from 40% to 66%. Nineteen samples of Morphine Sulphate T. T. $\frac{1}{4}$ gr. varied from 84.10% to 115.94% of stated strength, average 97.6%.

ACETANILIDE Tablets 5 gr. were 4.36 gr.

DEPT. AG.

ACETANILIDE COMP. Tablets contained 2.898 gr. Acetanilide instead of 3.5 gr. and 0.431 gr. of Caffeine Citrated instead of 0.5 gr.

DEPT. AG.

ACID CRESYLIC Varies considerably in color, solubility and in antiseptic value. Much of the commercial supply is below the U. S. P. standard.

W. L. SCOVILLE

ADEPS LANÆ Sometimes contains sulphur compounds in appreciable amounts. W. L. SCOVILLE

ALCOHOL Frequently 96% to 97% with objectionable amounts of non volatile matter. W. L. SCOVILLE

Of 98 samples 47 or 47.9% were rejected. M. I. WILBERT

ALOES One lot was free from Aloin. W. L. SCOVILLE

ALUM DRIED 5% insoluble in water. Contained trace of iron, 7% water, was not clean.

Lot 2, 3.5% water, 5.5% insol. in water.

Lot 3, 2% water, 3.5% insol. in water. E. L. PATCH

BEEF EXTRACT Varied from 7.4% to 17.88% salt. W. L. SCOVILLE

BELLADONNA LEAF 0.3, 0.35, 0.099, 0.235, 0.30. E. L. PATCH.

BENZOIN Six lots varied from 77% to 94% alcohol soluble matter.

W. L. SCOVILLE

BLACK HELLEBORE ROOT 15 lots Ash from 8.6% to 11.44%. Extractive from 22.3% to 31.6%. E. L. PATCH

BLOODROOT Five lots yield 4.1% to 6% ether soluble alkaloids.

W. L. SCOVILLE

BORAX Of 17 samples labeled variously "borated skin soap," "real borax soap," "borax soap powder," etc., eight were free from borax, while others ranged from traces to 10%. J. IND. ENG. CHEM.

CAFFEINE CITRATED TABLETS 2 gr. were less than 1 gr. DEPT. AG.

CALOMEL TABLETS 2 gr. were .93 gr. DEPT. AG.

CALOMEL & SODA T. T. 1 gr. Calomel were .62 grain.

CANNABIS INDICA East Indian 10.1% Ether soluble resin to 12.2%. American consisted of leaves only. E. L. PATCH

AM. CAN. IND. Tops contain 10% to 12% seeds and physically tests 80% of Bombay. SMITH, KLINE & FRENCH CO.

CHLOROFORM Some lots contained chlorine compounds and organic bodies which modified the odor and made it unfit for use. W. L. SCOVILLE

CINCHONA. RED 12 lots yielded from 7.21% to 11.63% total alkaloids.

W. L. SCOVILLE

COCHINEAL 10% ash including considerable magnetic iron oxide, Fe_3O_4 . Had 75% of normal coloring power. Lot 2 5% ash, 75% of normal coloring power. Gray. Ash 5%, coloring power 100%. E. L. PATCH

CRESOL

Sp. gr. 1.029, Not soluble in 60 parts of water.

Sp. gr. 1.038 Soluble in 90 parts of water insol. in 1 vol. 10% NaOH.

Sp. gr. Soluble in 90 parts of water insol in 1 vol. 10% NaOH.

Sp. gr. 1.028, Not soluble in 60 parts of water insol. in 1 vol. 10% NaOH.

Sp. gr. 1.029, Not soluble in 60 parts of water insol. in 1 vol. 10% NaOH.

Sp. gr. 1.036, Soluble in 60 parts of water soluble in 1 vol. 10% NaOH.

Sp. gr. 1.030, Not soluble in 60 parts of water not soluble in 1 vol. 10% NaOH.

Two out of six lots U. S. P.

E. L. PATCH

CUDBEAR Varies from 60% to 100% in coloring power.

E. L. PATCH

CUBEB Ran quite uniform the past year, yielding 18.1% to 22% oleoresin.

W. L. SCOVILLE

DAMIANA, PHOS. & NUX VOMICA TAB. 2-25 gr. Ext. Nux Vomica instead of $\frac{1}{4}$ gr. only a trace of phosphorus. DEPT. AG.

DERMATOL Contained 20% of sulphur.

GINGER ROOT Jamaica Ginger Ash 3.8%, Alc. Ext. 3.6% to 6.3%.

E. L. PATCH

GUAIAC RESIN Showed 67.5% to 92.8% soluble in alcohol. Four out of 8 lots were above 80% soluble. W. L. SCOVILLE

HYDROGEN PEROXIDE One lot contained arsenic in excess of 1 part in 100,000 and was deficient in strength. DEPT. AG.

HYOSCYAMUS Of 22 samples 2 were below 0.05%, two between 0.05% and 0.06%, six between 0.06 and 0.07%, five between 0.07% and 0.08%, three between 0.08% and 0.09%, two between 0.09% and 0.10% and two above 0.10%. W. L. SCOVILLE

INFUSORIAL EARTH Much of that in the market contains carbonate or soluble matters which render it objectionable as a clarifying agent, unless washed with a dilute acid. W. L. SCOVILLE

IODINE TINCTURE 15 samples varied from 56% to 89%. MASS. B. H.

Of 984 samples 474 or 48.1% were not up to standard. M. I. WILBERT

IPECAC One sample of Rio contained 1.58% alkaloids. W. L. SCOVILLE

Rio 1.837%, Ash 5%, 2.12% alkaloid. Carthagen 1.818%, Ash 5.2%, alkaloid 2.4%, 2.13%, 2.4%, 2.29%. E. L. PATCH

IRON IODIDE Syrup labeled 10% contained 4.6%. DEPT. AG.

Of 549 samples 88 or 16% were rejected. M. I. WILBERT

JALAP Total resin 6.05% Ether soluble 0.9%

" " 9.67% " " 1.07%

" " 3.57% " " 0.72%

" " 8% " " 1.1%

" " 7.2% " " 0.9%

E. L. PATCH

KOLA 1.4% to 2.24% alkaloid.

E. L. PATCH

One lot 1.6%.

W. L. SCOVILLE

LEAD CARBONATE Was a mixture of Barium Sulphate and Sulphide.

E. L. PATCH

LARKSPUR SEED 1.12% to 1.76% alkaloid.

E. L. PATCH

LUPULIN Is still in the market containing sand. One sample only 2.4% ash and three had 24%, 27.7% and 30.9% mineral matter respectively.

W. L. SCOVILLE

MACE Arillus of *Myristica malabarica*, false mace or Bombay Mace, worthless as a spice, used to adulterate and substitute the genuine mace, the dried arillus of *Myristica fragrans*.

DEPT. AG.

CASTOR OIL Sold containing 33% of Cottonseed Oil.

DEPT. AG.

OIL ANISE Lots answered all tests but that of optical rotation. They were guaranteed absolutely pure.

Opt. rotation + 0.4°

+ 0.4°

— 0.3°

+ 9.05°

Congealing point 6° C. (U. S. P. not below 15° C.)—1.0°

Congealing point 15° C. Sp. gr. 0.9796 —0.2°

Congealing point 15.5° C. Sp. gr. 0.9768 —0.2°

E. L. PATCH

OIL CLOVE Contained 15% of alcohol.

DEPT. AG.

OIL CORIANDER Contained 20% Oil Caraway.,

DEPT. AG.

OIL FENNEL Sp. gr. 0.9784 (U. S. P. 0.953 to 0.973) Congealing point 0° C. (U. S. P. not below 5° C.) N/D 1.5318 (22° C.) Opt. rotation + 14.5°. Was a Schimmel Oil guaranteed absolutely pure.

E. L. PATCH

OIL LAVENDER (Mottet's) consisted of a mixture of Oil of Lavender and Glycerin esters.

DEPT. AG.

OIL LEMON 14–25 lb. coppers contained "washed Lemon Oil," the residue left after the pure Lemon Oil has been shaken with alcohol to make Lemon Extract, reinforced with Citral.

DEPT. AG.

OIL LINSEED Linseed Oil 50% Mineral Oil. DEPT. AG.
Of 367 samples 138 or 37.6% were adulterated. M. I. WILBERT

OIL ORANGE Sp. gr. 0.8458 N/D 1.473 (19.5° C.) Opt. Rotation + 89.5
(U. S. P. not below + 95°.) E. L. PATCH

OIL PEPPERMINT Odor fine. Taste good. Sp. gr. 0.9008. Opt. rotation
—23.4°. Colorless 6.06 Menthyl Acetate, 47.58 total menthol. Odor inferior.
Taste inferior. Sp. gr. 0.8925 (low) Opt. rotation—29.2°. 6.64% Menthyl
Acetate, 50.74% total menthol. E. L. PATCH

OIL OF TURPENTINE Different lots of Oil of Turpentine were grossly
adulterated with mineral oil. DEPT. AG.

Of 639 samples 132 or 20.6% were adulterated. M. I. WILBERT

OLEORESIN CAPSICUM Insol. in ether. Only slightly soluble in alcohol.
Nearly all soluble in water. Worthless as oleoresin. E. L. PATCH

PAW PAW JUICE Dry, varies considerably in its digestive power. Of 47
samples, eleven were below 50% of standard. Only 16 were acceptable, or about
one in three. Some are adulterated with starch, but the proportion of starch does
not correspond to their digestive power. W. L. SCOVILLE

PEPPER BLACK Fruit of Piper longum substituted in whole or in part for
that of Piper nigrum. DEPT. AG.

PEPSIN Diluted with sugar instead of sugar of milk. Acid in powdered
0.9% to 8%. In scale 6.8% to 7.6%. E. L. PATCH

LIQUID PETROLATUM. Increased demand for an oil suitable for internal
administration has brought oils possessing high physical qualities into the market.
W. L. SCOVILLE

SODA MINT TABLETS Lose both oil and ammonia. Standard makes
titrated all right for Sodium Bicarbonate but gave 1-25 to 1-10 gr. Ammon. Carb.
instead of $\frac{1}{4}$ grain, and 1-16 to $\frac{1}{8}$ Oil Peppermint instead of $\frac{1}{6}$ minim.
E. L. PATCH

SODIUM PHOSPHATE Has to be watched carefully for excess of
Arsenic. Two lots were rejected for this reason. W. L. SCOVILLE

SODIUM SALICYLATE Tablets 3 gr. were 1.82 gr DEPT. AG.

SODIUM SULPHITE Crystal 77.62% $\text{Na}_2\text{S}_2\text{O}_3 \cdot 7\text{H}_2\text{O}$.

"	96.07%	"	
"	98.28%	"	
"	68.23%	"	(marked 82%)
"	22%	"	78% Sulphate.

Recryst. 46.95% "

Crystal 87.4% "

" 88.26% "

Powdered 25% "

E. L. PATCH

SPIRIT PEPPERMINT Contained less than 1-10 of 1% of Oil of Pepper-
mint and was deficient in alcohol. DEPT. AG.

Fourteen samples varied from 1% of official to 82%. MASS. ST. B. OF H.

Of 270 samples 139 or 51.4% were defective. M. I. WILBERT

STRYCHNINE NITRATE T. T. 1-40 gr. were 1-70 gr. DEPT. AG.

WORMSEED A large lot of unusual appearance and odor failed to yield
any santonine. BULL. SCI. PHARMACOL.

E. L. PATCH, Chairman of Com.

Memorandum:—In signing the report of the Committee on Quality of Medi-
cinal Products, I desire to make several comments on statements contained therein.

1. I think that the evidence adduced to show that "there is still a tendency to
allow the enforcement of the regulations to become one-sided and work serious

and uncalled for injustice," should be carefully investigated before being endorsed by the Committee or the Association. Such an investigation might show that the charges so recorded are based on *ex parte* statements, and are either without foundation or are seriously misrepresentative. Such unfounded charges are being systematically circulated, and in a way to appear sincere and truthful, thereby misleading the well-meaning. That the tendency above-quoted, exists, I am not denying, but I think that the greatest care should be taken in sifting specific charges, lest unjust conclusions should be drawn.

2. I think there must be some mistake about a Henbane that contained 0.234 percent of alkaloid. I think something else than the henbane must have been examined, probably Stramonium.

3. I think that something else than Belladonna leaf was examined when 0.099 percent of alkaloid was obtained, probably henbane. H. H. RUSBY.

Memorandum:—In signing this report I do not endorse the unverified charges made on pages one and two. The charges are rather serious and, if correct, should be verified by reference to publication or otherwise. Bald, general statements of this character can not be productive of good. I fully agree with the Chairman of the Committee that if anyone has been injured by error due to an inadvertence of the analyst, restitution to the fullest should be made. No manufacturer should be compelled to suffer loss of trade and be put to an expense as the cause of such error.

Respectfully,

L. F. KEBLER,

Chief, Drug Division, Bureau of Chemistry, U. S. Department
of Agriculture.

THE NEW SCIENCE OF IMMUNOLOGY.

F. E. STEWART, PH. G., M. D.

It is my purpose in this paper to call your attention to the new science of immunology on account of its rapidly growing importance to pharmacy. Biological products, as they are called, are products of immunization and they are used to produce artificial immunity for the prevention and cure of disease, and for diagnostic purposes. They are manufactured by the great pharmaceutical houses and also by physicians for their own use. They are already handled by the pharmacist, and as the new science of immunology develops, the demand for them will increase. Sooner or later, therefore, the science of immunology must occupy a more important place in relation to the educational work of the colleges of pharmacy, and text books must be written suitable for the use of pharmaceutical students.

Objections are strongly urged by some against teaching the science of immunology in colleges of pharmacy. It is said with some truth that the preliminary education of the pharmacist is not sufficient either in scope or character for him to comprehend it. Attention is called to the fact that the science of immunology deals with knowledge profound and complex, requiring a thorough medical education and post-graduate laboratory training for proficiency. The same objections might be as well urged against the teaching of chemistry in the pharmaceutical schools.

It is also objected that the practical application of the knowledge of immun-

ology pertains exclusively to physicians and bacteriologists, and has no place in the drug-store. On the contrary, a certain amount of knowledge of this science is requisite to proper living and every graduate of a high school should be instructed in the principles of this science.

The conception of contagion or the communication of disease from person to person by contact, direct or indirect, has been handed down from the times of Aristotle (384-322 B. C.) but it is only within recent years that the true nature of contagion has become known. Now we know that the infectious diseases are caused by bacteria, protozoa, yeasts and moulds. The pharmacist is being taught something about these organisms in his course in botany and bacteriology, but it seems to me that he ought to be taught also how infective agents grow and multiply in the body and produce the groups of symptoms known as infectious diseases. The pharmacist is taught by the pharmaceutical college to know that malaria is due to malarial germ carried by the mosquito and that quinine taken properly as a medicine will kill the malarial germ. Why should he not be taught that boils are due to staphylococcic infection, and that the injection of killed cultures of the staphylococcus into the patient's healthy tissues will stimulate the tissue cells to produce substances, which, taken into the circulation and carried to the diseased tissues, will aid in curing the boils?

It is common knowledge that immunity to subsequent attacks of the same disease is conferred by the first attack in relation to some of the infectious diseases, such for example as smallpox or typhoid fever. But how many pharmacists stop to consider how immunity is acquired by the attack of an infectious disease? It is quite generally known that persons subject to "common colds" seem to acquire a greater susceptibility as the result of an attack. Yet bacterins are used for the purpose of immunizing against "colds." How can a bacterin, consisting of a modified disease virus, produce immunity against an infectious disease like a "cold" or influenza, when no immunity can be acquired by an attack of the disease? This question is frequently asked by physicians and intelligent laymen. How can this seeming paradox be explained, or is the use of bacterins for immunization against "colds" a fake? It is also commonly known that immunity to certain infectious diseases may be acquired artificially by vaccination, but how many pharmacists know that vaccines are modified disease viruses or how immunity is produced by vaccination? Infectious diseases: what are they? Immunity: what is it? Unless the pharmacist can answer these questions satisfactorily to the intelligent laymen, he is in position to make himself ridiculous.

But you say the pharmacist is not supposed to be proficient in the knowledge of the uses of drugs. This knowledge is necessary to prescribing medicine, but prescribing is the province of the doctor. That is very true. Prescribing or applying medicine is the province of the doctor, because to prescribe properly, diagnosis is necessary. But no diagnosis is involved in answering questions as to the proper use of a drug. There is a long distance between the knowledge of drugs and their uses, and the knowledge of disease, diagnosis and treatment. Knowledge of drugs and their uses is constantly demanded of the pharmacist by the medical profession as well as by the general public, and in my opinion such

knowledge should be taught in the colleges of pharmacy, so that pharmacists may be able to answer questions asked of them by intelligent laymen and also frequently asked by physicians.

Moreover, the knowledge of immunology is now being popularized by our monthly magazines, weeklies and daily newspapers. The well-educated layman is often far better posted on the subject than either the ordinary physician or the pharmacist. And yet the pharmacist, as well as the physician, claims to be an expert in *materia medica*. Can the colleges of pharmacy afford to graduate their students without sufficient knowledge of this new science of immunology to enable their graduates to answer questions on the subject liable to be asked them at any time by the educated class of the community?

Most educators will admit that pharmacists ought to be taught how biological products are produced and how they should be carried in stock in such manner as to prevent their deterioration. Yet this knowledge is not sufficient to meet the requirements of the medical profession and the public. If pharmacists are to receive recognition as professional men, they must acquire sufficient knowledge to justify the classification of pharmacy among the learned professions. I am therefore bringing the subject before you for discussion. The following outline is suggested as suitable for use by colleges of pharmacy in teaching the new science of immunology.

OUTLINE SUGGESTED AS SUITABLE FOR USE BY COLLEGES OF PHARMACY IN TEACHING THE NEW SCIENCE OF IMMUNOLOGY.

- I. Introduction: General Remarks defining the new science of immunology.
- II. History of the Conception and Development of the Germ Theory of Infectious Diseases.
 1. Reference to the work and observations of Kircher in 1659, and Leeuwenhoek in 1675. *Animalcula*. *Microbes*.
 2. Statement of the germ theory by Plenciz in Vienna in 1762.
 3. Advancement of the knowledge of infection along the lines of fermentation. Observations and work of Robert Boyle (1627-91); Cagniard-Latour (1835); Schwann (1837); Helmholtz (1843). Pasteur's announcements in 1858, 1860, and 1863.
 4. Origin of Microbial Life. Doctrine of spontaneous generation overturned by Pasteur.
 5. First actual demonstration of the germ theory; discovery of the microbe origin of anthrax or splenic fever; Fuch's discovery of micro-organism in animals dead of anthrax, in 1848. Henle's postulates for testing the claims of discoverers. Pollender's discovery of rod-shaped bodies in the blood and spleen of animals dead of anthrax, about 1850. Davaine's demonstration that the disease can be transmitted by these germs.
 5. Modern conception that infectious diseases are groups of reactive symptoms produced by the resistance of the body cells to invading microbial cells, and that the process is one in which enzymes or digestive ferments, secreted by both combatants, play a most important part.
 7. Discovery of the germ of relapsing fever by Obermeir in 1868. Halt in the development of further knowledge in the field of bacteriology and immunology owing to the want of proper *technique*.

8. Introduction of technical methods of research by Koch in 1880, and new era in the development of bacteriology and immunology. Work and observations of Koch, Metchnikoff, Ehrlich, Eberth, Klebs, Behring, Roux, and many others.

9. Great work of Pasteur in developing the knowledge of infection, immunity, and vaccination, stimulated by discovery of smallpox vaccination by Jenner in 1798.

III. Infection and Immunity.

1. Infection and Immunity defined. Natural and acquired immunity. Active and passive immunity. Theories of immunity; Pasteur's Exhaustion Theory; Chauveau's Noxious Retention Theory; Metchnikoff's Phagocytosis Theory; Vaughan's Parenteral Digestion Theory; Theories of Besredka and Garbat and Meyer; Sajous' Internal Secretions Theory; Ehrlich's Side-chain theory.

2. The known infective agents—bacteria, protozoa, yeast and moulds. How infective agents grow and multiply in the body. Protoplasm and protoplasmic enzyme action. Phagocytosis or cell digestion. The doctrine of specificity. Constitution of enzymes. Function of amboceptor and complement. Parenteral digestion. Digestive power of blood serum.

3. How immunity is acquired through an attack of an infectious disease. Definition of term "infectious disease." Infectious diseases due to the growth and multiplication of infective agents in the body. Infective agents live on tissue proteins. The tissue proteins are digested and split up by the enzymes of the infective agents. Structure of the protein molecule; primary (poisonous) and secondary (non-poisonous) groups of atoms comprising the protein molecule. Protein sensitizers. Toxicity of infectious diseases and poisonous action of infective agents due to the poisonous group of the protein molecule. "Serum sickness and anaphylaxis."

4. Immune Serums and Antibodies. Antigens and antibodies defined. Antibodies found in immune serums; bactericidins, bacteriolysins, opsonins, agglutinins, precipitins. Amboceptor or substance sensibilisatrice; immune body. Complement, alexin or cytase. Teachings of various authors compared.

5. How active immunity may be artificially acquired.

(a) Active immunity acquired by immunizing with a living virus.

(b) Active immunity acquired by immunizing with a modified living virus; Vaccination. Smallpox vaccine. Rabies vaccine.

(c) Active immunity acquired by immunizing with killed bacteria; bacterial vaccines.

(d) Active immunity acquired by immunizing with sensitized bacteria; sensitized bacterial vaccines, senso-bacterins, sero-bacterins.

(e) Active immunity acquired by immunizing with bacterial extracts; agglutinations.

6. How passive immunity may be acquired.

Antitoxins and antibacterial serums.

IV. Vaccines, Bacterins, Antitoxins, Antibacterial Serums.

1. Preparation. Preparation of smallpox vaccine. Preparation of rabies vaccine. Preparation of bacterins (bacterial vaccines.) Preparation of sensitized bacterins (senso-bacterins.) Preparation of antitoxins and antibacterial serums.

V. Prophylactic Immunization against Infectious Diseases.

1. Active and passive immunization against typhoid fever; paratyphoid fever; influenza and "common colds;" pneumonia; pertussis or whooping-cough; scarlet

fever; Asiatic cholera; bubonic plague; cerebrospinal meningitis; tetanus; anthrax.

VI. Bacterin and Serum Therapy.

The aim of bacterin and serum therapy, the production of a condition of immunity for therapeutic purposes. What occurs in spontaneous recovery. Mechanism of Immunity. Bacterin and serum therapy depend upon the principles of active and passive immunization respectively.

Bacterin and serum therapy of diphtheria; tetanus; typhoid fever; pneumonia; broncho-pneumonia; influenza bronchitis and "common colds;" pertussis (whooping-cough); Asiatic cholera; plague; dysentery; tuberculosis; meningitis; staphylococcic infections, acne, carbuncle, furunculosis, sycosis; streptococcic infections, septicemia, erysipelas, puerperal fever, streptococcic sore throat, rheumatism and various complications; gonococcic infection, acute and chronic gonorrhoea, gonorrheal rheumatism, etc.

VII. The toxins of the Higher Plants and Animals and their antibodies. The phytotoxins, ricin, abrin, crotin. The zoötoxins, phrynolysin (toad poison), arachnolysin (spider poison), snake poison, scorpion poison, bee poison. Antiferments.

VIII. Chemotherapy; distinguished from pharmacotherapy by Ehrlich. Atoxyl, Salvarsan. Chemotherapy of malignant tumors.

IX. Diagnostic Tests and Reactions.

Tuberculin reactions; the subcutaneous reaction, cutaneous reaction, Moro's tuberculin ointment, Von Pirquet's cutaneous test, intradermal tuberculin test, the opthalgo reaction, the mallein test, agglutination tests, Abderhalden's test and various tests by other authors. The opsonic index.

GLYCERITE OF BISMUTH.

WILBUR L. SCOVILLE, PH. G.

The present formula for making Glycerite of Bismuth, N. F., is faulty in that a considerable loss of bismuth occurs in the process and the glycerite is therefore indefinite in strength.

No method for assay nor standard of strength is appended, and thus any product made according to the formula will be approved, but in the use of this glycerite for making elixir of bismuth and similar preparations there will be necessarily a variation in strength.

In preparing the bismuth and sodium tartrate, the subnitrate is first dissolved in nitric acid and water, the solution is diluted, then tartaric acid and sodium bicarbonate are added successively, which probably results in the formation of bismuthyl-sodium tartrate. Whatever the composition of this salt, it is soluble to a considerable extent in the strongly acid liquor, and is not wholly thrown out by further dilution.

Dr. E. H. Squibb has recommended to increase the dilution from 1000 Cc. of added water to 5000 Cc. This throws out the bismuth salt more completely,

but still results in considerable loss. Moreover this dilution is troublesome to handle and demands large containers and a large volume of purified water for the preparation of a relatively small amount of the glycerite.

The water used must either be distilled, which is costly, or a specially purified water which will not darken the salt or solution is needed. Furthermore it was found that the loss of bismuth occurs not only in the first washings, but in the last as well. If the present (1000 Cc.) amount of water be employed and three washings given, there will be a loss of about 5 to 7% of the bismuth and the final product will be strongly acid and not entirely soluble. The addition of sufficient sodium hydroxide to produce a neutral or faintly acid solution will bring all of the salt into solution, but on standing the salt will partially crystallize out. This is not due to supersaturation, for the separation will still take place after considerable dilution and the salt is soluble in alkaline liquids.

This method of procedure, which at first appeared quite satisfactory, proved to be anything but so on standing, and elixir of bismuth made with it, also gave trouble by separation of the bismuth compound.

Attempts were then made to recover all of the bismuth used by neutralizing the strongly acid liquor before washing. Since the tartaric acid and sodium bicarbonate are used in molecular proportions, a neutral solution should be obtained by simply neutralizing the free nitric acid present.

On trial, however, it was found that the bismuth precipitate is quite soluble in neutral solutions, and that while more of the salt was thrown out by the addition of alkali, yet it was impossible to entirely precipitate it by this method. While the liquid is still strongly acid, the salt begins to redissolve on the addition of alkali.

The amount of dilution is also a factor in the case. After a number of trials it was found that the addition of 64 gms. of sodium bicarbonate or of about 70 Cc. of concentrated water of ammonia, resulted in the least loss of bismuth. If the excess of alkali be added before dilution, the magma is more dense and washes more easily.

In these experiments the total mixture was made up to a volume of about 2000 Cc., which is about the same dilution as the present directions.

Further experiments were made to determine the relative advantages of ammonium tartrate and sodium and potassium tartrate (Rochelle salt) for securing a soluble salt. It was found that a soluble salt could be obtained by using Rochelle salt in place of sodium tartrate, but that relatively more of the former is required. Thus while theory requires 217 gm. of Rochelle salt, in place of 177 gm. of sodium tartrate, 300 gm. of Rochelle salt was required to produce a clear glycerite. This solution keeps well but has considerable color, and is not economical.

In a similar way ammonium tartrate was tried, and was found to be inferior to the sodium salt for the purpose.

The amounts of wash-water and the number of washings were also varied. It was found to be impracticable to wash the magma entirely free from acid, but the final acidity should not be strong. When the amount of wash-water and

the amounts decanted are uniform, five to six washings are ample. At the end the washings will be acid to litmus paper but not strongly so.

Some attention was also paid to the assay of this preparation. Attempts were first made to ignite it directly to bismuth oxide and sodium carbonate, then wash out the carbonate with hot water and weigh the oxide. This can be done, but the ignition must be made very slowly or the residue will deflagrate violently enough to throw practically the entire contents of the crucible out. This explosion usually comes without warning, and over a very low flame. A preliminary treatment with strong nitric acid tends to prevent it, but even then there is danger and the operation is slow, for digestion with the nitric acid must be continued for ten to fifteen hours before ignition can safely follow.

Furthermore the heat evolved in ignition from the action of the nitrate on the organic matter present, almost fuses the bismuth oxide and makes it very difficult to wash. In fact it cakes so hard that one never feels satisfied that it is thoroughly washed, and no way was found of avoiding the caking.

The sulphide method of estimating bismuth was found to be not only much more satisfactory, but shorter and easier to operate. By this method the glycerite is simply measured, diluted, saturated with hydrogen sulphide and the precipitate collected, washed, dried and weighed.

One point was settled in the series of experiments, namely, that crystallization in the glycerite does not occur primarily because of supersaturation. The solution is heavy in salts, probably containing nearly 400 gm. of tartrates in 1000 Cc., yet samples containing 110% of standard have stood nearly four months (present writing) without precipitation. Apparently the compound is easily thrown out of solution by other salts, or even by hydrolysis, but when in proper condition the solution is stable.

The following formula is recommended for this preparation:

GLYCERITUM BISMUTHI—GLYCERITE OF BISMUTH.

Bismuth Subnitrate	156 gm.
Nitric Acid	148 cc.
Tartaric Acid	232 gm.
Sodium Bicarbonate	325 gm.
Glycerin	
Distilled water each a sufficient quantity to make about 1000 Cc.	

Mix the nitric acid with 300 Cc. of distilled water, in a bottle having a capacity of about 4000 Cc. and dissolve the bismuth subnitrate in the mixture. Then slowly add 600 Cc. of distilled water and dissolve 116 gm. of tartaric acid in the mixture. Now add, in small portions, 195 gm. of sodium bicarbonate, shaking frequently and avoiding loss by effervescence. When all is added fill the bottle with distilled water and mix well. Allow the magma to settle and decant the clear liquid. Again fill the bottle with water and wash the magma by decantation as before, until the wash-liquor has but a slight saline taste. Then pour upon a filter and allow to drain, rinsing the bottle with a little water.

Now transfer the moist magma to a porcelain evaporating dish and add 116 gm. of tartaric acid, then slowly, and in small portions 130 gm. of sodium bicarbonate. Heat the mixture on a steam-bath until solution is effected and the total volume

is reduced to 475 Cc. Then add 475 Cc. of glycerin, if necessary, enough water to make 950 Cc. of solution, and filter. Estimate the amount of bismuth in the liquid by the process given below, and adjust it by evaporation or the addition of equal values of glycerin and water to contain the equivalent of 12.8 gms. of bismuth oxide in each 100 Cc.

A colorless or pale-yellow liquid having a slight odor of glycerin and a sweet, followed by a saline taste.

Specific gravity about 1.378 at 25° C.

If 5 Cc. of the glycerite, accurately measured, be diluted to about 200 Cc. with water, this solution saturated with hydrogen sulphide and allowed to stand two hours, then the precipitate collected on a tared filter, washed thoroughly with hydrogen-sulphide test solution, then with a little alcohol, and finally with recently distilled carbon disulphide until all free sulphur is removed, then dried to constant weight at 100° C., the residue should weigh not less than 0.690 gm.

(The weight obtained multiplied by 0.905 and this product by 20 gives the equivalent of bismuth oxide per 100 Cc.)



C. H. PACKARD

CHAIRMAN COMMITTEE ON MEMBERSHIP.



JOHN C. WALLACE

CHAIRMAN DELEGATES TO DRUG TRADE
CONFERENCE.

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-Second Annual Convention

CHAIRMAN'S ADDRESS—SECTION ON PHARMACOPOEIAS AND FORMULARIES.

E. FULLERTON COOK, P. D.

As this address is being written your Chairman faces the peculiar position of not knowing whether he is to deliver a call for renewed activity to a virile and promising branch of the Association, or whether he is to be called upon to preside at the obsequies of a dead or dying Section. Today the life of the Section hangs in the balance; before the Council, prosecution and defense have presented their cases and the verdict is awaited.

The Chairman has earnestly protested against the discontinuance of the Section, as he believes that it is an advantage to the Association to retain the divisions of work already established, increasing them perhaps, if necessary, so that the annual meeting will include adequate consideration of every important branch of pharmaceutical activity.

Instead of arbitrarily selecting three or four general heads as "Scientific," "Practical Pharmacy," etc., with the hope that the Chairman entrusted with the preparation of programs will cover all departments within the scope of pharmacy, it would seem to be a better plan to divide the same time between two or three Chairmen, each selected for his knowledge and interest in a specific branch of the work. Can it be expected that a chemist as Chairman would develop a program covering the latest developments in *Materia Medica* and Pharmacognosy, or a pharmacognist be interested in galenical preparations or prescription difficulties? Yet this is what has been seriously advocated.

Those familiar with the history of the Section know that it was proposed by the late Professor Oldberg whose large experience gave him the comprehensive vision which recognized the value of assembling pharmacopœial and formulary material, and developing year by year special programs covering this field. The Section was created by resolution of Council in 1912 and has officially enjoyed two years of life, a preliminary meeting having also been held during the Denver meeting three years ago. Whether the motion to abolish the Section has prevailed in the Council will probably be known by the time this Section meets and congratulations or condolences will be in order.

Whatever the decision, however, the importance of guide and reference books of the character here under consideration will not be lessened. So long as pharmacy exists a standard collection of formulas with tests and other related information for medicinal or prophylactic use, will remain an essential, so that, even in the midst of these uncertainties, a few guiding principles may well be laid down.

One task before the Section is the listing of the best available books containing formulas. This has already been started; a list mainly of foreign books having been presented a year ago by Mr. Raubenheimer and published in the Journal. The Secretary this year promised a more comprehensive collection of titles.

It would be of much value if this list when published would include a brief outline of each book, indicating its scope and purpose, price and publisher, and it should include, in addition to pharmaceutical preparations as usually understood, veterinary medicines, household recipes, business and scientific formulas, etc.

This field may also be enlarged (when the Association establishes permanent headquarters) through the Section's assistance in collecting the actual books, either by exchange for our National Formulary, or through donation or purchase. In this way a valuable collection of pharmacopœias and formularies will be made available for the officers of the Association and others. There has evidently been no attempt in the past to start such a collection, and your Chairman would suggest that, in anticipation of the establishment of headquarters, the proper parties be instructed to enter into correspondence with authors or publishers of such books, with a view of effecting an exchange with the new N. F. IV.

The main purpose of this Section lies in its possibility for constructive work. Its activities throughout a period of years should materially assist in the improvement of existing books and in the development of many new formulas and processes. The Section may encourage the improvement of existing standard formulas, the proposal of new or improved tests and assays for establishing the standard character of preparations, and the perfecting of new preparations useful in the field mentioned.

Before this Section, have been presented the reports from all established committees at work in associated fields—Pharmacopœia, National Formulary, Unofficial Standards, Recipes for Household or Scientific Use, etc., and the value of collecting these allied subjects before one interested audience and of affording an opportunity for discussion must be recognized.

Our own publication, the National Formulary, with the Fourth Edition enters upon a new era. For the first time it has been revised with the purpose in view of serving as a standard under the Food and Drugs Act. Standards have been established for such preparations as lend themselves to assay, and all articles entering the formulas have been carefully defined, if not already standardized by the U. S. P.

Although a privately owned book, it now becomes a part of the National Law, and it will require much wisdom on the part of the Committee in charge, and of the Association Council to establish the policies which are to control it.

The importance of the National Formulary has also greatly increased because of the inclusion in this edition of many largely used preparations formerly official in the U. S. P. The Association has assumed the authority of republishing these formulas, but it cannot claim thereby any exclusive control over them. This fact compels a broad and liberal attitude toward this question.

With the increased importance of the National Formulary another policy should become well-defined, i. e., the exclusion of any formula which can be said to imitate a proprietary or widely-advertised product. When years of medical

use have proven the efficacy of a certain type of preparation, and many pharmaceutical houses and retail pharmacists are manufacturing products of that type, there can be no fair criticism of the National Formulary if it publishes a formula of the same general character for the purpose of establishing a standard strength. The guiding principle here, however, should be "A high grade pharmaceutical product, offered upon its own merit and with a distinctive flavor and appearance."

Your Chairman would recommend that this Section go on record as approving such a policy for the Association in the preparations of the National Formulary.

The question has many times been asked "What sharp distinction now exists between the U. S. P. and N. F. " With the new policy for the N. F. IV in which basic substances used in formulas are included and standardized there is even less difference between the two books to the casual observer. There remains, however, this important difference: To the U. S. P. is conceded the right to first choose from the entire field of materia medica those substances or preparations, in the eligible class, which, in the opinion of the Revision Committee are most useful in the practice of medicine. The chief purpose of the N. F. from its inception has been to provide standard formulas for those substances used in medicine which the U. S. P. thought it unwise to include. Even this classification is too broad, for there are many substances and preparations used in medicine which will not be found in either the U. S. P. or N. F., so that in reality the N. F. is the second selection. As to the relative merits of many of the articles left for the N. F. there is a vast difference of opinion and often it has been by but a small majority that the decision was reached to include or exclude preparations from both books. This, of course, may be expected since medicine yet depends largely upon empiricism for its conclusions concerning the merit or demerit of many products, and this very condition demands a book occupying the place now held by the N. F.

Every member of the Association should do his utmost to perfect this important publication so that the Association may occupy an honorable and helpful place in the advancement of medicine during this era. As much as is possible the question of financial return to the Association from the sale of the book should be subordinated, especially if it is suggested that this income be used for the general work. The Association can hope to retain the honorable, but unusual position of control and ownership of a National standard only so long as the policies guiding the Association are free from pure commercialism; it must prove that it is worthy of the trust. A portion of the income from the sale of the book should be used for the establishment of a laboratory where, before the next edition is needed, some of the problems which have arisen during the current Revision may be solved. This would be a worthy and suitable use for a portion of the profits, and it should not be forgotten that at least the expense of adequate Revision should be provided for.

One feature of the sessions this year which should prove interesting to the members of the Association, and which should be helpful to both the U. S. P. and N. F. Revision Committees is the exhibit to be held on Friday. A number of the members of the Association have prepared specimens of new or modified

formulas using the proposed methods, and they have reported their experience with each preparation.

Your Chairman desires to express his appreciation of the immediate response given to his appeal for assistance in getting up this Exhibit, and takes this opportunity of thanking all of those who have contributed.

REPORT OF THE COMMITTEE ON THE U. S. PHARMACOPOEIA.*

The publication of four parts of the first proof of the U. S. P. IX has given this committee some material for consideration during the past year. The strenuous efforts, however, of the National Committee of Revision of the U. S. P., and of the committee on the National Formulary to complete their respective works has continued to absorb to a considerable extent the available energy of the majority of the members of this committee. We have, however, managed to review the first three parts of this first proof, and have forwarded as rapidly as possible the results of our deliberations direct to the Chairman of the Committee of Revision. We have hoped in this way to place our suggestions before the National Committee, at a time when they would be in a position to consider them.

A few of the comments that this committee has made which have a general bearing, we desire to present at this time in our report.

The use of the term "Melting Point," which is generally understood to mean a definite temperature, is inappropriate when used to designate a range of melting points for a given substance which may extend over several degrees of temperature.

The word "should" is not emphatic enough for use in expressing a requirement, and its use in this sense in the Pharmacopœia ought to be greatly curtailed.

Since the U. S. P. is a legal standard the plea has been made that its language be as free as possible from relative qualifying words of the character of "faint," "slight," "moderate," "about," etc., unless the same be properly defined in an appropriate place.

When an article of different origins is considered it is undesirable to place the different descriptions under one title, as is offered in the case of Salicylic and Benzoin, etc.

The use of the term "absolute Alcohol" to indicate an alcohol which is absolute, in one part, and not absolute in another part of the book, is confusing.

It seems highly desirable that the tests in the U. S. P. be discriminated into "identity or description tests" and "purity requirements."

With reference to standards, there seems to be a desire on the part of those who use the U. S. P. simply as a legal standard to set the purity requirements high and to have the tests very exacting, whereas those who may be amenable to its provisions seem to advocate a somewhat lower purity requirement with tests less exacting. To harmonize these two interests is undoubtedly a difficult matter. One also notes the desire of the Chemist to introduce special testing apparatus like the polariscope, spectroscope, refractometer, platinum ware, etc. On the other hand the druggist does not see his way clear to acquire these, even though he may have the time and ability to use them. Consideration should therefore be had for him in this effort to secure proper standardizations. Where no method of preparation is given for an article, refined methods of valuation would seem desirable; but in the case of the various preparations which may be

* Presented to Section on Pharmacopœias and Formularies, August, 1914.

made by the druggist, methods of standardization which demand only inexpensive apparatus should suffice.

This committee does not feel that the specific comments that it has made on individual drugs that have been mentioned in the pages of the first proof are of sufficient moment to the Association at this time to warrant burdening it or the pages of the Journal with them, since no one but the members of the Revision Committee can have any special interest in them.

Let it suffice to say that the members of this committee have made such criticisms and rendered such assistance as they could during the past year to aid the Revision Committee in their work of preparing a Pharmacopœia that will be acceptable to the members of this Association and to American pharmacists in general.

Respectfully submitted.

L. D. HAVENHILL, Chairman.

REPORT OF THE COMMITTEE ON RECIPE BOOK.

With Special Reference to its Scope and Indirect Value.

To Officers and Members American Pharmaceutical Association:

The Chairman of this Committee, through the courtesy of his colleagues, but not necessarily with their approval, is allowed to present his conclusions regarding the publication of a recipe-book by the American Pharmaceutical Association, independently, and, in the same manner, offer arguments supporting these conclusions.

There is so much more involved or intended to be involved in this recipe-book proposal than is yet generally recognized and appreciated that it seems not at all out of place to call attention, special attention, to related subjects and ask careful study of the far-reaching vital results that may be made to follow a proper working out of the relationship a recipe-book may bear to the other work and the other publications of the Association.

Fundamentally, the publications of an organized body, carrying such stupendous responsibilities as does the American Pharmaceutical Association, are important far beyond usual comprehension. One may justly tremble for those who have assumed principal responsibility for these publications, no matter whether the assumption be stimulated by creditable benevolence or sordid ambition. What is there, that is tangible, of the Association's yesterday's, but its publications? How is it possible to broaden the scope of its influences beyond that represented by the very limited number who attend its meetings save through or by its publications? What real thing is left to those who will follow us, but its publications? How does the world come to know of it; how does the world estimate its value; how is the world's respect created or its contempt engendered?—Wholly by its publications. Pharmacy and pharmacists of the United States of America, —and all and everything comprehended in these terms; the aims, the ambitions, the attainments, the standards, the science, even the morals of all these are most conspicuously and positively set forth in the publications of this Association. Let us be impressed by the truths:— "It is not that which entereth the man that defileth him, but that which proceedeth therefrom" and "By your fruits shall ye be judged."

And, fundamentally, again, must be considered the influence of the American Pharmaceutical Association, direct and indirect, upon other publications, notably, upon the Pharmacopœia and the pharmaceutical text-books. It is well for us to remember how much all of us laymen, as well as teachers, have to do with what is taught those who are to have future pharmacy's control. Why should we

wonder that such slow progress has been made when we fail to give those who must be our successors not the best that we know, but that which appears to be the most expedient for ourselves. God help us.

Parenthetically, it may be added that the influence of the American Pharmaceutical Association upon the revision of the Pharmacopœia is much more potent than is generally recognized and must not be overlooked or denied when the faults of *that* publication are exposed or its praises sung. If there is not soon to be a readjustment of the titles of our books of standards, even greater responsibilities might be thought of for this Association, in connection with the further proper development of the Pharmacopœia. It is really remarkable how comparatively little there is wrong with the general character of the eighth revision. The deletion of a very few inconsistent contents would make it almost perfect, save for its great want of comprehensiveness regarding much used simple substances. Let us congratulate ourselves and be happy over the most creditable progress made, but let us, also, as happily engage in making still further desirable progress.

Names may or may not have influence or power; this is an old question that is not, just now, up for settlement. For the moment, however, the titles of certain legally recognized books and their present characteristics may be wholly forgotten and the imagination allowed to form pictures without hindrance; such pictures are:— First. A thoroughly comprehensive book of standards for simple substances that are, in any way, used for the healing of the ills of human and other animal bodies,—nothing beside, nothing less. The proposed governmental list of general standards is held in mind, but careful consideration will lead to the opinion that there is a fortunate and unusual benevolence always surrounding the “healing of the sick,” which will lend additional interest and carefulness to the preparation of a book of standards for medicinal substances, alone. The differentiation of a simple substance may be made by describing it as something held together by the forces of cohesion or chemical affinity, separately or connectively. The creation and oft correction of such a book of standards should be entrusted to those who are trained to know, and do know, most about the identity and contained characteristics of drugs—the pharmacist.

Bearing directly upon the proper scope of the Association's existing publications, indirectly upon the proper status of the recipe-book and largely upon the prophetic comprehensive book of standards, is the excellent and creditably unselfish work done by our Committee on Unofficial Standards. Whoever it was, Dr. Kremmers or Dr. Beal that initiated this work, the real originator should be ascertained. He builded far beyond our early contemplation of the subject. It is, no doubt, the very satisfactory beginning of such a book of standards as is most needed by those that have to do with medicines and, if the work is properly husbanded and encouraged, it will surely lead to an authority to which the Pharmacopœia will be second, if the latter continues the impossible feat of riding two horses and of carrying such a diversity of burdens.

Surely, the work of the Committee on Unofficial Standards should be published in an independent volume and should not, for many good reasons, be included in a book of formulas. The Recipe-book, if published, will also make certain need for these standards. The importance and helpfulness of this fixing of marks of identity and signs of quality is far in advance of the mere constructions of formulas.

Second. An intelligent and carefully prepared list of therapeutic agents. Such a list should include the application of all the scientific knowledge at command and, while it could not be mandatory upon the medical profession, would help the trusting helpless and be an essential guide to teachers and board examiners. With this the pharmacist should have nothing to do and the medical profession should, through its greatest organization, have all to do. Whether or not this publication should contain more than simples, as heretofore described,

may be a subject for consideration by its compilers. Well defined outlines of this picture may already be seen in "Useful Drugs" of the Americal Medical Association.

Third. A book in which is contained formulas for preparations of the agents listed in "Number Two," the book of therapeutic standards, in such form and combinations as conform to the best knowledge and practice of the times and, certainly, with regard for reasonable ethics and the just rights of others wherever and wherever they may be. Such a book should be indicative of the character and attainments of the profession or professions it presumes to represent and should lend the helpfulness of advanced science. It should not, under any circumstances, present the fallacies of past ages or the mistakes of later days. The care and control of such a publication should, undoubtedly, in justice to all concerned,—invalid humanity, medicine, pharmacy,—be delegated to representatives of the two professions most intimately involved.

Fourth. A storehouse, repository, a resting place; in some respects, a museum to care for and hold for use, for reference, certainly, for preservation, all the medical formulas that are worth while, that have no place in authorized books of formulas. No formula should be included that has not been in more or less general use for five years and its genuineness and trustworthiness, as to identity, should be assured. When once admitted, it becomes the authoritative formula for the preparation under the name of which it is written, being, thus, a guide for all concerned.

It must be borne well in mind by all those who would enlarge the scope of the Recipe-book, that new formulas are generously gathered from all sources by the able reporter on the Progress of Pharmacy and are printed in the Year Book with such connected information as to make experimentation with them more successful. This yearly comprehensive collection of suggested formulas and suggested modifications of formulas is a most valuable feature of the Association's publications and does not need to be replaced by any other device. To the contrary, it should be encouraged and more earnestly exploited, for there is, indeed, much helpful information of this kind always stored in the Year Book. Let us hope for even a greater collection of offered formulas useful to the practical pharmacist.

All formulas introduced into the repository of accepted recipes should be prefaced with a concise history, giving the source, local connections and former placement, if any. Other offerings for the same title may be subsequently introduced, but always with explanatory notes of contest and with the names and arguments of contestants. Modifications of formulas may be accepted, but these must never lead to the slightest change of the original; they must be exhibited as modified recipes, with explanatory notes showing the reason for the modification and its author.

The source of these recipes should be as follows: (a) Deletions from the Pharmacopœias, including the revision of 1870, and those from all subsequent revisions; deletions from all the editions of the National Formulary, also the originals of the formulas remaining, in subsequent editions of those books, when the revised formulas show marked changes in strength or structure. (b) Popular formulas published in recognized medical and pharmaceutical authorities. (c) Selections from medical and pharmaceutical journals. (d) Foreign formulas largely used in this country. (e) Private contributions.

Concise a few specific recommendations are offered.

RECOMMENDATIONS.

It is recommended to the Association, as a whole, the recommendations to be referred for consideration, as may be the Association's pleasure, as follows:

First. That a permanent committee on Recipe Book be provided for, com-

posed of seven members, appointed by the Council, and that vacancies be filled by that body.

Second. That the Committee be authorized to collect recipes according to such rules as it may adopt, provided such rules are endorsed by the Council, it being understood that amendments to these rules shall also be endorsed by the Council.

Third. That as soon after the publication of the ninth revision of the Pharmacopœia and the fourth edition of the National Formulary, as practicable, the Committee's collections of recipes shall be published as a separate supplement to an issue of *THE JOURNAL* and a copy be furnished to each member of the Association with the issue of *THE JOURNAL* to which it may be a supplement.

Fourth. That the matter of publishing the recipes thereafter in book form be referred to the Council with power to act.

Attached hereunto will be found the suggestions as to "Scope and Character" of the Recipe Book, as made by Chairman Raubenheimer in the painstaking and able report read by him at the Boston meeting and as mere suggestions to the successors of this Committee, there will be also attached several lists of formulas giving their titles only, with source from which they may be obtained, all of which are most respectfully submitted as a part of this report.

In conclusion, the matter of this report should not be subjected to superficial criticism; it relates to matters of far too serious import to be so treated: it sets forth conclusions built upon years and years of hard and careful study, aided by close experiences, in the work, and by unusual opportunities for observation. The arguments should have full force; that they may be connected with personal eccentricities should not detract, in the least, from their real worth, nor should anything submitted in this report be opposed by mere personal whims. The fetish clinging to names by prejudiced conservatism or erroneous usage should be forgotten; the thing, itself, must be considered, its truth or its error, its progress or its "standpatism"; most of all must be considered its promises, its promises of better things, especially, to those for whom we should make clear the way.

From Report of Committee on Recipe Book at the Boston Meeting, Otto Raubenheimer, Chairman:—

"SCOPE AND CHARACTER."

"The Recipe Book should be progressive and helpful and should include formulas for things which are used and useful and should be divided into several parts.

a.—formulas deleted from U. S. P. and N. F.

b.—Formulas of foreign pharmacopœias and formularies, which are often prescribed or for which the retail pharmacist could make propaganda efforts.

c.—Various other formulas, often named after their originators, scattered, at present, in pharmaceutical and medical journals, books and proceedings and also hospital formularies.

d.—Toilet articles, cosmetics, and perfumery.

e.—Technical receipts as battery fluids, photographic solutions, cleansing fluids, insecticides, etc.

f.—Agricultural preparations, veterinary remedies, poultry foods and medicines, etc.

g.—Soda water, beverages, syrups, etc."

Formulas selected from those suggested by Chairman Raubenheimer, which are of a character to demand convenient placement and which would add real value to the Recipe Book:

Kummerfeld's Lotion
Hufeland's Infant Powder
Scarlet Red Ointments

Beck's Bismuth Pastes
Lubricating Jellies
Thiersch's Gauze

Lassar's Paste	"Clondy" Ammonia
(N. Y. S. & C. Hosp. Modification)	White Lotion
Compound White Lotion	Calamine Lotions
Granville's Lotions	

List of articles, the formulas of which the Chairman suggests, might, with great advantage, be taken out of the National Formulary and preserved in the Recipe Book:

Aromatic Vinegar	Sedative Water
Traumatic Balsam	Compound Camphor Cerate
Blackberry Cordial	Compound Decoction of Aloes
Compound Elixir of Celery	Elixir of Buchu
Compound Elixir of Buchu	Elixir of Buchu and Potassium Acetate
Compound Cathartic Elixir	Compound Elixir of Chloroform
Elixir of Coca	Compound Elixir of Corydalis
Elixir of Coca and Guarana	Compound Digestive Elixir
Glycerinated Elixir of Gentian	Elixir of Malt and Iron
Elixir of Pot. Acet. and Juniper	Compound Elixir of Blackberry
Brown Plaster	Compound Elixir of Stillingia
Compound Elixir of Viburnum Opulus	Essence of Pepsin
Compound Tar Plaster	Ferrated Extract of Apples
Compound Fluidextract of Buchu	Glycerite of Guaiac
Phosphatic Emulsion	Fermented Milk
Compound Liniment of Opium	Humanized Milk
Germicide	Alkaline Antiseptic
Battery Fluid	Solution of Morphine Citrate
Magendie's Solution of Morphine	Acid Solution of Phosphates
Solution of Pot. Arsen. and Bromide	Pearson's Solution
Solution of Chlorinated Potassa	Astringent Lotion
Black Wash	Lotion of Lead and Opium
Yellow Wash	Mixture of Acacia
Villate's Solution	Mixture of Ammonium Chloride
Hope's Mixture	Parrish's Camphor Mixture
Dalby's Carminative	Chloral and Bromide Compound
Chloroform Anodyne	Sun Mixture
Squibb's Diarrhoea Mixture	Lafayette Mixture
Loomis' Diarrhoea Mixture	Chapman's Mixture
Thielman's Diarrhoea Mixture	Mixture of Guaiac
Velpeau's Diarrhoea Mixture	Oleo-balsamic Mixture
Mixture of Oil of Tar	Stokes' Expectorant
Compound Mixture of Rhubarb	Gadberry's Mixture
Haller's Acid Elixir	Aromatic Pepsin
Antidyspeptic Pills	Barker's Post Partum Pills
Antineuralgie Pills	Francis Triplex Pill
Warburg's Pills	Compound Powder of Acacia
Hiera Picra	Catarrh Power
Soluble Antiseptic Powder	Compound Powder of Catechu
Aromatic Powder of Chalk	Calomel and Jalap
Compound Powder of Iodoform	London Paste
Compound Powder of Kino	Emollient Species
St. Germain's Tea	Breast Tea
Spirit of Ants	Alcoholic Eye Wash
Compressed Sponge	Bleached Sponge
Lime Juice and Pepsin	Compound Syrup of Cimicifuga
Syrup of the Bromides	Compound Syrup of Canada Snake Root
Syrup of Morphine Sulphate	Compound Syrup of Morphine

Syrup of Poppy
Compound Syrup of White Pine
Aromatic Syrup of Blackberry
Fenner's Guaiac Mixture
Hot Drops
Tincture of Ferrated Extract of Apples
Churchill's Tincture of Iodine
Tincture of Poppy
Compound Tincture of Zedoary
Mother's Salve
Soothing Ointment
Compound Fluidextract of Stillingia

Jackson's Pectoral Syrup
Neutralizing Cordial
Fleming's Tincture of Aconite
Warburg's Tincture
Bestucheff's Tincture
Deweese's Tincture of Guaiac
Compound Tincture of Kino
Bateman's Pectoral Drops
Turner's Cerate
Compound Tar Ointment
Hebra's Itch Ointment

To these must be added the one hundred and thirteen formulas in the "Appendix," which are deletions from the pharmacopœias.

The Pharmacopœia of the United States holds formulas, which the Chairman believes detract from its usefulness by lessening the respect in which it is held.

These formulas would *adorn* the Recipe Book; the list is as follows:

Vinegar of Opium
Cerate of Lead Subacetate
Confection of Senna
Emul. of Cod Liver Oil with Hypophos.
Compound Infusion of Senna
Antiseptic Solution
Mixture of Rhubarb and Soda
Mucilage of Elm Bark
Vegetable Cathartic Pills
Pills of Podo. Bella. and Capsicum
Compound Licorice Powder
Compound Jalap Powder
Aromatic Spirit of Ammonia
Syrup of Lime
Compound Syrup of Squill
Compound Tincture of Benzoin
Compound Tincture of Lavender
Aromatic Tincture of Rhubarb
Troches of Ammonium Chloride
Troches of Gambir
Troches of Krameria
Troches of Santonin
Wine of Antimony
Wine of Colchicum Seed
Wine of Iron
Wine of Ipecac

Hamamelis Water
Compound Rosin Cerate
Emulsion of Cod Liver Oil
Emul. of Oil of Turpentine
Turpentine Liniment
Chalk Mixture
Mucilage of Sassafras Pith
Compound Cathartic Pills
Compound Laxative Pills
Compound Pills of Rhubarb
Dover's Powder
Tully's Powder
Compound Spirit of Juniper
Compound Syrup of Sarsaparilla
Tincture of Aloes and Myrrh
Liquid Dover's Powder
Paregoric
Troches of Tannic Acid
Troches of Cubeb
Troches of Glycyrrhiza and Opium
Troches of Potassium Chlorate
Troches of Sod. Bicarbonate
Wine of Coca
Wine of Ergot
Bitter Wine of Iron
Wine of Opium

From the Unofficial Formulas, published by the Maryland College of Pharmacy:

Chlorodyne
Guttæ Vitæ
Buckler's Croup Mixture
Ungentum Hebra
Crazeaux Nipple Ointment
Nutritive Ointment
Zoll's Pink Paste
Clapp's Pills
Pill Triplex

Zoll's Comp. Confection
Buckler's Neuralgia Liniment
Grahame's Diarrhœa Mixture
Compound Camphor Ointment
Compound Galbanum Ointment
Abernethy's Dinner Pill
Ward's Paste
Marshall Hall's Dinner Pills
White's Gout Pills

Wallace's Pills
Smith's Anodyne Plaster

From text-books:

Allen's Nipple Wash
Tillyard's Brown Mixture

From a private formulary:

Tanret's Test Solution
Kummerfeld's Lotion
Solution of Sulphanilic Acid
A. C. E. Anæsthesia Mixture
Guttæ Vitæ
Alkaline Gentian Mixture, J. H. H.
Seiler's Antiseptic Wash (original)
Addison's Pills
Thompson's Fluid
Haines' Test for Sugar
Carbonis Detergens
Schleich's Solutions
Boas' Reagent
Doremus' Solution for Ureometer
Hoff's Consumption Cure
Guenzberg's Reagent
Piffard's Test Paste
Fuller's Lotion
Grey Oil
Wadsworth's Mouth Wash
Channing's Solution
Bogg's Reagent
Kaiserling's Fluid
Dentzel's Hæmostyptic Tincture
Analgesic Balm (Raubenheimer)
Phenolphthalein and Zinc Dust Solution
Talbot's Iodo-glycerole
Hayem's Fluid
Uffelmann's Solution
Lockes' Solution

References to Recipe Book:

Bulletin of A. Ph. A.

Vol. IV.

No. 8, p. 248
No. 10, p. 329 and 331
No. 11, p. 425

Vol. V.

No. 6, p. 352
No. 8, p. 454
No. 9, p. 485
No. 10, p. 538 and 541

Wilken's Pills
Schneeberger Snuff

Thompson's Eye Water

Seibert's Paste
Eau de Princesse
Smith's Anodyne Plaster
Sol. of Sod. Nitrite for Diazo Reaction
Comp. Menthol Powder, J. H. H.
Syrup of Dover's Powder
Williams' Pink Mixture
Thompson's Fluid, Concentrated
Niemeyer's Pills
Ringer's Solution
Solution of Fluorescein
Esbach's Solution
Hare's Normal Saline Solution
Deweese's Emmenagogue
Trunczek's Serum Cachets
Solution of Atoxyl
Normal Salt Tablets
Asiatic Pills
Harrington's Solution
Carminative Tincture
Trooper's Liniment
Calamine Lotion, J. H. H.
Lenoble's Test for Acetone
Ballemer's Gargle
Tsuchiya's Reagent
Goldhammer's Pills
Poppenheim's Solution
Schlesinger's Solution
Trousseau's Pills
Stitt's Solution

Journal of A. Ph. A.

Vol. I.

No. 2, p. 168
No. 4, p. 368
No. 5, p. 405

No. 6, p. 637

No. 9, p. 902

No. 12, p. 1462

Vol. III.

No. 2, p. 189

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-Second Annual Convention

CHAIRMAN'S ADDRESS.

FERDINAND W. NITARDY, PH. C.

Fellow Members:

This section was founded to give the pharmacist a clearing house, for the exchange of practical hints and information about dispensing, and the practice of real pharmacy, as well as to provide an institution to aid and foster initiative and advancement. The record of our proceedings should form an accurate history of the progress of practical pharmacy and dispensing within these United States, and the papers presented at these meetings should throw a vivid light on the practical application of scientific pharmaceutical advancement of the year, reflecting a credit to American pharmacy second to none.

Excellent work has been done by this section since its very beginning, work of a quality that has served as an inspiration to your officers, and work that we hope to equal this year. The scope and usefulness of this section, however, is such that, up to the present, I believe we have but barely scratched the surface of our possibilities. Officers have labored under great handicaps, and the general support of the membership is still to be enlisted. Gradually these handicaps should be eliminated, and each year should add to the number of actively interested members, until by growth and development, the section will reach the zenith of service and usefulness to American pharmacy.

I did not fully realize the inadequateness of my experience, when you honored me with this important office, or I should have been more reluctant about assuming it and the duties involved. I am mentioning this with a definite purpose, for I believe that all previous officers have felt, to a greater or less extent, the lack of experience in conducting work of this nature. I also believe that something can be done to help overcome, in part at least, this handicap, and it is for this reason that I am devoting a portion of my address to the work of the section direct, embodying a few questions that I hope may receive your earnest consideration.

Guided by the experience obtained in a year's effort on behalf of our section, I am led to believe that one of the greatest handicaps to the officers lies in the absence of all records pertaining to the work done by their predecessors. Each year we have succeeded in collecting a number of valuable and instructive papers, most of them written by what we might call the old guard; small indeed is the quantity of new blood enlisted. Either there exists a shameful apathy on part of the rank and file of our members, or we officers are on the wrong track in our efforts to enlist their interest and coöperation. Would the preservation of our correspondence, mailing lists, etc., help future officers in selecting the names of members to whom to address their appeal for papers? Would a record of how and what, was done, with a notation of the results obtained, serve as a useful comparison or prove of value in determining how the duties of the officers may be executed with the greatest efficiency and economy? Could we in course of a few years by following a definite system, make an effective appeal to the entire membership and enlist the coöperation of all who are interested in practical pharmacy and dispensing? Could the final results of such appeals be tabulated or reduced to a card-index system, that would eliminate guesswork and un-

necessary expense and labor? Would it be advisable to formulate at each convention a set of questions, embodying such problems as confront practical pharmacy and dispensing, for study and solution during the year, the results or answers to be offered at the following year's meetings? Could a systematic research of practical pharmacy be carried on by this section, if we should formulate definite plans, divide and assign the work to such members as have expressed their willingness to aid, and compile the results for publication or presentation at our conventions? Would a carefully planned progressive campaign, endeavoring to solve the problems and questions confronting us, spell greater progress and interest for the section than our present method of leaving all the subjects of our papers and discussions entirely to chance? I believe I should answer these questions in the affirmative; further I believe the section can accomplish these and greater things in course of time if we shall lay the proper foundations and plan our work ahead like an architect plans a building previous to its construction.

I would like to have you discuss these questions briefly, and I should especially like to hear the opinions of the ex-chairmen and past officers of the section. Even tho it may be considered premature to take definite action this year, I feel that such a discussion will bring out many valuable suggestions, which, as part of our minutes can be referred to by future officers, with profit as well as give additional material for study previous to final action.

The interests of this section are the interests of the practical pharmacist and dispenser, and as such is true, I feel it may not be amiss to touch on some of the influences shaping his destiny.

Pharmacy is undergoing decided evolutionary processes. Considerable attention has been paid to the trend of commercialism, but the influences that are now changing the professional side of our vocation have been but meagerly discussed. Hygiene, preventive medicine, serum therapy, vaccine treatment and other modern methods are reducing the present physicians' legitimate demand for drugs. Prescription business is not increasing. Dispensing doctors, the "hand me down" type of prescriptions supplied by manufacturing houses in the form of ethical (?) proprietaries, Christian Science, medical fads, the public's love for self-treatment with patent nostrums, and our own inclination to let the manufacturer do the bulk of our work along producing lines, leave little real professional work for the pharmacist. We must carefully conserve the remnant and find new fields of professional endeavor, or professional pharmacy will gradually pass out of existence. By proper attention to the actual practice of pharmacy, much can be done to revive and maintain a demand for such professional service as is involved in the dispensing of prescriptions. Making our own preparations, educating the doctor to specify U. S. P. and N. F. and seeing that, when these standard preparations are specified, the products dispensed or compounded are perfect, active and pure, will do much toward increasing profits and regaining or holding professional prestige. But this alone will not suffice, for that line of service is becoming more limited. We must study the new tendencies and determine where new fields of usefulness are open to us. The pharmacy is the logical source of aid, information and supply for both physician and patient, and it behooves us to keep abreast with modern demands. If a physician abandons the old-fashioned prescription and oral administration, for the more modern intravenous method, should we worry? No! We should prepare ourselves to meet his wants, make and supply the necessary sterile solutions in glass-stoppered bottles or ampoules. We can do it just as well as some Frenchman on the other side of the globe.

If a physician is strong for vaccine treatments, we should supply him not only with vaccines, but offer our service on everything that goes with it. If he insists on making his own bacteriological examinations, we can at least supply him

with the stains, reagents, etc. required for this work. Let us be ever on the alert to exploit every opportunity that offers a chance for professional service, and let us take care that we are equipped to render such service in a satisfactory manner.

Evolution of pharmacy will not mean its death or a loss to those engaged in its practice, so long as we will grasp the opportunities offered by evolution, remain on top of the wave of progress, and rectify those conditions or practices that tend to lower, undermine or destroy our professional existence. While we should not advertise the defects or shortcomings to be found in our profession, we must nevertheless meet the problem squarely and seriously.

There are so-called pharmacists practicing to-day, who are unable to meet even limited demands along the ordinary line of professional pharmaceutical service, to say nothing of keeping abreast with advancement.

There exist so-called pharmacies to-day and many, many of them, whose prescription-stock is out of all proportion with the income derived from this department, and even then it is too limited and too old, to make good service possible on the few prescriptions that are filled.

Many localities are still burdened with so-called pharmacies that serve only as a blind for the degrading traffic in liquor and narcotics, practices that should be entirely divorced from, and never allowed to soil the skirts of an honorable profession.

It is to our shame that such things are true, and it is such conditions that rob pharmacy of its professional standing with the public and other professions. They are the destructive elements whose insidious activities are so effective, that the combined efforts of those who strive to advance our profession fade into insignificance. That the real pharmacist suffers more from these conditions than the druggist with whom pharmacy is a side line, is obvious.

Proper laws and their enforcement are helpful means to eradicate or mitigate these evils, but the most effective weapon in our hands lies in the selection and training of our apprentices. They will be the pharmacists of tomorrow. Their ability, thought and ideals will shape its destiny. They will act, think, believe in, hold sacred and idealize as we teach them, and therein lies our responsibility to pharmacy. Its future, through them, is in our hands.

So, if we would serve ourselves, humanity and our profession, let us not only practice pharmacy but ensure its future by eradicating present evils and barring from its ranks the morally and mentally unfit or incapable.



SCENE IN BELLE ISLE PARK, DETROIT

Editorial

ERNEST C. MARSHALL, Acting Editor.....63 Clinton Building, Columbus, Ohio

THE CONVENTION.

THE A. Ph. A. Convention for 1914 is a thing of the past; its action is accomplished and its mission completed,—no, not completed, for the effects of its work will be felt for years to come in revivifying and renewing the soul of pharmacy,—its science, its erudition, its *technique*,—all that bestows upon pharmacy true dignity and honor.

For sixty-two years the Association has held these things in charge as a precious heritage. In every honorable and dignified way it has striven to uplift and dignify the name of Pharmacist; it has resisted the sordid spread of commercialism within the profession, and has labored to keep its shield clean and bright when sullied by the cankering rust of mercenariness, Thaler-lust, and all that tends to the degradation, the lowering of mentality and character to any class or to any man in which these things become the predominant passion.

High above the bitter strife for existence, the selfish war of the world, it has held aloft its proud banner inscribed A. Ph. A., which might well be read, *Ars, Pharo, Abante*,—art, beacon-light, advancement, and has steadily pursued its way undisturbed by the forces of evil, which, surrounding our profession, seek to degrade it to the lowest levels; to make it simply the means of the sordid accumulation of pelf, forgetful, if not ignorant, of those noble spirits who, despising the dross of life, have given to the profession its dignity, its character, its very life. Ignorant or forgetful of Paracelsus, Agricola, Sylvius, Boyle, Priestly, Lavoisier, and Scheele, and the hosts of others who have gone to their graves almost “unwept, unhonored and unsung,” while ennobling the calling the profession of the Pharmacist, and to whose efforts they are indebted for all the respect the profession of Pharmacy enjoys to-day.

In this world the forces of good and evil are always at war. Nobility is arrayed against rascality, virtue against vice; generosity against greed, and against all the beneficent forces of nature, are arrayed the evils of canker, rust, blight and decay. And so with Pharmacy:—men have taken its livery,—the livery of heaven,—to serve the devil of Mammon in. Around it and even within its ranks are those who know nothing and who care less of its history, its nobility, its character and its ideals and who would barter most willingly its honored name for a mess of pottage. To all these mercenary spirits the A. Ph. A. has turned a deaf ear and has held its rudder true to the pole-star of honor, of character, of self-respect, refusing to lower its unsullied flag or to allow its pure folds to be dragged in the foul pools of money-grubbing.

All honor to those who established the Association upon such memories and

such traditions; who used for its foundation this Ehrenbreitstein, of character; all honor to those who have so carefully and lovingly treasured its name and its reputation, and all honor to its rank and file, who, by their earnest support have made the A. Ph. A. the guiding-light of American Pharmacy and a beacon for the world.

God give them strength for their work, that there may come to Pharmacy the place and that distinction so long denied, so foully threatened, but which its service to the world,—a service of usefulness and honor justly entitles it.

The Convention was a distinct success in every particular. From the opening of the first session until the close of the meeting the feeling expressed by all in attendance was that it was one of great profit to every member present and to the whole profession of Pharmacy.

The arrangements made by the Local Committee were carried out in a manner beyond all praise. Every detail looking to the prompt and careful conduct of the Convention and the enjoyment and comfort of each individual member was carefully observed and the vote of thanks bestowed upon the Local Secretary and the Local Committee by the Convention at its last session was one which was thoroughly well deserved. It is much to be hoped that the routine of their work may be put in print for the guidance of future Local Committees, who too often enter upon their work full of zeal to do their best, but without any well-tried and perfectly-outlined plan of their duties, to act as a guide for them in their new and unusual work.

The experience of a local committee whose work has been so distinctly a success as that of the Detroit Committee would be most valuable to that of all future Local Committees.

E. C. MARSHALL.



H. B. MASON

CHAIRMAN SECTION ON COMMERCIAL INTERESTS.

Section on Commercial Interests

Papers Presented at the Sixty-Second Annual Convention

HIGH GRADE CANDY: AS A SIDE LINE OF THE RETAIL DRUGGIST.

J. W. PEYTON.

In these days the patient who is really sick is hurried off to the sanitarium or hospital, where every thing is furnished the patient, and our business suffers thereby.

Department stores are taking a large share of the toilet-article and drug-sundry business and the price-cutter is found on nearly every hand. It's up to us to hustle other lines to make up the loss.

Then the cost of doing business is increasing all the time. Clerks must have more money to meet the high cost of living and the landlord wants more rent. More goods must be sold to meet this increase.

I know of no more attractive or profitable side than high-grade candy in attractive packages.

The first consideration is the brand to handle. Of course, any one already in the game has his own pet brand, but it is only fair to state that there are many good ones.

The one best known in your community, every thing else being equal, is the one to handle, if it can be had.

However, if your competitor has this one don't feel badly, for with any good candy and plenty of hard work you will be sure to get your share of the business. Right here I might add that the candy business is growing very rapidly and there seems to be no limit to its possibilities.

The experience of the writer was to take a comparatively unknown brand, selling at that time for 60 cents the pound retail, changed in a few months to 80 cents, and for a long time nearly every customer would say, "I won't pay you 80 cents; I will go to Blank's and get Blank's at 80 cents." (He carried a well-known brand.)

By the methods I will now take up in detail we made ours the best-known brand in this community.

Now for sale methods and publicity. Keep your candy well displayed in a nice candy case, and if in the summer, in a candy-refrigerator case. Have the case located in a prominent part of the store, near the door, if possible, so that every customer will see it coming in and going out. Keep a complete assortment of packages and keep them well displayed. Have plenty of signs telling both of quality and freshness.

If in summer, and kept in a refrigerator case, lay great stress on this fact. The

fresh story must be one of actual fact, as success depends greatly on always offering fresh goods. Far better lose some candy occasionally than sell stale candy. However hard you may try, a stale box may get out at some time, and when this occurs make it good with a fresh one without a word, unless it is to say that it affords you pleasure to adjust the matter in this way. In most cases the manufacturer will make this good.

Make orders small and often in the hot season and always by express. It is a find ad. to have a customer call for a certain package and find it out of stock, for in this way as in no other can you convince him you actually sell fresh candy. When a shipment is received take every package out of the case and put it in the case in such a way that the candy on hand will be sure to be passed out first. With this method there is practically no chance for stale candy. The brand we handle always comes by express, even in December, when the shipment amounts to more than two tons.

The fact that the goods come in original packages prevents any loss of weight and enables you to tell just what you make on the line.

Advertising:—We advertise in almost every conceivable way,—in the daily papers, writing our own copy and use frequently that furnished by the manufacturer; with signs on the store wall and on the show window; on our statement heads and the C. O. D. slips we send out, and in the theater program. Several times a year we make special candy windows, two of which we try to make especially attractive,—Christmas and Easter. We received the prize offered by our candy people for the most attractive Easter window.

One of our most successful methods has been to have a letter gotten out whenever a new and attractive package came out, telling the people that we would have a supply of this new candy on sale on the following Saturday.

For this we would get up a list of the people whom we know are either buyers of high-priced candy or should be, and have the manufacturer mail the letter mentioned above so as to be received not later than Friday. Be sure to have him say you will deliver the package if not convenient to call in person.

This letter has never failed to sell every package ordered for us.

Sending out a personal representative to solicit orders at such times as St. Valentine's Day, Easter or Christmas has been a great success. We have him call on all society people and on all firms and corporations, and from the firms and corporations we get some very large orders for the people they want to remember in a small way.

From the society people we get orders in advance for the handsomer holiday packages and many times orders for these are received after they are sold.

Many times when the order is not secured at the time the party will get an unexpected gift on Christmas morning and something must be done at once, and what is better on the spur of the moment than candy, so we get the order. In fact, we frequently carry an ad. on Christmas morning to this effect. Don't be afraid to suggest large packages as many times a one-pound buyer can be changed to a five or a three.

At certain times our two-pound sales nearly equal our one-pound sales. Buy-

ers of this candy are splendid customers in other lines and many of our best ones started in this way.

From a business of practically nothing in 1906 to nearly \$10,000 in 1913 and 1914 showing a healthy gain over 1913 is what the methods outlined have done for my firm.

From this you can easily see why I am enthusiastic over candy as a side line. I am anxious to do more and welcome any criticism or new ideas you may offer. I thank you.

To-day I find nearly as much candy sold at \$1.00 a pound as is sold at 80 cents.

CALENDARS AS AN ADVERTISING MEDIUM FOR RETAIL PHARMACISTS.

FRANKLIN M. APPLE, PHAR. D.

Business has been designated by some authors to be a *friendly* warfare, but the conditions that confront us to-day in mercantile transactions force us to believe that it can be more appropriately termed *fierce* warfare for the almighty dollar.

It is almost obligatory that merchants resort to some form of advertising in order to give due publicity to their establishments and wares. Incidentally it may be stated that many professional men are not averse to having the attention of the public directed to their talents by divers methods other than the usual manner of attracting the notice of the public, demonstrating an universally acknowledged necessity for advertising of some character or description, in accordance with one's code of ethics or business principles.

A great multiplicity of mediums for giving publicity to one's wares and mental equipment are available to-day, and one is frequently perplexed when endeavoring to arrive at a decision as to the most appropriate and the most effective one to employ—taking into consideration the very vital question of cost of said form of publicity.

Having experimented with various advertising mediums years ago, I found that calendars gave me the most desirable and effective method of appealing in a dignified manner to my neighbors for their support and patronage.

Calendars have the advantage of being up-to-date each day of the entire year, making a daily appeal for the consideration of those who may gaze upon them, and we well know that no home is too humble or too aristocratic to welcome the presence of a fitting, valuable and attractive calendar of proper size and color, clearly printed.

You will kindly observe that I have stated several qualifications for the model calendar, all of which I deem essential to its effectiveness, through continued use in the homes of one's patrons.

The size I have chosen ($5\frac{1}{2}$ in. x 9 in.) is one that can with propriety and pleas-

ure be given a space upon the wall in any room in the house, and its color,—white, with black type—will not offer any drawbacks to its hanging anywhere.

The printing should be clear, with as bold faced type as will harmonize with any cut that may appear thereon; and the calendar pad should be such that the dates can readily be read by anyone of average eyesight. Bold faced type should be used to the limit of the dimensions of the pad itself.

Being engaged in the drug business, I sought for a cardboard of the size desired, upon which was printed a scene that would be appropriate to and suggestive of my business, which I reasoned would add materially to its effectiveness. My search was rewarded, by accident, by the appearance upon the scene of a salesman who represented one of our foremost, world-wide famed firms of lithographers, who prepare programs and invitations for many pharmacy schools. His line of samples included a number of prints that were of the proper size to meet my demands, and appropriately suggestive of pharmacy, as I kept constantly in mind the idea of distinctive advertising of a drug store.

Just as it is appropriate and more effective for a bank to use a print suggesting security and safety in its advertising, so it is with a print descriptive of pharmacy to advertise our business and profession. The central idea being to call attention to the fact that it was from a drug store that the calendar was received; and if it is properly prepared it will be given a space in the home.

Having a variety of prints from which to select made it possible to use a series of them, one each year, making a set that has been preserved by some of my patrons for years.

It will be observed that one of these prints appears to have been prepared specially for my use, whereas the facts are that it was a stock plate that was altered, without extra cost to me, to serve my purposes. You can imagine the effect such an apparently individual calendar had upon my patrons, leading them to believe it to be a very costly one, the result of personal study and design; also adding to the value of succeeding ones.

Persistency of advertising has been stated to be essential to the effectiveness of the effort to attract and retain trade; and by adhering to this form of distinctive advertising, we have been able to reap a satisfactory reward from our efforts and expenditure along this line.

In order to make our calendars more valuable to our patrons, therefore adding to the possibilities of their retention and use by the customer daily, we have had printed upon the reverse side thereof some information that quite likely would appeal to the members of the household and which they wished to preserve in a convenient place. What more convenient place to have it than upon the daily calendar, which they would not be likely to misplace or store away somewhere to be soon forgotten?

You will undoubtedly think that the cost of this very high-grade, appropriate, suggestive and effective advertising is extremely high, but I can assure you that I have found it to be very reasonable, considering the results obtained from its use.

Probably it has become apparent to you by this time that it is vital that careful thought be given to the selection of an advertising medium and that the minor

details of the one selected be not overlooked in order to reach the desired end, with the richest harvest as a reward for your efforts.

Lay out your plans for an advertising campaign as a general lays out his plans for a battle and you will not run a very great risk of squandering your appropriation for publicity; and don't overlook the possibilities of the calendar as an advertising medium for retail pharmacists.

"WHAT ADVERTISING METHODS DO WE EMPLOY?"

R. A. LEET, OAKLAND, CAL.

In the first place we employ an advertising expert to advise us as to the mediums to be selected and the extent to which each shall be made use of. We also arrange that he shall attend to all of the details incidental to the carrying out of our advertising program. It is then assured that copy will be changed regularly, and that seasonal advertising will be looked after at the proper period. Regular interviews are arranged for with our advertising manager to furnish him material for copy, and enough matter is always kept ahead so that the change of copy shall occur without interruption, even though an interview or two should be missed. The advertising man is given freedom to consult with certain of the employees in order to get the real local color and atmosphere to his announcements and descriptions.

He is expected to see that a circular, descriptive of the drug store articles that would interest the mother of a very young child, goes each month to the birth list. He is expected to see that vacation suggestions, on a circular that can be checked off and used as a shopper's memorandum, gets into the hands of practically all of the people who take vacations and might use our stores. He is expected to have a circular pertaining to seasonable items ready for each month's statements, and circulars to go out in the packages to boost the sale of our specialties. He is supposed to keep track of the special occasions on the calendar and to have appropriate reference to them in our advertisement when business can be thereby promoted. He is also supposed to supply the copy for the "ho'd up" publications—those programs and year books, etc., that you don't consider to be worth much of anything to you for advertising mediums, but which, for certain reasons, you can't get out of patronizing. These usually require of the man, who is not an advertising specialist, the making up of extemporaneous copy—copy that must be ground out while the solicitor waits, and while your mind is distracted with other thoughts. But your advertising man will suit the copy to the medium and get some value for you even from this sort of advertising.

The thing that I would like to make the strongest in this paper is the advantage that lies in having an advertising man who has no other duty, so far as your business is concerned, except to look after your advertising. I don't think any business should attempt to do any advertising until it can be safely assured that

there will be no interruption in the regular appearance of copy, and no duplication of copy where it would be more profitable to have it changed.

It has always been a matter of regret to me that we did not make use of an advertising expert earlier in our business career. There is scarcely any business so small that it can not to advantage employ an expert to look after its advertising. This does not mean that he shall give his time exclusively, but that it shall be strictly up to him to see that the advertisements always appear on time and that the copy is as agreed upon.

Employ a local man—or *woman* for that matter. (Some of the best “ad” writers are women nowadays.) Give them the advantage of a subscription to some advertising system applicable to your line of business if you wish; but by all means have your “ads” written specially for your store, and specially for the articles that you wish to promote. This long distance advertising bears about the same relation to real advertising that canned vegetables do to fresh ones, and your customers can detect it quite as readily as they can detect the canned article in the vegetable line.

Be cold blooded in the matter of deciding what you shall spend on your advertising and keep within the limit of your appropriation. The amount that you are justified in spending will vary with the character of the business which you conduct. It is generally considered that the amount that should be spent lies somewhere between one and three percent. of your gross receipts in an ordinary retail business. Advertising certainly pays, but it has to be looked after very carefully.

When you take on an advertising manager, it should not mean that there should be any less of your personality in your advertising. You *could* probably write better advertisements than any advertising man that you can employ if you could side-track everything else and give your “ad” writing right of way; but it is necessary to have him in order that the work shall be done in a regular, orderly fashion, and that you may get the benefit of the observations of a man whose whole business is to keep abreast of the times in the field of advertising. You must, however, dictate for yourself the policy of the advertisements and see to it that their tone and character are the tone and character that you wish your business itself to take on.

BOOSTING THE BIOLOGICAL BUSINESS.

WALTER M. CHASE.

In the effort to build up a profitable “ethical” drug business the druggist finds oftentimes that he has developed a liability rather than an asset. He is obliged to peddle out the preparations of the detail man’s house at almost cost, to sell cigars at cost, and to hand over tablets and pills in lots of a dozen at a time at the 10,000 rate. All this for the sake of saying that he sells the doctor his supplies. But there is a line where the goods sold to the M Ds. pay a reasonable

profit (from 13 to 33%), where the demand is good and where the unsalable goods may be returned for credit. This line is the handling and sale of biological products.

We carry a complete line of bacterial products ranging from small-pox vaccine points to the newest phylacogen, keeping them in a specially constructed ice box so that the proper even temperature may be maintained at all times. A full stock is always on hand as we run no danger of overloading for when the time of potency is past they may be returned for credit. We carry but one manufacturer's line and that is a good one, a line that any physician will recognize as a standard.

But after having the stock complete, reliable, and fresh, we must dispose of it. To do this we proceed in several ways. We call the attention of every doctor that comes into the store to the fact that we have the line and offer to explain and show it to him. Each month we send to physicians on our mailing-list a personal letter or literature furnished by the manufacturer stating the advantages of a particular vaccine, serum or phylacogen. From time to time we call on the M. Ds. and show up to them something new in the line of biologicals; and there is always something new. If we hear of an accident in our vicinity we notify the doctor in charge that our antitetanic serum is available and offer to send several packages with the understanding that they may be returned if not used. In our monthly letter sent to the physicians on the first of July we always lay stress on the fact that we are prepared to furnish antitetanic serum for any accidents occasioned by fireworks on the "Fourth." If, as is oftentimes the case, there is a small-pox or diphtheria "scare" in an outlying town we send the doctors there a letter calling attention to the fact that they may secure the proper vaccine or serum by return mail. We have built up an appreciable trade among the physicians in our surrounding territory by means of personal letters detailing the bacterial products. We endeavor to get them to anticipate their needs for the more common preparations as small-pox and furunculosis vaccines, rheumatic phylacogen, etc., agreeing to take back any that are not used before their potency expires.

Aside from the business obtained from the doctors of medicine we have developed a most gratifying trade for veterinary biological products among the veterinary surgeons in our territory. In this city are a number of large dealers in Western-bred horses for use on the lumbering operations in the woods of Maine. These horses on their arrival from the west require acclimatization, being particularly susceptible to a form of influenza. The veterinarians find that equine influenza vaccine works remarkably well in these cases. A number of large herds of milch cows furnish an outlet for an appreciable amount of mallein. At certain seasons of the year many dogs (some of them being valuable hunters) are affected with a distemper. At these times by calling the attention of the veterinarians to the canine distemper vaccines, both curative and prophylactic we dispose of very satisfactory amounts. Veterinary antitetanic and antistreptococcic serums are preparations on which we have worked up a very satisfactory trade by employing methods similar to those used with the human bacterials.

A most important factor in handling biological products is the necessity of the

handler having at least a working knowledge of the various products and their uses, and an ability to discuss them intelligently. Owing to their comparatively recent adoption by the medical profession many M. Ds. possess rather hazy ideas as to the kinds and uses of the biologicals and as a consequence depend upon the druggist being able to explain to them the difference between a vaccine and a serum, between a toxin and a phylacogen or between tuberculin B. E. and tuberculin B. F. The comparatively small amount of time required for the druggist to gain this knowledge is time well spent when viewed in the light of added business obtained as a result of the knowledge.

DOES IT PAY TO CULTIVATE THE BUSINESS OF DISPENSING DOCTORS?

E. G. MCCLALLEN.

If dispensing doctors use goods that you sell and will buy of you at a price that gives you a respectable margin of profit, sell them. Cultivate their trade and friendship.

The above is the rule we use and have found it very satisfactory. Fortunately, the doctors in our immediate vicinity do not dispense only what emergency medicine they need. The few dispensing ones we find good customers for gauze, cotton, ligatures, gloves, syringes, hypo-syringes, needles, etc. We do not try hard to sell them tablets unless they want tablets made by the most reputable houses, and then we sell them at the regular price established by the house.

The country doctors have to dispense, and we have found many good customers among them. In order to protect our own interest we have divided them into three lots.

Lot A:—The doctors that want good goods and are prompt in paying. These are worth working hard for, and you can offer to make them low prices to meet competition.

Lot B:—Doctors that will use good goods, but are very slow pay. While we encourage these doctors' trade up to a certain credit, we cannot make so hard an effort to hold them; nor can we make them so good a price.

Lot C—Doctors that are out to buy the cheapest thing they can get; and doctors that we know to have the habit of not paying their bills.

With Lot C we do a cash business only. Not soliciting trade, only serving them when they ask it.

The friendship of the dispensing doctor is just as valuable as the friendship of any one else. He will go a long ways to return your favors and if you can arrange your buying so as to make him a good fair price, you will find him a good customer and a warm friend. He will carry words of praise for your store into many homes; and can, and will send you many customers for such articles as bed-pans, urinals, crutches, trusses and in many cases ointments and tonics.

While we would all like to see each doctor a prescription-writer, we must take conditions as we find them. We have tried hard to get the run of prices offered to the doctors from physicians' supply houses, and on a great many articles we find we can sell them at the same price and make a good fair profit.

Surgical instruments we sell from catalogues only, except some of the smaller and more used articles.

In order to sell the dispensing doctors we are of course obliged to carry a larger stock of many items, and have to insist on the very best terms from a great number of manufacturers.

A little missionary work among the class A and B doctors and a hard effort to keep in stock the items you can interest them in, courteous treatment, quick service and you can develop a good, satisfactory business.

DOES IT PAY TO CULTIVATE THE BUSINESS OF DISPENSING PHYSICIANS?

ARTHUR S. WARDLE.

Unqualifiedly, yes; it does. I base this assertion on years of experience in a city of twelve thousand inhabitants. I deduce that catering to the physicians' trade pays for these reasons:

First:—Such a policy enables the druggist to buy in quantity lots and so take advantage of the generous discounts thereby obtained.

Second:—The risk is small and the profits large.

Third:—Selling physicians their pharmaceuticals paves the way for an extensive trade in cottons, dressings, ligatures, elastic hosiery, trusses, surgical instruments, biologicals, office furniture, etc., the profits on which are exceptionally large.

Fourth:—It opens a channel for a pharmacist to put out a line of his own pharmaceuticals, dressings, and specialties at a handsome profit.

Fifth:—There is no better advertising medium. It will build up a prescription trade and give a store prestige.

Sixth:—It greatly enlarges a firm's territory and so makes it comparatively independent of local conditions.

Seventh:—It minimizes the purely mercantile features and emphasizes the professional side of the drug business and so insures the mental and professional growth of the pharmacist.

In further discussion of this question I would mention the following conditions as essential to success and offer a few suggestions:—

First:—Cultivate the patronage of only such physicians as are reputable and good pay. Let your competitors have the rest.

Second:—Be absolutely loyal to the interests of these physicians and discreet. Fill their orders promptly and accurately.

Third:—Make it a point to connect yourself with the reputable manufacturing chemists whose goods these physicians prefer. First class manufacturers are only too eager to make attractive propositions to pharmacists who can use quantity lots and pay their bills promptly. Their special discount concessions enable the buyer to dispense to the physician on satisfactory terms at a decided profit.

Fourth:—Next bring to the physicians' notice and push in every way, surgical supplies and sick-room necessities and have as many of these goods as possible under your own label. Profits on these lines range from thirty to eighty percent and, indirectly, the advertising derived, from the laity seeing your name on each article, is worth considerable.

Fifth:—Stand for quality, first, last and always. A physician and his patients want results. If a store is known as a physicians' supply store where the best of everything can be procured without delay, it will be heartily endorsed by the leading physicians and both physician and patient will gladly pay well for the superior article and service offered.

Sixth:—By means of correspondence, personal visit, and parcel post, get in touch with and sell to physicians in the outlying districts within a radius of fifty miles. They dispense practically everything so their orders are usually larger than the city customer and the cost of selling proportionately smaller. When, because of local industrial or other conditions, trade would otherwise be dull, the accounts of these physicians in the suburban sections help to tide over until local conditions become normal.

Seventh:—If you would successfully and profitably cultivate the patronage of the dispensing physician, you must read pharmaceutical journals and study trade catalogs. You must be thoroughly conversant with all that is newest in pharmaceuticals, appliances, etc., and so make yourself invaluable to the busy practitioner. Cultivate the friendship of the traveling salesman who cover your territory. They have many an opportunity to offer you something worth while, or speak a good word for you that will mean added profits.

I know of a drug firm whose business, conducted along the lines mentioned above, has increased ten-fold in fifteen years with losses averaging less than half of one percent.

HARMLESS CURSES.

Maledictions are not so scarce as to be satisfactory explanations of disasters. Guiteau cursed everybody connected with his trial and execution, but the foreman of the jury only died within a few weeks at the age of about ninety. The Emperor Francis Joseph is said to have been cursed, but it is curious if that curse brought death and destruction to his wife and his nephew and his sons and other connections, while he is still living. A great many kings, nobles, landlords and employers and parties to an ordinary quarrel have been cursed, and their misfortunes do not loom up sufficiently to impress the reflecting person with the potency of an imprecation.—*Philadelphia Record*.

Necrology

William Estell Lee, of Philadelphia, died on July 20, 1914, at his home after several months' illness, of heart trouble, at the age of sixty-four years.

Mr. Lee was born in Woodbury, New Jersey, of the late Walter B. and Martha Lee. Receiving his early education in the public schools of that town, he then studied pharmacy, with B. F. Carter, of Woodbury. Later, he matriculated at the Philadelphia College of Pharmacy, graduating therefrom in 1872, the subject of his thesis being "Gnaphalium Polycephalum."

A few years later he opened a drug store at 2337 Brown Street, Philadelphia, where he remained for over forty years.

Mr. Lee showed his devotion to his Alma Mater. For many years he has served as a member of its Board of Trustees, and during the past college year, (1913-14), he was President of the Alumni Association, and rendered it very valuable services, especially as Chairman of the Committee on Membership. He was a member of the P. A. R. D., and the N. A. R. D. He joined the American Pharmaceutical Association in 1905.

He was an ardent Mason. For 15 years he was treasurer of Olivet Lodge, No. 607, A. F. and A. M. He was a member of Harmony Chapter, No. 52, Royal and Select Masters, and Corinthian Chasseur Commandery, No. 53, K. T. He was a member, also, of Marathon Senate, No. 4, O. of S.; Woodbury Lodge of New Jersey, I. O. O. F.; "Goodwill Council;" Legion Red Cross, and Crescent Chapter 104, O. E. S.

Mr. Lee was a member of the Olivet Covenant Presbyterian Church, and was an earnest worker in the cause of civic reform.

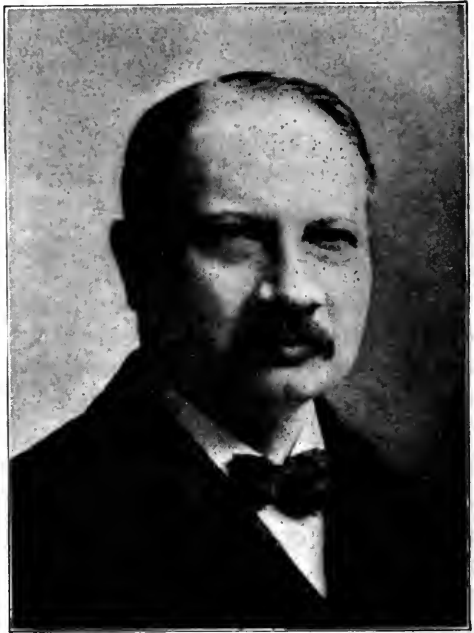
Since early manhood, Mr. Lee took an active part in reform politics and civic movements, but only last year could he be induced to become a candidate for any office. At the last primary election, he was the successful nominee for the Pennsylvania Legislature on the Washington ticket, tenth legislative district. His strength as a reform candidate was shown at the last election, when, as a candidate for Select Councilman in the fifteenth ward, he was defeated by the "organization" by a small margin only.

Personally, Mr. Lee was genial, warm-hearted and true to the highest ideals. He believed that character was the most important thing in life, and that the dollar was only a means to an end. He did a man's work and exerted an influence for good that cannot be measured, because his deeds will long live after him. Quiet and modest, but positive in matters of principle, he practiced in life those principles of religion and morality which stamped him as a man among men; he brought honor to his craft, and won the respect and love of his fellows, hundreds testifying of his aid to them in sickness and in trouble.

His widow, Nellie Florence Lee, Secretary of the Women's Branch of the National Association of Retail Druggists and President of the Philadelphia Chapter of that organization, with a son, Dr. Walter Estell Lee, survive him.

The funeral was held on Thursday, July 23rd, at 2 P. M., from his late residence, 823 North Fourth Street, the services being conducted by Rev. Matthew J. Hyman of the Olivet Covenant Presbyterian Church and the officers of the lodge. The interment was at West Laurel Cemetery. The pallbearers were: Frank B. Rohrman, president of the Philadelphia Wholesale Drug Company; William C. Neely, representing the Olivet Lodge, A. F. and A. M.; Samuel C. Henry of the Executive Committee of the National Association of Retail Druggists; Professor Joseph P. Remington, Dean of the Philadelphia College of Pharmacy; J. W. England, of the American Pharmaceutical Association, and A. J. Kellar, president of the Philadelphia Association of Retail Druggists. The honorary pallbearers were the following directors of the Philadelphia Wholesale Drug Company; Henry C. Blair, Vice President, O. W. Osterlund, H. C. Clapham, Howard E. Siegfried, Russell F. Blackwood and George H. Fehr. In addition, David G. Potts, Frank E. Morgan, Frank W. Fluck, and Charles E. King, represented the Philadelphia Association of Retail Druggists, and J. C. Peacock, Vice President, David J. Reese, Secretary, L. H. Davis, Assistant Secretary, and F. P. Streeper of the Executive Committee, represented the Pennsylvania Pharmaceutical Association.

J. W. E.



WILLIAM ESTELL LEE.

Contributed and Selected

SOME PRACTICAL POINTS IN MANUFACTURING PHARMACY.

E. L. MAINES, PH. C., PHAR. D. AND R. J. GARDNER, PH. G.

Pharmaceutical production, on a large scale, is necessarily governed by different methods of procedure than retail or commercial pharmacy. Some of the following hints, however, may be adopted by the retail pharmacist with considerable gain, both as to the time employed in making, and the appearance of the finished product.

Liquor Cresolis Compositus: In the manufacture of Compound Solution of Cresol, it is not advisable to follow the exact directions of the United States Pharmacopœia; the following formula and method of procedure having been found to produce better results.

Cresol	50%
Linseed Oil	35%
Potassium Hydroxide	8%
Water	q. s.

Place the potassium hydroxide in a steam-jacketed kettle or tank, equipped with an agitator, and add sufficient water to dissolve the potassium hydroxide. Turn steam on kettle, keep agitator running, and add the linseed oil. Stir until the soap becomes clearly soluble in distilled water, adding small quantities of water from time to time in order to complete the saponification. The soap must completely dissolve in distilled water and leave no oil-globules floating on the liquid. Add the cresol gradually, constantly stirring the mixture until a clear solution is produced. Finally add sufficient water to make the desired yield, if necessary.

It is not necessary to use any specified amount of water in the manufacture of Compound Solution of Cresol, as any excess may be quickly evaporated in the steam kettle before adding the cresol. Any excess of water can easily be determined by noting the consistency of the soap. This is an important point to be observed, as it is the key to the successful manufacture of this product.

The authors can manufacture one thousand gallons in three hours, the product complying with all government requirements; whereas, to our knowledge, it has taken three days to produce a like amount by others who used the U. S. P. method.

Any galvanized-iron tank equipped with steam coils and a simple mechanical stirring device, is all that is necessary for the manufacture of *Liquor Cresolis Compositus*, although copper, or enameled steam-kettles may be used.

If the Pharmacopœial directions are strictly followed, it is impossible to make

a satisfactory preparation, or one that will mix clearly with water in any proportion.

Fluidextract Cascara Sagrada Aromatic.—In the manufacture of the various Fluidextracts of Cascara Sagrada Aromatic, a slight modification of the general methods will produce a superior product and one which is not necessary to age for so long a time. Aromatic Fluidextracts of Cascara are generally treated with calcined magnesia to remove bitter principles, then percolated with hot water to extract their active constituents, and made palatable by adding licorice, sugar and aromatic oils. Fluidextracts of Cascara are always aged, to allow the precipitation of inert material before being bottled for the trade. This can be overcome, in a great measure, by percolating the ground licorice separately. Place the licorice in a suitable percolator and exhaust the drug with hot water. Never allow the drug to macerate over three hours. Concentrate the weak percolates, make up to desired yield, place in a suitable container and precipitate the inert material by the addition of stronger ammonia water. This can be accomplished by the addition of about one ounce of stronger ammonia water to each gallon of licorice-percolate. As is well known the ammonia water has the additional advantage of intensifying the sweetness of the licorice.

Syphon off the clear portion and filter the remainder through canton-flannel. Exhaust the ground cascara with hot water after allowing the drug to macerate three hours. Mix the two liquids, add the sugar and aromatic oils dissolved in alcohol, and filter when ready for use.

Note.—The authors are experimenting upon a method which is not yet completed and by which Fluidextract Cascara Sagrada Aromatic can be used within twenty-four hours after manufacture and still have no precipitation.

FLUIDEXTRACT-MANUFACTURE NOTES.

1. *Fineness of Powder*.—Always use a No. 16 to No. 20 powder for percolation. A finer powder than this clogs up in the percolator and does not admit of complete exhaustion. This applies to manufacture on a large scale only.

2. *Alcoholic Percolation*.—In the percolation of drugs with 95% Alcohol, do not moisten the drug before packing in the percolator. Simply pack the drug dry and add the menstruum of 95% Alcohol directly to the percolator.

3. *Aqueous Percolation*.—In the aqueous percolation of such drugs as, cascara, licorice, senna, etc., be sure they do not macerate over three hours. Moisten well, place in percolator, add hot water, macerate three hours and then draw off the percolate. Continue this until the drug is completely exhausted.

If allowed to stand more than three hours the drug gelatinizes in the percolator and makes its extraction extremely difficult and tedious.

4. *Fluidextracts of the Alkaloidal Drugs*.—The percolate from all fluidextracts of the alkaloidal drugs should be concentrated in *vacuo* with the possible exception of opium, ipecac and hydrastis.

If ordinary stills are used there is great danger of decomposing the alkaloids.

Resina Jalapæ.—In the manufacture of resin of jalap, great care should be taken to wash out *all extractive matter* with both hot and cold water. If this is done properly the resulting yield will be non-hygroscopic.

Extractum Cubebæ, By-Product:—In the manufacture of Extract of Cubebs the Oil of Cubebs can be obtained as a by-product by simply re-distilling the exhausted drug.

Three hundred pounds of drug will yield, from fifty to sixty pounds of extract. The exhausted drug, in turn, will yield ten to twelve pints of Oil of Cubebs which complies with all U. S. P. requirements.

Fluid Orange Soluble, By-Product:—Oil of Orange may be obtained in the manufacture of Fluid Orange Soluble by distilling the separated oil.

Eight hundred pounds of drug, yielding sixteen hundred pints of Fluid Orange Soluble, will give a corresponding yield of ten to fourteen pints of oil of orange.

In the production of pharmaceutical products, the manufacturer has called to his aid every mechanical device whereby he may keep pace with pharmaceutical progress.

Vacuum-stills and dryers, mixers, granulators, mills, etc., enable the manufacturer to produce, within two or three days, the same amount of finished product that would ordinarily require one or two weeks to manufacture.

Thus the human factor has largely been eliminated and manual labor superseded by mechanical aids which enable the producer to manufacture with greater accuracy and to market preparations of a better quality.

MANUFACTURING LABORATORIES, BRISTOL-MYERS COMPANY, August 7th, 1914.

AMYL NITRITE; ITS PREPARATION, PURITY AND TESTS.

FRANK O. TAYLOR, PH. C.

From time to time during the past thirty-five years there have appeared articles on amyl nitrite dealing with the manufacture, impurities, assay and therapeutic effects. A number of these record investigations of the quality of commercial grades of amyl nitrite, chiefly by some method of assay and in a less number of cases by fractional distillation, together with some qualitative tests for aldehyde, nitropentane, etc. The collective evidence of these shows that the quality of much of the amyl nitrite on the market has always been inferior and, further, that the improvement following the publication of these investigations and criticisms has been by no means marked.

At the risk of re-treading ground already well explored the writer desires to record here results obtained in both experimental and practical work during some years past, to call attention to a number of facts of which he has seen no published mention and suggest higher standards and better tests than are now universally included in the various pharmacopœias. The pharmacopœial requirements are in some things too rigid and in others not sufficiently severe. The following brief *resume* of the requirements of a number of pharmacopœias is given so that proper comparison may easily be made, reserving comment on these statements until later:

Definition and Description.—Of the nine pharmacopœias examined only two, the U. S. and British, include a definition as distinguished from the description.

*Read at the Rochester Meeting of the A. C. S.

U. S. P.—"A liquid containing about 80 percent. of amyl (chiefly iso-amyl) nitrite ($C_5H_{11}NO_2$), together with variable quantities of undetermined compounds."

B. P.—"A liquid produced by the interaction of amylic alcohol which has been distilled between 262° and 270° F. (127.7° to 132.2° C.) and nitrous acid. It consists chiefly of iso-amyl nitrite, $C_5H_{11}NO_2$, but contains also the nitrites of the homologous series."

The description of amyl nitrite as regards color, odor, volatility and general physical characteristics is practically the same in all the pharmacopœias examined.

Specific Gravity.—The *U. S. P.* gives 0.865-0.875 at 25° C. which agrees with 0.870-0.880 at 15° C. as stated by the British, German, Austrian and Japanese pharmacopœias; the Italian gives 0.870-0.890; the Swiss and Belgian give 0.870-0.900, and the French gives about 0.88.

Boiling Point.—The *U. S.* and French pharmacopœias indicate 96° - 99° but the French gives among other tests a qualifying statement to the effect that amyl nitrite should completely distill below 110° . The German, Swiss Austrian, Italian and Japanese pharmacopœias state the boiling point as 97° - 99° , the Belgian gives about 99° while the British more properly makes the following statement:

"Submitted to distillation, about 70 percent. passes over between 194° and 212° F. (90° and 100° C.), the bulb of the thermometer not dipping below the surface of the residual liquid."

Acidity.—All except the Swiss pharmacopœia give some test for acidity, for typical examples of which the *U. S. P.* and *Ph. G.* tests are given here:

U. S. P.—"If 1 cc. normal potassium hydrate *V. S.* and 10 cc. of water be mixed with a drop of phenolphthalein *T. S.*, then 5 cc. of amyl nitrite added, and the tubes inverted a few times, the red tint of the aqueous layer should still be perceptible (limit of free acid)."

Ph. G.—"5 c. c. of amyl nitrite shall not neutralize the alkaline reaction of a mixture of 0.1 c. c. ammonia and 1 c. c. of water."

Aldehyde.—All nine of the above-mentioned pharmacopœias give a test for aldehydes of which that of the *U. S. P.* is typical.

"A mixture of 1.5 cc. of silver nitrite *T. S.* and 1.5 cc. of alcohol with a few drops of ammonia water should not become brown or black if 1 cc. of amyl nitrite be added and the mixture gently heated."

Water.—All except the Italian and Swiss pharmacopœias direct that amyl nitrite when cooled to 0° C. should not become turbid, showing absence of water.

Assay.—Only the *U. S. P.* and *B. P.* include a process for assay which in each case is an adaptation of the well-known gasometric estimation of nitric oxide produced by the reaction of the nitrite with potassium iodide and sulphuric acid.

As will be shown, much of the amyl nitrite on the market does not come up to the standard of strength which can be profitably attained on a commercial scale and certain impurities not detectable by any of the above tests may be present. It has been the intention therefore to collect published data, add to it results of a number of experiments and fix upon a standard severe enough to exclude therapeutically undesirable products and lenient enough to admit a grade commer-

cially obtainable and as definite as the complex nature of an acceptable amyl nitrite will permit.

AMYL ALCOHOL USED.

Commercial amyl alcohol is well known to be far from a pure substance and even the grades below that of highest purity contain notable quantities of impurities. Besides the active and inactive or iso-amyl alcohols which are always present together, there may be found iso-butyl, normal propyl and ethyl alcohols and often other of the various amyl, butyl and propyl alcohols. The action of nitrous acid on such mixtures would give very varied results, hence it is essential that an alcohol be used which is as pure as can be made without unduly increasing its cost.

The boiling point of amyl alcohol is variously stated and it would seem that some of the earlier investigators of amyl nitrite failed to distinguish between the active amyl and iso-amyl alcohols, or as they are sometimes known, the α - and β -iso-amyl alcohols.

Umney in 1870 (Pharm. Jour. (3) 1, 422) in an article on amyl nitrite states that amyl alcohol boils at 132°.

Tanner in 1872 (Pharm. Jour. (3) 2, 421) states that it boils when pure at 132° and for making amyl nitrite should distill "near 132°."

Dott in 1878 (Pharm. Jour. (3) 9, 172) says: "There is an amylic alcohol or mixture of alcohols boiling at 128°-129°."

The following year Greene (Am. Jour. Pharm., 1879, 65) in criticizing this paper of Dott's says that iso-amyl alcohol, "when carefully separated from fusel oil by fractional distillation, boils constantly at 132°. Portions may be obtained which when fractionated in an imperfect apparatus may pass entirely at 128° to 129°, but, if these be subjected to several careful rectifications in a suitable fractionating apparatus, they may be entirely resolved into the alcohol, boiling at 132° and iso-butylic alcohol boiling at 109°." He considers an alcohol distilling between 128° and 132° as pure enough for making amyl nitrite.

Dott (Pharm. Jour. (3) 10, 231) replies to Greene and reiterates his statement of the boiling point of amyl alcohol, bringing experimental proof of the same.

Squibb (Ephemeris II, 701) gives "about 132°" as the proper boiling point for alcohol to be used in amyl nitrite manufacture.

Dunstan & Williams in 1888 (Pharm. Jour. (3) 19, 487) gives 127° to 132° as the boiling point of the amyl alcohol of commerce and says, "in the portions of fusel oil which has been repeatedly fractionated between 127°-132° there is said to be usually about 13 percent. of the active alcohol. These alcohols cannot be separated by fractional distillation, since the α -amyl alcohol boils at 128° and the β -amyl alcohol at 131°." (This last statement is evidently a misprint as the boiling points of these alcohols should be reversed.)

Curtman before the A. Ph. A. in 1892 (Proc. A. Ph. A., 1892, 159) states that what is usually sold as "purified amyl alcohol" is the fraction of fusel oil between 125° and 140°.

Researches in pure chemistry, carried on at different times, have shown the boiling point of the active alcohol to be 128° and that of the iso-amyl to be

131.5°. A boiling point of 128°-132° will include both but exclude the chief portion of impurities, while a range of 130°-132° admits an alcohol consisting chiefly of iso-amyl alcohol.

METHODS OF PREPARATION.

Having obtained a properly purified alcohol, four general methods present themselves as suitable for producing amyl nitrite. *First*, direct heating with nitric acid; *second*, heating with nitric acid, sulphuric acid, and copper; *third*, by reaction between alkali-nitrite, sulphuric acid and amyl alcohol; and, *fourth*, by producing nitrous gas with nitric acid and arsenous acid or starch, and passing this through the alcohol. Other methods of less importance have been advocated but they have not received application except in a small way.

The first method is that originally proposed by Balard the discoverer of amyl nitrite, and has had numerous advocates, notable among them being John M. Maisch, (*Am. Jour. Phar.*, 1871, 146) and E. R. Squibb (*Ephemeris* 11, 701). Maisch states that the yield of nitrite distilling between 95° and 100° is small and mentions the fact that amyl nitrite, aldehyde, ethyl-amyl ether and hydrocyanic acid are also formed. The nitric acid and amyl alcohol are heated together carefully and all that product of the reaction collected which distills below 100° C. This is purified by washing with a solution of potash or potassium carbonate to remove acids and then distilled; all that comes over below 96° and above 100° being rejected. This will lead to the rejection of much amyl nitrite if the nitrite is not dried before distillation, for, as will be seen later, amyl nitrite and water distill together as a binary mixture at about 80°. Squibb distilled off all below 100° and purified by agitation with a solution of sodium carbonate, then rectified, rejecting only the portion above 100°, removing water subsequently by freezing. This obviates the difficulty connected with the purification of Maisch, but is liable to introduce another, tho in much less degree, for a binary mixture of iso-amyl alcohol and water distills at 95°. It is therefore always preferable to both wash with the alkaline solution and dry thoroughly before rectification.

A. B. Tanner (*Pharm. Jour.* (3) 2, 421) advocates the second method, the product of the reaction being distilled as made, below 98°. This is washed with solution sodium hydroxide and rectified over fused potassium carbonate, the portion distilling between 95° and 100° being collected for medicinal use. This method is liable to produce still more impurities than the first and however well they may be separated by fractionation the amyl nitrite so produced can by no means be considered a pure product and the yield will also be low.

The third method will undoubtedly produce the purest product, giving at the same time, if carefully carried out, a good yield. This process however is not suited to manufacture on a large scale tho excellently adapted for purely scientific work. A very pure alcohol is necessary and the increased expense of production is not justified by the greater purity of the product as the difference is not sufficient to cause any marked difference in therapeutic action. Greene (*Am. Jour. Pharm.*, 1879, 65) says that "a fair yield may be obtained" in this manner. He heats potassium nitrite with the amyl alcohol on a water bath and gradually adds sulphuric acid diluted with an equal volume of water. The amyl nitrite distils.

over and has to be purified by washing with potassium carbonate solution, drying with the fused salt and distilling; all that passes over below 100° being retained. This process is objectionable because of the heat being applied during the reaction. Dunstan and Wooley (Pharm. Jour. (3) 19, 487) give a process for the manufacture of iso-butyl nitrite which is exactly the same as that which they use for amyl nitrite. The quantities were calculated according to the equation:—

$2C_5H_{11}OH + H_2SO_4 + 2NaNO_2 = 2C_5H_{11}NO_2 + Na_2SO_4 + 2H_2O$ and a slight excess of sodium nitrite used. The acid was gradually mixed with the alcohol, the mixture cooled and poured very slowly to the bottom of a solution of the sodium nitrite in three parts of water, keeping the whole cooled to 10° or 12° . The amyl nitrite formed floats on the aqueous layer and is washed with alkaline carbonate solution and dried over fused potassium carbonate. If absolutely pure reagents are used, the amyl nitrite so formed requires no distillation and is almost perfectly pure. With less pure grades of alcohol, distillation must be resorted to.

The fourth process is more frequently recommended than any other. Umney (Pharm. Jour. (3) 1, 422) says that "true amyl nitrite should be made by passing nitrous acid into amyl alcohol" and proceeds to define the nature of the alcohol.

Hilger (Archiv. d. Pharm., 1874, 485) recommends the production of nitrous acid from arsenous and nitric acids and passing this gas into amyl alcohol until no odor of the alcohol remains. This method of determining the end of the process is both crude and unpleasant, as an attempt to detect amyl alcohol in the nitrite by odor will demonstrate. D. B. Dott (Pharm. Jour. (3) 9, 172) also considers this process much better than that using nitric acid, but does not compare it to third process given here.

The investigations of Williams and Smith (Pharm. Jour. (3) 16, 499) have shown the variation in yield of amyl nitrite due to the use of nitric acid of different strengths for generating the nitrous acid. Herein lies one of the chief objections to the process, that the nature of the gas given off when nitric acid reacts with arsenous acid is complex, and variable according to temperature and strength of acid.

Stenhouse and Groves in 1877 (Jour. Chem. Soc., 1877, i, 545) call attention to the variable composition of the gases so formed and recommended nitric acid of specific gravity 1.30-1.31 and a temperature of 70° as giving the most N_2O_3 . Lunge (Berichte 17, 1641) says that acid of 1.35 specific gravity produces large quantities of N_2O_3 along with N_2O_4 and that acid of specific gravity 1.5 produces chiefly N_2O_4 with some N_2O_3 . Ramsey and Cundall in a research on the oxides of nitrogen (Jour. Chem. Soc., 1885, 197), in which they employed arsenious acid, and nitric acid of specific gravity 1.5, state that "arsenious oxide when heated with nitric acid gives a liquid containing N_2O_3 according to the equation $2HNO_3 + As_2O_3 + nH_2O = N_2O_3 + As_2O_5 + (n+1)H_2O$. In the gaseous state, however, they claim that N_2O_3 does not exist but dissociates into NO and a mixture of NO_2 and N_2O_4 , the N_2O_4 , they assume, reacting with water as follows: $2N_2O_4 + H_2O = 2HNO_3 + N_2O_3$. Williams and Smith (vide supra)

say that "it is stated in chemical works that this gas (N_2O_4) acting upon amyl alcohol is broken up into nitrous acid (N_2O_3) and nitric acid." They made a practical test of conditions governing the production of a gas best adapted to making amyl nitrite and found their results agreed with this statement and with those of Ramsey and Cundall; giving also evidence confirmatory of Lunge's assertions. An acid of specific gravity 1.5 gave a low yield of amyl nitrite as would be expected if N_2O_4 were chiefly produced and decomposed into N_2O_3 and nitric acid. Their best results were obtained with acid of 1.35-1.36 specific gravity and this they recommended as best, as would be anticipated from the researches cited above.

E. Rennard (Pharm. Centr., 1874, 236) in a review of methods for making amyl nitrite also considers this method best, but uses starch or sugar for producing the nitrous gas.

CHEMICAL AND PHYSICAL CHARACTERISTICS.

The descriptions of Amyl Nitrite in the various pharmacopœias differ somewhat in details but in most cases do not indicate as great a variation from an absolutely pure product as is actually the case. In view of this it will be of interest here to consider at some length the characteristics of amyl nitrite, its allied nitrites and other possible impurities.

Of the definitions quoted, that of the U. S. P. is probably best as it merely states the percentage strength of the amyl nitrite and does not remark concerning the nature of the impurities.

The B. P. is contradictory as it states that "other nitrites of the homologous series" are present but specifies that amyl nitrite shall be made from amyl alcohol distilling between 127.7° and 132.2° , which excludes homologous alcohols. If this requirement on the alcohol is not observed the other statement will then be true.

Other pharmacopœias give no definition, which tends to give the idea that medicinal amyl nitrite should be a pure substance, especially in view of the boiling-point requirement.

As previously noted the different pharmacopœias give a range of specific gravity from 0.870 to 0.900. D. B. Dott (Pharm. Jour. (3) 9, 172) gives .877 as the exact specific gravity, while Dunstan and Williams (Pharm. Jour. (3) 19, 487) give .874 ($15^\circ/15^\circ$) as the correct figures for pure amyl nitrite. In view of the fact that secondary propyl nitrite has a specific gravity of 0.871; secondary butyl nitrite, 0.874; tertiary butyl nitrite, 0.8715; and iso-butyl nitrite, 0.876, all according to Cash and Dunstan (Proc. Roy. Soc., 49, 314), and there may be present impurities of both higher and lower specific gravity than amyl nitrite, the specific gravity alone is of but little importance and not at all indicative of purity.

The qualitative tests for aldehyde and free acid are of value, especially the latter. Free acid is not liable to be present in well made amyl nitrite immediately after manufacture, but may be generated through decomposition on standing when improperly protected.

As regards the boiling point much variation of statement exists. For example the U. S. P. says: "At about 96° - 99° it boils yielding an orange-colored vapor."

It is uncertain whether this means that a good amyl nitrite begins to boil at about this temperature, or, what seems more obvious, that it distills wholly between these degrees. Furthermore, the vapor of amyl nitrite is colorless when seen in shallow layers, such as the thickness of a distilling flask of half a liter capacity. The orange colored vapors first given off on boiling amyl nitrite are in reality strongly reddish tinted and are simply mixtures of N_2O_3 and N_2O_4 , which are very soluble in amyl nitrite. In distilling amyl nitrite, after these first colored vapors have been driven off, there is no further evolution of a similar character. It is difficult to obtain any amyl nitrite by the nitrous-acid method which will not show a trace of this orange vapor, but it is obtainable with much less difficulty by the sodium nitrite-sulphuric acid method.

Now, as will be seen later, if the amyl nitrite is supposed to distil wholly or in great part between 96° and 99° , we have a demand for an impossible range of temperature for a commercial article. Several pharmacopœias demand the still smaller range of 97° - 99° . On the other hand the B. P. requires that on distillation about 70 percent. pass over between 90° and 100° . This is a rational and wholly attainable standard.

Coming now to statements of various experimenters, we find marked difference in the temperatures given as the exact boiling point of pure amyl nitrite. Balard, the discoverer of amyl nitrite (*Ann. Chim. et Phys.* (3) 12, 318) gives 96° as its boiling point. Umney (*Pharm. Jour.* (3) 1, 422) gives 98° - 99° . Guthrie (*Jour. Chem. Soc.*, 1859, 245) in an article on "Nitrite of Amyl and Its Derivatives" says: "Nitrite of Amyl, when perfectly dry, boils at 99° C. in a glass vessel in contact with platinum wire, under a pressure of 756 mm. A small quantity of moisture depresses the boiling point two or three degrees, apparently by diminishing the cohesion of the liquid." Tanner (*Am. Jour. Pharm.*, 1872, 21) says that, "The portion which distills between 95° and 100° C. is collected as amyl nitrite sufficiently pure for medicinal use." Hilger (*Archiv. d. Pharm.*, 1874, 485) states that it has a boiling point of 94° - 95° . This, and the high specific gravity he assigns (.902), agrees much better with these characteristics of tertiary amyl nitrite as given by Bertoni (*Gazz. Chim. Ital.*, 16,515) (specific gravity .903 and boiling point 92° - 93°) than they do with the statements of other observers on α - and β -amyl nitrites. It appears probable that he may have had a more or less pure tertiary amyl nitrite. For preparing amyl nitrite he recommends the nitrous acid process and collects the distillate from 90° to 95° for use. Greene (*Am. Jour. Pharm.*, 1879, 65) confirms Balard's statement, saying, "It boils constantly at 96° ." Williams and Smith (*Pharm. Jour.* (3) 16, 499), after remarking on the difference in recorded boiling points, say, "Probably 95° or 96° may be the correct point; our experiments rather tend to confirm that temperature as the correct one." Cash and Dunstan (*Proc. Roy. Soc.*, 49,314) give the boiling point of α -amyl nitrite as 97° and β -amyl nitrite at 95° - 96° , the mixture boiling at 96° - 97° , the one being derived from α -amyl alcohol (B. P. 131.5°) and the other from the β - or active amyl alcohol (B. P. 128°). The researches of Dunstan and his associates on amyl nitrite and homologous nitrites are the most complete published and are undoubtedly the most authoritative.

From the above variety of boiling points it is evident that some observers did not have pure material and that the kind of alcohol used, whether active or inactive, even tho well purified, makes a difference in the boiling temperature. Experimental results to be given later tend to confirm the statements of Dunstan.

PHYSIOLOGICAL ACTION.

Any extended discussion of the physiological action of amyl nitrite is out of place here but before entering into the merits of methods of standardizing amyl nitrite as given in the pharmacopœias and elsewhere it will be of interest to consider the physiological effects of amyl nitrite and allied compounds so that we can better judge of the worth of assay methods as indicating medicinal value. In doing this we will quote briefly from the very thorough and painstaking research of Cash and Dunstan on "The Physiological Action of the Nitrites of the Paraffine Series, Considered in Connection with Their Chemical Constitution." (Philosophical Transactions 1893 B, 505-640.) The only account the writer has seen of it in any other place likely to be seen by pharmaceutical chemists is a brief and wholly inadequate abstract in the *Pharmaceutical Journal* (3) 25, 313).

After the discovery of amyl nitrite it was more fully investigated by Guthrie (*Jour. Chem. Soc.*, 1859, 245) who called attention to its power of causing flushing of the face and acceleration of the heart's action. It was considered as little more than a chemical curiosity until Dr. W. B. Richardson brought it to the attention of the British Association for the Advancement of Science in 1863 by a report on the "Physiological Properties of the Nitrite of Amyl" and showed it to be the most powerful known drug for increasing the action of the heart, and in 1864 he extended his investigations. Dr. Lauder Brunton by publication of results of his work in 1867 and 1870 did much toward increasing its use as a medicine. Valuable primarily in diseases of the circulatory system it has been advocated for numerous other affections in which a vascular excitant is desired. In 1888 Brunton and Bokenham (*Pharm. Jour.* (3) 19, 491) while investigating the effect of amyl nitrite on blood pressure found that the B. P. substance was more powerful than an absolutely pure amyl nitrite. This anomalous and unexpected result was explained by the work of Cash and Dunstan as due to the presence of iso-butyl nitrite which they found to be more powerful than the iso-amyl compound.

Their work dealt with ten related nitrites and their comparative action on the pulse and blood pressure is indicated in the following table, the numerals showing the order of activity.

	Sp. Gr.	Boiling Point.	Acceleration of Pulse.	Reduction of Blood Pressure.	Duration of Subnormal Pressure.
Methyl Nitrite.....		12°	1	4	10
Ethyl Nitrite.....		17°	2	2	9
Primary Propyl Nitrite...	0.895	48°	3	1	1
Secondary " " ...	0.871	39.5°	4	10	2
Primary Butyl " " ...	0.911	76°	5	3	5
Secondary " " ...	0.874	68.5°	6	8	6
Tertiary " " ...	0.8715	63°	8	9	7
Iso-Primary " " ...	0.876	67°	7	7	3
α-Iso-Amyl " " ...	0.874	97°	9	5	4
β- " " " ...	0.874	95-96°			
Tertiary Amyl " " ...	0.890	92°	10	6	8

Having demonstrated the action of these nitrites they say: "In conclusion, the following are the principal facts which have been established with reference to the connection between the various phases of the physiological action of these nitrites and their chemical constitution.

In respect of all phases of the physiological action, the secondary and tertiary nitrites are more active than the corresponding primary compounds. This is to be chiefly attributed, not to the direct physiological effect of the secondary and tertiary groups, but to the great facility with which these compounds suffer decomposition.

In respect of the acceleration of the pulse, the power of the nitrites varies directly as their molecular weights, and they therefore fall into an order identical with that of the homologous series. This same relationship, increase of activity corresponding with rise in molecular weight, may also be traced, though less uniformly, in their power of reducing blood pressure and of inducing muscular contraction.

This order appears to be the result, not so much of the direct influence of the substituted methyl groups, as of the increased chemical instability which their substitution confers on the higher members of the series.

In respect of the duration of subnormal pressure, as well as of the rapidity with which muscular contraction ensues, the activity of the nitrites is expressed by an order which is for the most part the reverse of that presenting their power in accelerating the pulse, reducing blood-pressure, and contracting muscular fibre, this order being in general contrary to that of the homologous series. In these respects the more volatile nitrites of low molecular weight, and containing, therefore, relatively more nitroxyl, are the most active. It is probable that these simple nitrites more readily attach themselves to constituents of blood and muscle, and thus act more quickly than the higher compounds in inducing muscular contraction, whilst their greater stability causes their effect, i. e., reduction of blood-pressure, to endure for a greater length of time than that of the higher and more easily decomposed bodies."

Besides the effect of these homologous nitrites, which is quite similar to that of amyl nitrite, we have that of numerous oxidation products. Thus we may find valerianic aldehyde, valerianic acid, amyl valerianate, nitropentane and unknown products which have the power even in minute quantity of producing violent and lasting headache. We shall also show later that pyridine nitrate is produced by the nitrous acid process and its presence may be expected. This makes it probable that the unknown bodies mentioned above may be pyridine derivatives. Hydrocyanic acid is mentioned by some, while others report that they are unable to find it. While we have made no extended examination for HCN, we have found no reason for concluding it was present in amyl nitrite of the nitrous acid process. Considering the poisonous properties of the pyridine compounds however, it is obvious that crudely prepared amyl nitrite may be extremely deleterious.

METHODS OF VALUATION.

Several methods of assay have been proposed but the most practical for pharmaceutical use is the nitrometer method first proposed by Allen for spirit of nitrous ether and subsequently applied by him to amyl nitrite. This is adopted in both the U. S. P. and B. P. (To be continued.)

OUR NEW OFFICERS.

CASWELL ARMSTRONG MAYO, PH. G.,
SIXTY-SECOND PRESIDENT, AMERICAN PHARMA-
CEUTICAL ASSOCIATION.

Caswell Armstrong Mayo, who was installed as the sixty-second President of the American Pharmaceutical Association on Saturday, August 29, 1914, at the conclusion of the Detroit meeting, was born in Columbus, Miss., July 5, 1862. He received his early education and his preliminary training in pharmacy in his native town. He was graduated from the Philadelphia College of Pharmacy in 1887, while employed in the pharmacy of William Procter, Jr., Company. He was assistant editor of the Druggists' Circular for a little over five years, editor of the Drug Department of the Oil, Paint and Drug Reporter for about a year, editor of Merck's Market Report for three months, in 1892, and succeeded Dr. Frederick A. Castle and Dr. Charles Rice as editor of the American Druggist, with which the Pharmaceutical Record was consolidated on the death of its editor, Prof. P. W. Bedford. Mr. Mayo has attended every meeting of the Association since 1888, with two exceptions, and has taken an active part in its affairs. He served for seventeen years as Chairman of the Committee on Transportation and on numerous other committees, and has been Historian, Chairman of the Section on Historical Pharmacy, Secretary of that Section, Member of the Council, and a Vice-President of the Association. He is a widower, and resides with his four children in Brooklyn, N. Y.



WILLIAM BAKER DAY, PH.G.,

THE NEWLY-ELECTED SECRETARY OF THE
ASSOCIATION.

In the selection of Professor W. B. Day as its General Secretary the Association has made a wise and an admirable choice. Becoming a member of the Association in 1895 he has done yeoman work in its behalf. In every position to which he has been appointed by the Association he has shown eminent ability and capacity, and he may be depended upon to give to the organization the same loyal service in the high and responsible position to which he has been chosen.

As past President of the Association he brings to the position a full knowledge of its duties, and is a most worthy and fitting suc-

cessor of Procter, Parrish, Maisch, Remington, Caspari and Beal. In his hands every member may be assured that the traditions of



the office will be fully maintained and that the affairs of the Association will be carried on with dignity, zeal and faithfulness.



CONVENTION ENTERTAINMENTS.

The Entertainment Committee, under the Chairmanship of Mr. O. W. Gorenflo, assisted by a Ladies' Committee, consisting of Mesdames Webster, Rennie, Mann, Mason, Scoville, Hall, Weaver, Francis and Stevens, were indefatigable in their efforts to make the meeting most pleasurable to every person in attendance.

On Monday evening the magnificent ballroom and the adjacent rooms was the scene of a most enjoyable occasion, that of the Presidents' reception and ball. In the receiving-line were President and Mrs. Beringer and the past Presidents of the Association with their ladies, and also the President of the Michigan State Pharmaceutical Association, Mr. D. G. Look. The rooms were thronged with a large and fashionable gathering until a late hour.

The ladies' excursion, given by the firm of Nelson, Baker & Co. was a most delightful function. The ladies were taken to Bois Blanc Island (Bob-Lo) where they were en-



THE CONVENTION AT THE PARKE, DAVIS AND CO.'S LABORATORIES.



THE CONVENTION AT THE PARKE, DAVIS AND CO.'S LABORATORIES. (2)



THE CONVENTION AT THE PARKE, DAVIS AND CO.'S LABORATORIES. (3)

tertained until a late hour, and where a fine dinner was served in unexceptionable style.

On Wednesday the alumni of the different colleges represented at the Convention met at luncheon together, the most elaborate of the functions being that of the Philadelphia College of Pharmacy at the Hotel Pontchartrain, at which Mr. Frank G. Ryan, the President of the Parke, Davis Co., acted as host. The Massachusetts College of Pharmacy Alumni held their lunch at the Hotel Ste. Claire, under the presidency of Mr. F. W. Archer.

Wednesday afternoon a card-party for the ladies was held in the parlors of the Hotel Pontchartrain, at which Mrs. H. M. Whelpley and Mrs. George M. Andrews were the prize-winners.

Wednesday evening the ladies were the guests of F. F. Ingram & Co. and F. A. Thompson & Co. at the Temple Theatre, while the gentlemen were being entertained most royally at the Wayne Gardens by Frederick Stearns & Co.

On Thursday afternoon, Parke, Davis & Co. entertained the entire Convention with a steamer-excursion to St. Clair Flats, which trip also included an inspection of the magnificently equipped laboratories of the firm. Supper was served on the boat and the party did not return until a late hour in the evening. The excursion through the Flats was one long to be remembered by those who participated in the trip.

Friday afternoon a general auto-ride was enjoyed by all those who desired, and the party was taken through the residential section of Detroit, along its beautiful boulevard, and to beautiful Belle Isle, probably one of the most magnificent public parks in America. Its Zoological Gardens and Aquarium were most enjoyable points of interest for all who participated in this excursion. It is but fair to say that the completeness with which every detail of these various functions was carried out, deserved and received the warmest encomiums of every person who participated in them.

*In Detroit Life Was Worth
Living Every Day.*

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Acting Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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CINCINNATI.

The Outing Committee of the Cincinnati Branch, A. Ph. A., planned for a delightful day at White Villa, Ky., about eighteen miles from Cincinnati.

Nearly every member with their families attended and enjoyed a good chicken dinner, games, boating, bathing and a good time generally in the coolness and shade of White Villa, as the guests of mine host, Mr. J. M. Myers. There were speeches by President E. H. Thiesing, Frank H. Freericks, National Delegate; C. T. P. Fennel, Theo. D. Wetterstroem, Charles Harding, Fred Ott and others.

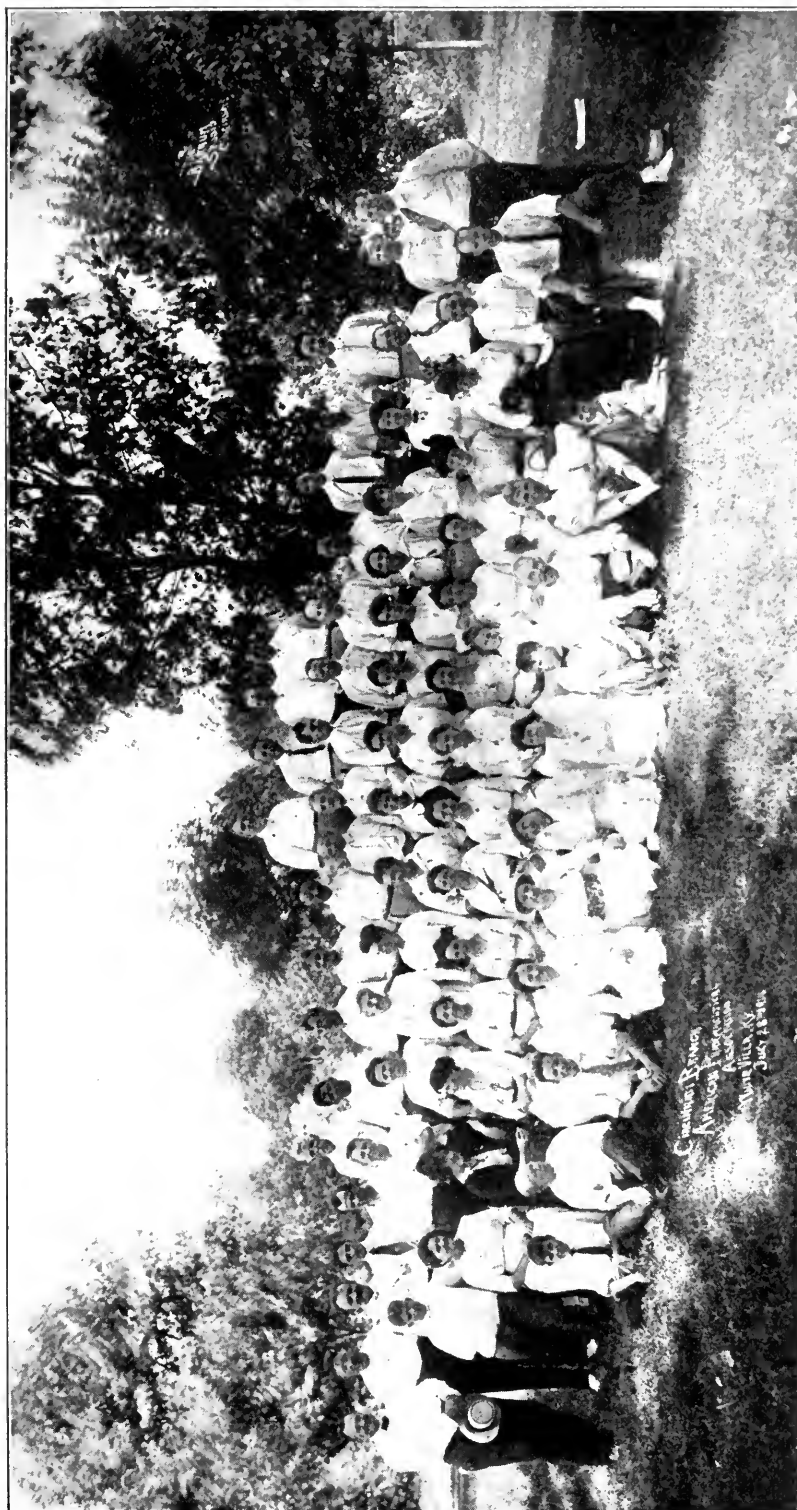
The first prize in the ladies' guessing contest, for guessing the nearest number of Jequirity beans, prayer beans and jumble beads, contained in a jar, went to Miss Lula Faller, the second to Mrs. Frank H. Freericks and the third to Mrs. Otto Kistner.

Prizes also offered, guessing the weight of entire package, resulted: First prize, Mrs. Scallan; second prize, Mrs. Jackson; third prize, Miss Helen Heister.

The lady guessing the nearest number of polka dots in a polka-dot bow was Mrs. Freericks for first prize; Mrs. Kotte, second prize, and Mrs. Vocke, for third prize.

Sugar-coated pellets, contained in a jar, were nearest estimated in number by Mrs. Kistner, for first prize; Mrs. Weissmann, for second prize, and Miss Heister, for third prize.

The geography game resulted in the first



OUTING OF THE CINCINNATI BRANCH, WHITE VILLA, KY.

Cincinnati Branch
American Pharmaceutical Association
White Villa, Ky.
July 14, 1906

prize being awarded to Mrs. Dorn; second prize to Mrs. Fennel, and the third prize to Mrs. Julius Greyer.

The Committee in charge for the day were Messrs Charles G. Merrell, Chairman, Frank H. Freericks, C. T. P. Fennel, Otto Katz and Louis Werner.

Everybody voted to have spent an enjoyable day, due to the untiring efforts of this Committee.

Our Local Branch has a steady, healthy growth in membership, and will resume regular monthly meetings in October.

CHARLES A. APMEYER, Secretary.

College and Society

THE COLLEGE OF PHARMACY, STATE UNIVERSITY OF IOWA, IOWA CITY, IOWA.

Professor R. A. Kuever and Miss Ruth Wilburta Hindman of Iowa City were married at the house of the bride's mother, Mrs. Charles Baker, on June 20th. Professor and Mrs. Kuever spent a month in the mountains of Colorado and are moving into a fine new bungalow, which Professor Kuever built this last spring.

Mr. Thurston J. Long, Ph.G., '13, Ph.C., '14, of Iowa City, has just received an appointment as assistant drug analyst and inspector, under State Food and Drug Inspector Guy G. Frary of Vermilion, S. Dak.

The State University of Iowa opens on September 21, and the slogan "3000 in September" is sure to be realized, if advance registration can be taken as an indication. The advance registration to date of the College of Pharmacy is the largest in the history of the College, with but one exception.

Mr. Karl Kullman, Ph.G., '13, received his degree of Pharmaceutical Chemist at the Summer Session Commencement. Mr. Kullman will do relief work for the Hansen Drug Co. of Davenport, where he made good last summer in the same capacity. He will return to the University to continue his studies the coming year.

Miss Maud Wieland, Ph.G., '14, who is clerking for E. L. Boerner, was called to Red Oak by the death of her father.

Dr. E. W. Rockwood, Professor of Chem-

istry, and family are spending their vacation in Colorado.

The annual "Home-coming Day" for the University has been set for October 24th, the date of the Minnesota foot-ball game at Iowa City. For the home-coming Pharmacists, special lectures on Salesmanship and Store Management will be arranged.

Iowa City and the College were represented at the American Pharmaceutical Association Meeting at Detroit by Professor Kuever, Professor Zada M. Cooper, Mr. E. R. Utterback of the Whetstone Pharmacy, and Dean Wilber J. Teeters, wife and son Otis.

An important action was recently taken by the Educational Board by which, in September, 1915, a High School diploma will be required for entrance to the College of Pharmacy. For the present year, two years of high-school work is accepted.

The Pharmacy College, having placed an early import order, has received the entire shipment, so will experience no inconvenience for lack of apparatus this coming year.

Homer Long, Ph.C., '14, chemist for the Boerner Fry Co. of Iowa City, will continue his chemical studies in the University.

Professor B. Shimek of the Botanical Department has been lecturing in Bohemia, and fear is expressed that he may not be able to return in time for his school work.

Mr. George L. Parsons, '12, of Keokuk, Iowa, has invented a powder-dividing device and will put it on the market.



UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

Mr. A. H. Clark, Assistant Professor of Chemistry in the University of Illinois School of Pharmacy, will spend the coming year at the University of Michigan, pursuing advanced studies. His position in the University of Illinois School of Pharmacy has been filled by the appointment of Mr. E. V. Lynn of the University of Wyoming. Mr. Lynn holds the degrees of Bachelor of Arts from the University of Washington and Master of Arts from the University of Wisconsin. He has been Assistant in Chemistry in the University of Washington and in the University of Wisconsin. He was, at one time, instructor in Physics at the Adelphia College. He is the author of a Laboratory Guide in Pharmaceutical Technique, which was prepared during his connection with the Pharmaceutical

Faculty of the University of Wisconsin. His latest work has been in connection with research on the poisonous (to stock) plants of Wyoming.

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ST. LOUIS COLLEGE OF PHARMACY.

The Semi-Centennial of this institution will be celebrated early in November and it is desired by the officers of the College that every matriculant of the school shall participate in the celebration of this anniversary. All persons who have ever been connected with the school in any capacity are earnestly requested to send their names and addresses to Mr. Fred W. Sultan, 112 No. Second St., St. Louis, Mo., the Chairman of the Semi-Centennial Committee, who will be pleased to send further information to them regarding the exercises planned for this occasion, so full of interest to all friends of the College.

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THE WOMEN'S PHARMACEUTICAL ASSOCIATION OF THE PACIFIC COAST.

The regular monthly meeting of the Women's Pharmaceutical Association was held in San Francisco, July 24, 1914.

Delegates to the sixty-second annual convention of the A. Ph. A. were appointed as follows: Miss Clarissa M. Roehr, San Francisco; Dr. Josephine Barbat Winslow, San Francisco, and Mrs. K. K. Voluntine, Palo Alto.

The next meeting of the Association will be held in San Francisco, August 28, 1914.

Council Business

COUNCIL LETTER No. 20.

(Previously omitted.)

Philadelphia, Pa., May 19, 1914.

To the Members of the Council:

Motions No. 32 (Organization of San Francisco Branch, A. Ph. A.), and No. 33 (Appointment of Harry B. Mason as Chairman of Committee on Commercial Interests, vice Gus Lindvall, resigned), have each received a majority of affirmative votes.

The following communication has been received:—

"American Pharmaceutical Association:

Gentlemen:—Recognizing the importance of having a uniform shape for hypodermic tablets, it is our purpose to conform to the suggestions as outlined by your Association, in using the coffin-shaped mold for bichloride tablets.

Very truly yours,
H. K. Mulford Company,
Milton Campbell, President."

Philadelphia, April 27, 1914.

The following letter has been received:—

"Detroit, Mich., May 16, 1914.

Mr. Joseph W. England, Secretary of the Council, American Pharmaceutical Association:

Dear Sir:—At the suggestion of yourself, as Secretary of the Council of the A. Ph. A., I advance herewith a set of general principles for the consideration of the Council. The annual meetings of the association have grown so confusing and unsatisfactory that it seems to me the time has come to make radical changes. A little of the modern spirit of "scientific efficiency" is critically needed. We must cut out a lot of unessentials in order to find time for essentials.

Some of the propositions advanced in this letter may, if adopted, mean changes in the by-laws, or other formal action, but this is a detail which may be attended to later on. The first thing to do, it seems to me, is to act on the general principles involved, though it may be well to defer action on them until the Detroit meeting in August.

The central purpose behind all my recommendations is threefold in character: First, to get order out of chaos in the growing multiplicity of convention business; secondly, to get rid of unimportant things so as to find time for important ones, chiefly the more leisurely reading and discussion of good papers; thirdly, to so arrange the work that the members will not be worn out by being on duty from nine o'clock in the morning until one or two o'clock the next morning.

1. Abolish the Section on Pharmacopœias and Formularies, and let the work be done by other sections.

2. Discountenance the proposed Section on Materia Medica and Pharmacognosy.

3. Omit the addresses of welcome at the first general session, and start business with the president's address exactly as is done in the Sections.

4. Recognize the Report on the Progress of Pharmacy as being invaluable, but print it and give it no place at all on the programme of the meeting.

5. Adopt the general principle, indeed, that committee reports should for the most part be printed in the JOURNAL or rendered to the Council, or both, but eliminated from the annual meetings.

6. Have the Conference of Faculties and the Association of Boards meet either late the week before, or early the week following the A. Ph. A. itself, so as to avoid this ele-

ment of confusion and scattered interest. Or perhaps use some of the evenings for these bodies.

7. Observe in the future the principle adopted for the Detroit meeting, namely, that the Council shall hold all its meetings in the evening except the opening session on Monday morning.

8. Start the Section work promptly in the morning at 9:30—a step that is eminently practicable with the meetings of the Council relegated to the evenings.

9. Confine section and association meetings rigidly to the morning and afternoon periods, and thus leave the evenings free, so far as the great bulk of the membership is concerned, for rest, recreation and social intercourse. Those who desire, however, can then have the evenings for voluntary conferences, college reunions, and auxiliary activities of one kind and another not properly a part of the association business.

10. Adopt the general principle of concurrent meetings of the sections, and extend it so far as may be necessary to produce the best results. This means, however, that the section work must be better co-ordinated in the future than it has been in the past. Members sitting in one room should know precisely what is going on in another room at the same time. To this end the use of blackboards should be adopted, and entry should be made on them from minute to minute as the business changes.

11. Another cardinal necessity along this line is a collective programme containing the detailed programmes of all the different sections, and indicating approximately when any given paper is coming up for attention.

12. Still further to co-ordinate the work of the sections, and particularly to assist in arranging for discussions, the plan should be revived of having all papers printed in advance of the meeting.

13. A rule should be adopted that all manuscripts must be received by some arbitrary date, say July 15.

14. By these arrangements time and opportunity will be permitted for the discussion of papers read before the different sections, and this is a principle that must always be held uppermost. In the past, debate has been almost impossible, whereas well-planned and executed discussions of live subjects are perhaps the most profitable and interesting feature of the entire convention.

15. Finally, in order to insure the right kind of papers, all manuscripts should be sent by the section chairmen to the general secretary. The latter should have authority to reject or reassign contributions, and with the material before him he should prepare a united programme covering the entire meeting.

Very truly yours,

HARRY B. MASON."

The subject matter of Mr. Mason's letter is of the greatest interest. It is, in effect, a plea for the conservation of the time and the sys-

tematization of the work of the annual meetings, so that the most efficient results may be obtained.

The members of the Council are requested to give the subject their earnest consideration, and to discuss it in the Council letters, so that prompt action can be taken at the Detroit meeting.

In view of its importance, it might be well to make the subject one for special consideration at the first meeting of the Council on Monday, August 17, 1914.

Motion No. 34 (Election of Members). You are requested to vote on the following applications for membership:—

No. 124. Albert K. Jensen, 122 E. 20th St., Cheyenne, Wyo., rec. by Raymond Tyson and H. M. Whelpley.

No. 125. Frank A. Griebing, 3605 W. 32d Ave., Denver, Colo., rec. by F. J. Lord and Wm. A. Hover.

No. 126. Carl Eugene Schoder, 913 Corona St., Denver, Colo., rec. by F. J. Lord and F. W. Nitardy.

No. 127. Charles Howard Stocking, 540 Chautauqua Ave., Norman, Okla., rec. by A. B. Stevens and W. S. Hubbard.

No. 128. Edward A. Tupper, 800 10th St., South Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.

No. 129. Frank U. Hammett, 2630 Pine St., St. Louis, Mo., rec. by J. W. Mackelden and Arthur C. Schulte.

No. 130. John E. Norman, 71 W. 9th Ave., Columbus, rec. by Edward Spease and Clair A. Dye.

No. 131. Ray Robert Chamberlain, 205 Main St., Malvern, Ark., rec. by Francis George Schachleiter and H. M. Whelpley.

No. 132. Frank William Crossley-Holland, F.C.S., 39 Farrington Road, London, England, rec. by Caswell A. Mayo and Wm. B. Day.

No. 133. Leahmer M. Kantner, 1747 Park Ave., Baltimore, Md., rec. by H. A. B. Dunning and J. W. Westcott.

No. 134. Earl R. Lusk, Jefferson and Chouteau Sts., St. Louis, Mo., rec. by J. W. Mackelden and Widney Willette.

No. 135. Alert Bond Lambert, 2100 Locust St., St. Louis, Mo., rec. by J. W. Mackelden and George R. Merrell.

No. 136. W. D. Bost, 6300 Etzel Ave., St. Louis, Mo., rec. by J. W. Mackelden and C. T. Buehler.

No. 137. Alex. F. Peterson, 216 Higgins Ave., Missoula, Mont., rec. by Charles E. Mollett and Sidney J. Coffee.

No. 138. Albert E. Martin, P. O. Box 534, Rome, Ga., rec. by Max Morris and W. S. Elkin, Jr.

No. 139. Albert Franklin Anderson, 2849 George St., Chicago, Ill. (Faculty-prize, University of Illinois School of Pharmacy), rec. by W. B. Day and J. W. England.

No. 140. John Canada Davis, 37 12th St., Wheeling, W. Va., rec. by Walter E. Dittmeyer and G. O. Young.

No. 141. Horace Edgar Gunn, Main St., Uxbridge, Mass., rec. by C. H. Packard and Elie H. La Pierre.

No. 142. Philomena M. N. Goodman, 3163 Mission St., San Francisco, Cal., rec. by Albert Schneider and Clarissa M. Roehr.

No. 143. Margery Dorothy Low, St. Francis Hospital, San Francisco, Cal., rec. by Clarissa M. Roehr and J. H. Beal.

No. 144. Jesse Hamilton Ambler, 412 Elm St., St. Louis, Mo., rec. by Charles E. Caspari and Fred W. Sultan.

No. 145. Frank B. Cain, Lyric Theatre Building, Cincinnati, Ohio, rec. by Edward L. Pieck and John Uri Lloyd.

No. 146. George Frederick Daupell, 758 South Western Ave., Chicago, Ill., rec. by W. B. Day and A. H. Clark.

No. 147. Albert Schreiner, Jr., 8 Wilson St., Batavia, Ill., rec. by Clyde M. Snow and W. B. Day.

No. 148. William Joseph Gunn, 3154 Park Ave., St. Louis, Mo., rec. by C. T. Buehler and Julius C. Hoester.

No. 149. Josephine Eugenia Barbat-Winslow, 1057 Sutter St., San Francisco, Cal., rec. by Albert Schneider and Miss Clarissa M. Roehr.

No. 150. William Goggin Crockett, 113 W 64th St., New York, N. Y., rec. by Hugo Schaefer and Jeannot Hostmann.

No. 151. William Francis Stover, 480 Shirley St., Winthrop, Mass., rec. by Theodore J. Bradley and Elie H. La Pierre.

No. 152. James Lurie, 750 Lexington Ave., New York City, N. Y., rec. by J. Leon Lascoff and George C. Diekmann.

No. 153. William Taylor, 151 W. 140th St., New York, N. Y., rec. by J. R. Rippetoe and Jeannot Hostmann.

No. 154. Ward C. Tillotson, 601 16th St., Denver, Colo., rec. by F. W. Nitardy and Emmett Powers.

No. 155. Arthur Glenn Koehler, 3815 Washington Ave., St. Louis, Mo., rec. by J. W. Mackelden and C. T. Buehler.

No. 156. Frantz Frederick Berg, 2101a Chippewa St., St. Louis, Mo., rec. by J. W. Mackelden and H. M. Whelpley.

No. 157. Dr. Louis Veillon, Monsanto Chemical Works, 1800 S. 2d St., St. Louis, Mo., rec. by Charles E. Caspari and J. W. England.

No. 158. Clarence Frederick Ramsay, 344 Field Ave., Detroit, Mich., rec. by Wilbur L. Scoville and Clifton H. Briggs.

No. 159. S. Rudolph Light, care The Upjohn Co., Kalamazoo, Mich., rec. by J. H. Beal and J. W. England.

No. 160. Jeremiah G. Garrity, Spring Valley, Ill., rec. by W. B. Day and A. H. Clark.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.

COUNCIL LETTER No. 30.

Philadelphia, Pa., August 5, 1914.

To the Members of the Council:—

Motion No. 47 (Applications for Membership). You are requested to vote on the following applications for membership:—

No. 282. Otto Carl Blum, 286 Taylor Ave., Columbus, Ohio, rec. by Edward Spease and Ernest C. Marshall.

No. 283. James Lowrie McAnlis, Ph.G., 230 N. Phelps St., Youngstown, Ohio, rec. by P. Henry Utech and J. H. Beal.

No. 284. I. Curtis Arledge, 4242 Wirt St., Omaha, Neb., rec. by H. F. Gerald, M.D., and John E. O'Brien.

No. 285. Edward Alter Bank, 327 Atlantic Ave., Brooklyn, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 286. Michele De Mattia, 292 1st St., Brooklyn, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 287. Isaac Friedman, 53 Halsey St., Newark, N. J., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 288. Eugene Gordon, 851 Tinton Ave., Bronx, New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 289. Isidor A. Saphiro, 173 Avenue B, New York, N. Y., rec. by Otto Raubenheimer and J. Leon Lascoff.

No. 290. Louis Frank, Wilkes Barre, Pa., rec. by L. L. Walton and C. H. Packard.

No. 291. Walter J. Sturgeon, 305 Market St., Kittaning, Pa., rec. by Lucius L. Walton and Edgar F. Heffner.

No. 292. Adam B. Heckerman, Port Royal, Pa., rec. by L. L. Walton and Charles H. LaWall.

No. 293. Dr. Carlos R. Vasquez, 13 Calixto Garcia, P. O. Box 49, Manzanillo, Cuba, rec. by Dr. M. Rebutillo and Dr. R. Zastida.

No. 294. George H. Chittick, care State Dairy and Food Commission, Des Moines, Iowa, rec. by E. O. Kagy and R. L. Parker.

No. 295. Howard W. Gardner, 517 Monroe St., Brooklyn, N. Y., rec. by Eugene L. Maines and Joseph P. Millikin.

No. 296. Gilbert C. Bacon, 2038 Cherry St., Philadelphia, Pa., rec. by Eugene L. Maines and Joseph P. Millikin.

No. 297. Frank Keating, 454 Folsom Place, Milwaukee, Wis., rec. by E. M. Krembs and Robert M. Dadd.

No. 298. James Rowers Knox, Center Point, Ark., rec. by E. A. Ruddiman and J. T. McGill.

No. 299. Earl Douglass Sloan, No. 4, Granada Apts., Nashville, Tenn., rec. by Samuel Davis and E. A. Ruddiman.

No. 300. Magnus Bernhard, Sgt. Hosp. Corps, U. S. A., Manila, P. I., rec. by Edgar T. Nitch and Arthur E. Brown.

No. 301. David W. Bell, Herman, Neb., rec. by A. V. Pease and J. W. England.

No. 302. Francis Joseph O'Rourke, 12 N. 8th Ave., Whitestone, N. Y., rec. by J. D. Aug. Hartz and Edward N. E. Klein.

No. 303. Isham A. Trantham, 876 N. Main St., Springfield, Mo., rec. by H. M. Whelpley and J. C. Falk.

No. 304. Joseph A. Todd, 501 4th St., Sioux City, Iowa, rec. by G. Scherling and J. W. England.

No. 305. Edwin C. Hutman, 222 Hamilton St., Albany, N. Y., rec. by G. V. Dillenbach and Alfred B. Huested.

No. 306. Herman Joseph Allard, 580 Pelham Ave., Bronx, New York, N. Y., rec. by Ernest C. Marshall and J. W. England.

No. 307. John Duignan, Regimental Hospital, 27th Infantry, Texas City, Texas, rec. by H. M. Whelpley and H. W. Riess.

No. 308. Benedict Frederick Schiess, 914 N. 19th St., St. Louis, Mo., rec. by Chas. W. Emery, Jr., and H. M. Whelpley.

No. 309. J. Harry Cox, New Lebanon, N. Y., rec. by Romaine Pierson and Otto Raubenheimer.

No. 310. Charles W. Matthews, 320 Lacka Ave., Scranton, Pa., rec. by W. H. Knoepfel and Lucius L. Walton.

No. 311. Andrew Brown, 1418 Pittston Ave., Scranton, Pa., rec. by W. H. Knoepfel and Lucius L. Walton.

No. 312. Eli Salmon Troupin, 349 Harrison Ave., Boston, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 313. William Henry Wentland, Manor, Texas, rec. by E. G. Eberle and R. H. Walker.

No. 314. Cicero Rudd, Lineville, Alabama, rec. by Emerson R. Miller and C. H. Packard.

No. 315. Albert Edward Cox, 105 Main St., Brattleboro, Vt., rec. by E. H. La Pierre and Wilfred F. Root.

No. 316. Malcom E. Hannah, 18 S. Palafex St., Pensacola, Fla., rec. by Emerson R. Miller and C. H. Packard.

No. 317. Edward Kreidler Cope, 1961 Germantown Ave., Philadelphia, Pa., rec. by Frank H. Cope and Franklin M. Apple.

No. 318. John Oliver Bosley, 1401 King St., Wilmington, Del., rec. by Reuben M. Kaufman and Herbert K. Watson.

No. 319. Franklin W. Doliber, 221 Columbus Ave., Boston, Mass., rec. by Ernest C. Marshall and Anna G. Bagley.

No. 320. Joseph A. Wernert, 405 Michigan St., Toledo, O., rec. by T. D. Wetterstroem and Waldo M. Bowman.

No. 321. Martin Diethelm, 701 Madison Ave., Toledo, Ohio, rec. by T. D. Wetterstroem and Waldo M. Bowman.

No. 322. Clifford R. Burnette, Mount Blanchard, Ohio, rec. by Waldo M. Bowman and Theo. D. Wetterstroem.

No. 323. Henry W. Cotner, Athens, Ohio, rec. by Theo. D. Wetterstroem and Waldo M. Bowman.

No. 324. Wm. H. Donges, 628 S. Detroit St., Xenia, Ohio, rec. by T. D. Wetterstroem and Waldo M. Bowman.

No. 325. Daniel T. Dougherty, 27 Center St., Bath, Maine, rec. by Charles H. Davis and M. L. Porter.

No. 326. Edward C. Merrill, Bureau of Chemistry, Division of Drugs, Washington, D. C., rec. by L. F. Kebler and J. W. England.

No. 327. George Joseph Carroll, Ph.C., 4 Parker St., Gardner, Mass., rec. by John G. Godding and Theodore J. Bradley.

No. 328. Edwin W. May, 54 N. Main St., Martinsville, Ind., rec. by C. B. Jordan and E. C. Marshall.

No. 329. Wilbur Dexter Hodges, 2712 Taylor St., East Chattanooga, Tenn., rec. by E. A. Ruddiman and J. T. McGill.

No. 330. H. Frank Stookey, 116 N. Franklin St., Kirksville, Mo., rec. by E. O. Kagy and R. L. Parker.

No. 331. Nicholas J. Blank, 10th and Isabella Sts., Newport, Ky., rec. by Theo. D. Wetterstroem and E. H. Thiesing.

No. 332. T. J. Widsig, 6th and Washington Ave., Newport, Ky., rec. by Theo. D. Wetterstroem and E. H. Thiesing.

No. 333. Dennis E. Murphy, 1053 S. Gregory St., Cincinnati, Ohio, rec. by Theo. D. Wetterstroem and E. H. Thiesing.

No. 334. Isadore F. Blumenthal, N. W. cor. Linton and Nassau Sts., Cincinnati, Ohio, rec. by Theo. D. Wetterstroem and E. H. Thiesing.

No. 335. Cyrus Joseph Lammert, Burnet and Albany Ave., Cincinnati, Ohio, rec. by Theo. D. Wetterstroem and E. H. Thiesing.

No. 336. Julius Kramer, care Y. M. C. A., Jackson, Mich., rec. by E. R. Thomé and A. R. Todd.

No. 337. Ernest Lester Cowan, 82 Congress St., Rumford, Maine, rec. by Chas. H. Davis and M. L. Porter.

No. 338. Thomas A. Cornell, 474 Main St., Winnipeg, Manitoba, Canada, rec. by C. W. Campbell and E. Nesbett.

No. 339. Earl Harrington Mason, 99 Chapin Ave., Providence, R. I., rec. by George S. Morgan and James O'Hare.

No. 340. Edward George Nagle, 92 Coolidge St., Brookline, Mass., rec. by George L. Burroughs and Howard H. Smith.

No. 341. Frank Roy McKinney, Front St., Richmond, Maine., rec. by George L. Burroughs and Howard H. Smith.

No. 342. W. R. Montgomery, 140 W. Park St., Butte, Mont., rec. by Chas. E. Mollet and H. H. Bateman.

No. 343. David H. Hauptman, Ph.G., Park St., Gardiner, Mont., rec. by Chas. E. Mollet and H. H. Bateman.

No. 344. Frank Morris Boyles, care McCormick & Co., Baltimore, Md., rec. by J. F. Hancock and James E. Hancock.

No. 345. William German Hudson, 2035 Elizabeth St., Shreveport, La., rec. by Dr. Philip Asher and Joseph W. Peyton.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.

COUNCIL LETTER No. 31.

Philadelphia, Pa., August 15, 1914.

To the Members of the Council:—

The following communication has been received:—

"Detroit, Mich., U. S. A., August 11, 1914.

Mr. Joseph W. England, Secretary, Council of the A. Ph. A., 415 North 33d St., Philadelphia, Pa.:

Dear Sir:—Several months have now gone by since I submitted to the Council several propositions looking toward the reform, simplification and improvement of our annual meetings. The subject has since been considered and discussed so generally that I think we are ready for final decision and action. I have a motion to make, but first I should like to restate briefly the principles which I think should be adopted in the interests of increased efficiency.

First, let me say that the local Committee of Arrangements has, on its own initiative, decided to introduce several reforms at the Detroit meeting:

1. The customary addresses of welcome, and responses thereto, will be omitted at the first general session, and business will at once be started with the President's address exactly as is done in the sections.

2. At the suggestion of the Local Committee, the Council has already decided to hold its meetings in the evening with the exception of the opening session on Monday morning.

3. The section work will start promptly in the morning at 9:30—a step that is eminently practicable with the meetings of the Council out of the way during that period.

4. The section and Association Meetings will be rigidly confined to the morning and afternoon periods, thus leaving the evenings free, so far as the great bulk of the membership is concerned, for rest, recreation and social intercourse. Those who desire, however, can have the evenings for voluntary conferences, college reunions and auxiliary activities of one kind and another not properly a part of the Association business.

5. The principle of concurrent meetings of the sections has been extended more than ever before, and it has been arranged to co-ordinate the section work by a system of blackboards on which entries will be made from minute to minute, showing precisely what is going on in the different sections at the same time.

Although the foregoing innovations have already been adopted for the Detroit meeting this year, it seems to me that resolutions of approval should be passed by the Council for the guidance of future committees and for the permanence of these reforms.

Other necessary changes are the following:

6. Abolish the Section on Pharmacopœias and Formularies, and let its work be done by other sections.

7. Discountenance the proposed Section of Materia Medica and Pharmacognosy.

8. Recognize the report on the progress of pharmacy as being invaluable, but print it and give it no place at all on the program of the meeting.

9. Adopt the general principle that the reports of standing and special committees should be presented to the Council as the board of directors or executive committee of the organization, and by the Council referred to the Association only when it deems such action necessary. Inasmuch as no resolution or other formal action of the Council can be made binding until it is referred to and approved by the Association, there is no danger here of oligarchic government.

10. The manuscripts of all section papers should be received at least four weeks before the annual meeting.

11. All manuscripts should be sent by the section officers to the General Secretary, who should have power to reject any of them or to reassign them to different sections.

12. The General Secretary should have all accepted manuscripts printed in advance of the meeting. Their publication may still be limited to the official JOURNAL if so desired.

13. With all manuscripts in hand, three or four weeks before the meeting, the General Secretary should prepare a collected program containing the detailed programs of all the different sections, and indicating approximately when any given paper is coming up for attention.

14. Have the Conference of Faculties and the Association of Boards meet either late the week before, or early the week following, the A. Ph. A. itself, so as to avoid this element of confusion and scattered interest—either that, or else let these bodies use the evenings for their sessions.

With this spirit of elimination, co-ordination and increased efficiency in active play, it would easily be possible, as Mr. Wilbert has suggested, to confine the meeting to four days. This, however, would do away practically with all entertainment, and I do not feel like recommending such a radical step. Would the Association as a whole prefer a four-day program of solid work, or a five- or six-day program with a few entertainments sprinkled in? Why not leave the settlement of this particular question until it has been put to a vote by mail of the entire membership?

Now for my motion:

Some of the foregoing propositions, if approved, will mean changes in the by-laws. Others will merely mean resolutions or similar action. To simplify matters, however, I move that the whole subject of A. Ph. A. reform be made a special order of business at the meeting of the Council at 8 o'clock on Tuesday evening, August 25; that any germane recommendations that may be found contained meanwhile in the President's address or in any committee report be considered at the same time; that the Council vote 'yes' or 'no' on the general principles involved, or on any desired modification of

them; that a committee of three then be appointed to carry out the will of the Council and submit the approved propositions in the form of resolutions, changes in the by-laws, or what not; and that this report be rendered at the meeting of the Council on Wednesday evening, August 26.

It will thus be possible to clear up this whole matter with celerity, refer it to the Association, and get it disposed of finally during the week of the Detroit meeting.

Very truly yours,

HARRY B. MASON.

P. S. I submit purposely as a postscript three suggestions which I am not prepared to make as recommendations.

They have been advanced by others, and I think it might be well to consider them at the same time and thus clear up the whole atmosphere:

1. Abolish the House of Delegates and let the Council take over its work.
2. Abolish the Historical Section.
3. Change the Women's Section to an auxiliary."

'Do you favor above motion? It will be regarded as *Motion No. 48 (On special order of Business for Council Meeting of August 25, 1914).*

J. W. ENGLAND,
Secretary of the Council.

415 N. 33d Street.

The Pharmacist and the Law

AGENCY CONTRACT—LIABILITY OF AGENT.

A contract between a medicine company and an individual required the company to ship proprietary medicines to the individual for sale at retail, and bound him to sell at prices fixed by the company, to remit each week one-half of the receipts of the business, to submit weekly reports of the business, and on the termination of the contract settle in cash for the balance due the company on account. In an action by the receiver of the medicine company it was held that the contract was not a contract of sale, but an agency contract, and the individual paying the half of the receipts for goods sold was not liable for the value of goods in his possession at the termination of the contract.

Davis v. Woolsey, South Dakota Supreme Court, 147 N. W. 977.

LIABILITY FOR EXPLOSION.

Action was brought for personal injuries caused by the explosion of a cylindrical tank containing liquid carbonic acid gas. The tank was on the premises of the defendant, a drug company, when it exploded, and the plaintiff was working on the floor above. It was held that the mere fact of the explosion of the tank upon the defendant's premises was not sufficient to charge it with negligence. There must be some evidence that the tank was at the time of the explosion in the defendant's custody and control. In the absence of such evidence judgment was entered for the defendant.

Conley v. United Drug Co., Massachusetts Supreme Court, 105 N. E., 975.

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SALE OF LIQUOR—PRETENDED DRUGGISTS.

On appeal from a conviction of a violation of the local option law it appeared that the two defendants were partners in business as pseudo-druggists; neither had a license as a pharmacist, nor did they have a pharmacist in their employ. They employed a retired physician, and under what they claimed was a prescription written by him a sale was made of a quart of whisky. The sale was made by one of the partners in the defendant's store. The evidence was contradictory as to whether the other defendant was present, and there was no evidence that the sale was contrary to his wishes or instructions. It was held that, the defendants not having a pharmacist's license, and having no licensed pharmacist in their employ, they were not druggists and had no right to sell whisky on a prescription or without it. Every sale of whisky made by them was unlawful. The very nature of the partnership, so far as the sale of liquor was concerned, was a conspiracy to violate the law, and under these circumstances each was liable for a sale made by the other.

State v. O'Kelly, Missouri Supreme Court, 167 S. W., 980.

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CONTRACT OF SALE FOR CASH—INSPECTION OF GOODS—BUYER'S REMEDIES.

The contract of sale of a showcase stipulated, "Terms net cash. All terms mean from date of shipment, and not from date goods are received," and provided that, if goods were not up to contract, the seller might en-

ter on the buyer's premises and remove the same, and that a retention of the goods for ten days by the buyer without complaint was an acceptance, and a conclusive admission of the representations made by the seller. It was held that this did not prevent the seller from requiring the buyer, through draft, with bill of lading attached, to pay for the goods before obtaining possession. Where the buyer paid the draft and took possession of the goods, he had ten days within which to examine them. If during that period he discovered that they did not comply with the contract, he might complain to the seller, and either return the goods and demand the price, or he might keep them and sue for breach of warranty.

Eason Drug Co. v. Montgomery Showcase Co., Alabama Supreme Court, 65 So. 345.



MISBRANDING OF INSECTICIDE.

In proceedings for the condemnation of insecticide labeled "Sulpho-Naphthol" and "Inert Substance Water 7%, Insecticide 93%," it was held that the product was misbranded for the reason that it contained less than four-tenths of 1 percent of sulphur, the presence of which was due to chemical or accidental impurities, although the usefulness of the article was not affected, and also because it contained as much as 10.5 percent of water. A manufacturer, it was held, may not give to his product a name which indicates the presence in it in substantial quantities of a constituent when such is not the fact. *Libby, McNeill & Libby v. United States*, C. C. A., 210 Fed. 148. The manufacturer of the product expressed itself as willing to consent to a decree of condemnation. It did not wish to put out its product under a name which could lead any reasonable person to believe that he was getting something other than he was. It was willing to adopt another name, and in some way convey the information that the article, heretofore called sulpho-naphthol, does not contain any appreciable quantities of sulphur or any sulphur derivative.

United States v. Two Cases of Sulpho-Naphthol, 213 Fed. 519.



TAXATION—ADVERTISING PATENT MEDICINES.

Appeal was made from a conviction for an alleged violation of section 2 of chapter 90

of the Mississippi Laws of 1912, by which a tax of \$150 is imposed on "each person, firm or corporation selling or advertising by harangue, in any town or city, patent medicines, except a licensed merchant or druggist selling from his place of business." The appellant sold a lot of patent medicine to the Marks Drug Company, either a corporation or a partnership, engaged in the sale of drugs in the town of Marks, Miss., having a regular place of business, and agreed, as a part of the consideration for the purchase thereof, that he would assist the company in advertising and introducing it. This he did in the following manner: A platform was erected in front of the company's store on which the appellant would stand, accompanied by a negro with a banjo. This negro would attract a crowd by playing his banjo, singing, and telling stories, and the appellant would then make a speech telling the crowd of the great benefits to be derived by them from the use of this medicine, which they could purchase from the Marks Drug Company. He would then invite the crowd to follow him into the store. After the crowd would congregate in the store, sales of the medicine would be made to the members thereof by employees of the drug company. It was held that, as it appeared that the appellant, in advertising this medicine, was acting for the Marks Drug Company, which company had the right to have its medicine so advertised if it desired to do so, no crime was committed.

Hass v. State, Mississippi Supreme Court, 65 So. 502.



VIOLATION OF LOCAL OPTION LAW—SUFFICIENCY OF EVIDENCE.

The proprietor of a drug store was indicted for selling intoxicating liquor to one Brown without having a license and in violation of the local option law. Brown was the only witness for the State and defendant the only witness for himself. Brown testified that he made one purchase of a quart of whisky from the defendant's clerk in charge of his drug store, without having a prescription for it. He was indefinite as to the date, but stated that it was about the middle of the winter of 1912 and 1913 and during the defendant's absence; he thought while the defendant was out of town. The defendant testified that he was absent in Arkansas from the first week in February to the first week in March, and

that he never heard of the sale in question until after the indictment; that he never authorized his clerk to make a sale; on the contrary, had directed him not to sell liquor without a written prescription from a physician. This was all the evidence, except that between five and six years before the sale, and before the adoption of the local option law, he had pleaded guilty to selling liquor without a license. On appeal, it was held that the evidence was insufficient to authorize a conviction.

State v. Walls; Mo., 167 S. W. 1160.



LIENS FOR WAGES.

The prescription clerk and porter of a drug store, the stock in which had come into the hands of a receiver, filed a petition for the establishment of a preferred lien for employee's wages given by Tennessee Acts 1897, c. 78, as amended by Acts 1905, c. 414. The property was described as "the drug business at the corner of C. and M. Avenues in Memphis, Tenn." There were other prior liens on part of the fixtures. It was held that the petition was properly denied, as it should have described the property specifically, with a statement of the nature of the lien, or an attachment should have been issued and levied.

Hessig-Ellis Drug Co. v. Stone, Tennessee Supreme Court, 167 S. W. 864.



UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Stations and Duties of Commissioned and Other Officers of the United States Public Health Service.

Sanitary Chemist H. C. Colson. Directed to proceed to Luray, Va., and take charge of the experimental plant constructed by the Service for the investigation of tannery wastes. August 8, 1914.

Surgeon C. W. Vogel. Directed to proceed to Philadelphia, Pa., for conference with health authorities with reference to organization of campaign against rodents. August 21, 1914.

Pharmacist F. A. Stump. Relieved from duty at Honolulu, Hawaii, and directed to proceed to Chelsea, Mass., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. August 24, 1914.

Official: (Signed) RUPERT BLUE,
Surgeon-General.

Surgeon W. J. Pettus. Directed to proceed to Liverpool, Eng., for duty in connection with sanitation of vessels in plague precautionary measures. August 13, 1914.

Surgeon S. B. Grubbs. Directed to proceed to Mobile, Ala., on request of health authorities, for duty in connection with rodent extermination campaign. August 14, 1914.

Passed Assistant Surgeon A. D. Foster. Granted two days' leave of absence from August 15, 1914, on account of sickness. August 17, 1914.

Passed Assistant Surgeon F. A. Ashford. Granted one month's leave of absence from August 17, 1914. August 12, 1914.

Passed Assistant Surgeon Lawrence Kolb. Granted one month's leave of absence from August 27, 1914. August 12, 1914.

Assistant Surgeon W. F. Draper. At the request of the Office of Public Roads, Department of Agriculture, detailed to make an investigation of the sanitation of convict camps in the states of Colorado, Utah, Oregon, Washington, Wyoming, and such other states as the office may direct. August 17, 1914.

Assistant Surgeon G. A. Kempf. Granted seven days' leave of absence from August 6, 1914, under paragraph 195, Service Regulations. August 5, 1914.

Pharmacist E. B. Scott. Granted six days' leave of absence from August 10, 1914. August 5, 1914.

Pharmacist G. A. Morris. Detailed to represent the Service at the meeting of the American Pharmaceutical Association to be held at Detroit, Michigan, August 24-29, 1914. August 13, 1914.

Assistant Epidemiologist F. E. Harrington. Directed to proceed from Cambridge, Md., to New Albany, Miss., for duty in investigations of rural sanitation. August 12, 1914.

Technical Assistant M. I. Wilbert. Detailed to represent the Service at the meeting of the American Pharmaceutical Association to be held at Detroit, Mich., August 24-29, 1914. August 13, 1914.

BOARDS CONVENED.

Board of Commissioned Medical Officers convened to meet at the Bureau at the call of the chairman, for the preparation of questions for the mental examination of Pharmacists C. C. Cannon and Ralph E. Knouse to determine their fitness for promotion to the grade of Pharmacist of the Second Class.

Detail for the Board:

Assistant Surgeon-General W. G. Stimpson, Chairman; Surgeon C. C. Pierce, Recorder. August 17, 1914.

Senior Surgeon H. R. Carter and Surgeon J. T. Burkhalter detailed as members of a Revenue Cutter Service, retiring board to meet at Baltimore, Md., by direction of the Secretary of the Treasury. August 18, 1914.

THE DETROIT LADIES' COMMITTEE

MESDAMES

C. A. WEAVER C. F. MANN W. A. HALL G. W. STEVENS J. M. FRANCIS
J. H. WEBSTER R. W. RENNIE W. L. SCOVILLE



Weaver

Mann

Hall

Stevens

MESDAMES

Francis

Webster

Rennie

Scoville

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The Sixty-Second Annual Convention

Held at Detroit, Michigan, August 24-29, 1914

SECOND GENERAL SESSION.

President Beringer called the convention to order Tuesday, August 25, at 9:45 a. m., in the Convention Hall of the Hotel Pontchartrain. The records of the first session were read and approved.

The President then stated that Dr. F. A. Wolff, Assistant Physicist, Bureau of Standards, Department of Commerce, was now in attendance, his credentials being presented at the first session, to address the Association upon the relation of his department to the work of the American Pharmaceutical Association.

[In response to this invitation, Dr. Wolff read a paper, which appears on page 1426.]

At the conclusion of the reading of the paper, President Beringer stated that Dr. Wolff had conferred a favor upon the Association in the presentation of his address, and he thought appropriate action should be taken to evidence its appreciation of his courtesy.

Mr. Joseph W. England moved that the thanks of the Association be extended to Dr. Wolff, and that the paper be published in the Journal.

Mr. Mayo spoke of the willingness shown by the Bureau of Standards to coöperate with those endeavoring to advance this work of standardization. Mr. Mayo further suggested that the thanks of the Association be extended to the Secretary of Commerce for his courtesy to the American Pharmaceutical Association.

President Beringer stated that the suggested amendment to the motion would be accepted by the mover. Motion as amended carried.

The Secretary was directed to express the thanks of the Association to the Secretary of the Department of Commerce.

The Chair then called for the report of the Committee on Nominations. Mr. Nitardy then presented the report of the Committee on Nominations, which was as follows:

For President: William C. Alpers, L. D. Havenhill, Wilber J. Teeters.

First Vice-President: Chas. H. LeWall, L. A. Seltzer, D. F. Jones.

Second Vice-President: E. O. Kagy, F. W. Nitardy, E. A. Ruddiman.

Third Vice-President: L. A. Brown, E. N. Gathercoal, C. Osseward.

Council: F. M. Apple, Harry V. Arny, Philip Asher, Edward C. Bent, G. M. Beringer, James O. Burge, Chas. B. Jordan, Andrew Scherer, Robt. H. Walker.

The report was accepted, and President Beringer stated there was no further action to be taken as, according to the by-laws, the election of officers would be conducted by mail.

The Chair then called for the reading of the minutes of Council.

Mr. England then proceeded to read the minutes of Council. (Printed on page 1374.)

Mr. Marshall moved that the minutes of the Council be approved; motion seconded and carried.

The President stated that the Treasurer had raised the question as to the propriety of the Association approving the election of the members that have been elected by the Council by correspondence.

Mr. Whelpley moved that the Association approve the minutes of the Council which have been published in the Journal in the interval between the last annual meeting and this meeting; motion seconded and carried.

President Beringer then called for the Treasurer's report.

Mr. Whelpley, in presenting his report, made the following comments thereon:

"Mr. President and Members: The report of the Treasurer covers the fiscal year 1913, which closed with the 31st day of December. This report is in type and in the hands of the Secretary and the proof will be here today for the use of the pharmaceutical press. It is not likely that you would care to have the dry figures read to you in detail. I will say, in a general way, however, that at this date the American Pharmaceutical Association has not as much money as it had twelve months ago by \$3,307.52. The actual amount on hand in the bank in the current fund is \$5,372.95. This decrease in the cash balance is due to two conditions, increased expenses during the past year, and a decreased income from dues. The decreased income in dues is not caused by a smaller membership, but to the fact that when the present treasurer took hold of this work there was a large number of members who owed for a number of years, some of them for as many as five years. The present policy has been to get the members into the habit of paying for the current year, and we have succeeded in doing so, so that we have collected the outstanding accounts that amounted to more than one year, and that added to the income the year before last, and even the year before that, and has cut down our income during the past twelve months. I trust I have made that point clear to you. Some of the members have spoken to me this morning insisting that I give you some of the experiences of a treasurer, remembering some of

the experiences that I related last year and the year before. Unfortunately, I have nothing particular along that line to report. The membership has fallen into the habit of paying their dues promptly and saying very little about it. (Applause.) So that those extracts from communications that I gave you then are a matter of past, and not current history.

I might say that I recall one communication that I received early in January of this year from a member. I had been in the habit of stamping communications with a large stamp "Second Notice," "Third Notice," and so on, after the first one. This party wrote to me and said, "I surmise that you have a record of my transactions with the Treasurer, and remembering last year, when you sent me six communications, and believing you have prepared a set for this year, I will say 'Please destroy them'; the \$5.00 enclosed is the excuse." (Laughter.) While this member expressed his sentiments, many others enclosed the \$5.00 without expressing theirs.

Let me say that I believe, from the experience I have had with pharmaceutical organizations the country over, that state and local associations can collect their dues for the current year just as well as to allow them to accumulate and thus having members two, three, four or five years in arrears. It is merely a matter of taking hold of the work, just as a business firm does, sending out your statements the first of every month and following them up with personal communications wherever necessary." (Applause.)

[The Treasurer's report was printed in last issue of the Journal.]

The Secretary read the report of the Auditors on invested funds of the Association, and the report was accepted.

The report of James H. Beal, the retiring Secretary and Editor of the Journal was read by the Secretary, and accepted and referred to Committee on President's Address.

[Report printed in the last issue of the Journal.]

Mr. Wilhelm Bodemann moved that the Secretary be instructed to send a word of greeting to Dr. James H. Beal, with the heartiest wishes of the Association for his speedy recovery. The motion was unanimously adopted by a rising vote.

The President called for the report of the Committee on Status of Pharmacists in the Government Service. Chairman William B. Day, of Chicago, presented the report, which was printed in the last issue of the Journal.

The Secretary then moved that the report be received and referred for publication and the recommendation adopted; motion seconded and carried.

The President then called for the report of the Committee on Credentials, which was read to the convention by Mr. Marshall, and referred to the House of Delegates.

The Chair then called for the report of the Committee on Weights and Measures. Chairman Harry V. Army presented the report, which was accepted and the recommendation adopted.

[Printed in last issue.]

The President then called for the report of the Committee on Time and Place of Meeting.

The report of the above committee was read by the Secretary, after which he

stated that in addition to this report the Association had received invitations from the Los Angeles Convention League, the Chamber of Commerce of Chattanooga, the Convention Bureau of the City of St. Louis, the Chamber of Commerce, City of St. Louis, and the Merchants Exchange, St. Louis, with literature relating to the advantages of the different places.

Mr. Henry P. Hynson, of Baltimore, called the attention of the Convention to the invitation from that city, and stated that when the City of Baltimore invites the American Pharmaceutical Association to hold their convention in that city they expect to have the invitation accepted.

Mr. J. F. Hancock, Baltimore, spoke in favor of Atlantic City, and said it was the ideal place for gatherings of this kind; that the American Medical Association has selected Atlantic City as the most suitable place for their meetings; that San Francisco was too far away, and that the most central point, and the most advantageous point without any tax upon the members would be Atlantic City, and therefore moved that Atlantic City be put down as one of the places for consideration.

The President called the attention of the Convention to the invitation received from the New Jersey Pharmaceutical Association to meet somewhere in New Jersey, and asked that the Chairman of the Committee present same to the Convention for its consideration.

A member from Grand Rapids, Mich., stated that he was under the impression that it was understood that the next meeting was to be held in San Francisco, and for that reason Grand Rapids had not presented their invitation; but in the event that the matter had not been decided, he wanted to present Grand Rapids as a place for the next meeting, or at least for 1916.

Mr. Albert Schneider, of San Francisco, said that he thought the Association should meet in San Francisco in 1915; that he had assumed all along that they would do so; that he was delegated by the Exposition, and also by the San Francisco Convention League, as well as the State Association of the State of California, to invite the Association to come to San Francisco in 1915; that he had taken it for granted that the Convention would meet there, and for that reason had not thought it worth while to say much about it.

It was almost impossible for him to tell the Association about all the beauties of California and the desirability of selecting San Francisco as the most suitable meeting place for 1915; naturally most of the members would want to go to San Francisco to attend the exposition.

The speaker further said, in regard to the rumor that the conditions in Europe would affect the success of the exposition, that that was not the impression in San Francisco; that he had been in close touch with officials of the exposition and he was advised there would be no interruption or interference in the proceeding. Most of the countries which have promised to take part in the exposition have stated since the opening of the war that there would be no curtailment in the part that they were to take in the exposition.

Should the Association meet in San Francisco, Mr. Schneider assured the members that they would be well taken care of; that they should not feel for a moment that there are not sufficient accommodations in San Francisco for every one. If

any one should have trouble in getting accommodations and would let him know, he would see to it personally that they were provided for in every way possible. The Association had met at Los Angeles and they know what California was, and some of the members might remember the success of the meeting in San Francisco in 1889. He could assure the members that everything would be done for their comfort; the exposition alone should bring them there, and that the Local Committee had provided that the exposition would not interfere with the business end of the meeting.

Mr. Schneider thought the time of the meeting should be left to the Local Committee; it had been suggested the meeting be held some time in July; this had been proposed because some of the other pharmaceutical bodies were to meet at that time. Mr. Hynson asked if the Secretary would read the recommendation of the Committee. The President stated that the Committee had made no recommendation as yet; that as he understood the report, the report was simply that they had received invitations from Baltimore, New Orleans, St. Louis, San Francisco, Cedar Point, etc.

The President then stated that as Mr. Main was now in the room he would therefore ask for a statement from him.

Mr. Thomas F. Main, of New York, Chairman of the Committee, stated that the Committee had been unable to agree upon a place of meeting and therefore had reported the invitations received without recommendation, adding that since this report was written they had received an invitation from the President of the New Jersey Pharmaceutical Association, in which the Association was invited to meet somewhere in the State of New Jersey, mentioning the fact that either Asbury Park or Atlantic City, which, as every one knew, were seaside places, should be selected.

Mr. Hynson then moved, in view of the inability of the Committee to agree and the international troubles, and the fact that the exposition is to be held in California, that this matter of time and place of meeting be referred to the Council.

The motion to refer the question of time and place of meeting to the Council was lost.

Mr. Gordon then moved that the next convention of the American Pharmaceutical Association be held in Atlantic City, New Jersey, and made the motion for the following reasons: that any one who had been to the last convention of the N. A. R. D. knows how hot it is in the large cities in the summer time. He further said that Atlantic City had a number of advantages which other places would not have: that the railroads make special rates during the summer; that there were any number of hotels and all sorts of rates, and on the new piers there was a magnificent convention hall where the meetings could be held right out over the ocean, where it would be cool and the members would have plenty of time to talk over things; in other words, there was every convenience there. Another thing was that the American Medical Association is to meet there; in fact, meets there regularly. Mr. Gordon thought if the meeting went to San Francisco next year there would be hardly anybody there; that there had not been a meeting of this Association in the East for some time.

Motion seconded by J. F. Hancock.

Mr. Fred J. Wulling, of Minneapolis, stated he was a delegate from the Minnesota State Pharmaceutical Association, which had extended an invitation to this Association a year ago, and who were under the impression that the next meeting was going to be held at San Francisco and that he was here in the name of the Association to stand by San Francisco. He further stated he had no fault to find with Atlantic City; that he knew both Atlantic City and San Francisco and that he liked Atlantic City better than San Francisco because he had had some affiliations there that made him feel that way, but that it appeared to him that the general impression had been that the next meeting was to be held in San Francisco and that nothing had been heard to the contrary in Minnesota. However, if there were any better reasons for going elsewhere than to the place that nearly every one supposes the Association is going, he felt he had done his duty in calling attention to the sentiment in his vicinity.

Mr. John C. Wallace, of Pennsylvania, stated that he heartily agreed with Professor Schneider, but that many of the members of the organization had left the room and he did not believe that snap judgment should be taken upon a report of this importance; that if the Committee were unable to agree, he believed that a vote with as many delegates present as could be secured at the convention be taken, and he knew of no reason why a short session of the general session should not be held previous to Friday morning; that his understanding was that the general session had the right of way at all times, and he therefore moved that this matter be referred to a special meeting of the general session subject to the call of the chair.

Motion seconded by Mr. Hall, and was adopted by a vote of 38 to 19.

President Beringer called for the report of the Committee on Editing Rules. Mr. Mayo, chairman of the committee, reported progress and asked for a continuance. The report of the Chairman was received and the committee continued.

The Chair then called for the report of the Committee on International Pharmaceutical Nomenclature. Mr. Mayo, as chairman of the committee, begged leave to report that the international situation is in such a bad condition that the committee deemed it highly improbable that they could do anything further to bring about an international agreement on anything and therefore asked to be discharged. The meetings scheduled to be held in Europe on August 7 have been called off, and for that reason Mr. Mayo asked that the committee be discharged.

Mr. Mayo's recommendation was adopted.

The Chair then called for the report of the Committee on International Congress of Pharmacy.

Prof. Remington said he thought the President had referred in his address to the meeting last summer at The Hague on the International Congress; that the committee had made a report to the Chairman, which had already been published in the Journal of this Association.

He asked that that report be considered to be the report of the Committee in order to save time, as it sets out all the essential facts. The whole subject of international work at the present time is in such a tangled state that nothing could be done in the way of international work which would be of any value. He did

not believe the International Congress would be held in St. Petersburg, no matter what events the future would bring or which nation or combination of nations won in the European war; he did not believe there would be any opportunity inside of a year to do anything in the way of an International Congress; at least, it did not look so to him; for that reason he thought it wise and judicious at this time to be ready in case the Congress did go on, but thought it useless to look forward to any work of that character at present.

President Beringer asked Mr. Remington if he advised the continuation of the committee, to which Mr. Remington replied, "Yes." Mr. Beringer said he understood the committee was really in the nature of a delegation. Mr. Remington said that was true, but the Council will be able to act in an emergency and do what is proper.

Mr. Hynson asked when the International Congress was to be held and Mr. Remington stated that the International Congress would be held in August, 1915, in St. Petersburg, Russia. That was fixed; and at that meeting he (Prof. Remington) was to make a report which would look forward to making all the chemicals and preparations set out in the pharmacopœias, uniform, as to strength. Prof. Remington did not see how it was possible for such a report to be made now or how affiliation can continue between the associations of the different countries that are at war, and he considered it a very inopportune time to go on with a work of that kind, but, however, the idea was slumbering. He would not advise discontinuing the work, but to leave the matter as it is at present.

There being no objection, the report was received.

The President then read a letter from the Women's Organization of the National Association of Retail Druggists.

WOMEN'S ORGANIZATION NATIONAL ASSOCIATION RETAIL DRUGGISTS.

August 22nd, 1914.

To the American Pharmaceutical Association Assembled at Detroit, Michigan.
August, 1914.

Mr. George M. Beringer, President:—

The Women's Organization of the National Association of Retail Druggists send most sincere greetings to you upon this your 62nd Anniversary.

We congratulate your Association upon the splendid work accomplished in these past years—and at the passing of this milestone we ask for your Association, that many years may keep coming to you with their lessons, their calls, and their needs; and that your hands will be held out to receive them, and your use of them will be such that when you have reached the end of the road it will be said of each man—"he hath done what he could."

Sincerely yours,

MRS. JESSIE F. WATERHOUSE, President.

MRS. NELLIE FLORENCE LEE, Secretary.

The Secretary was then instructed to acknowledge receipt of the cordial greetings from the Women's Organization.

The Secretary then announced that the Detroit Chamber of Commerce, at 12:30, would be addressed by a Mr. Reed on the question of "Our Trade Relations with the South American Republic," and that a cordial invitation had been extended to all members of the Association to attend this lecture.

The Chairman then called for the report of the Committee on Membership. C. Herbert Packard, of Boston, Mass., Chairman of the Committee, read the report of the Committee.

(Printed in last issue.)

Mr. Philip Asher, of New Orleans, moved that the report be received and take the usual course; motion seconded by Mr. Weinstein, of New York, and carried.

The President then called for the report of the Committee on William Procter Memorial Fund. Mr. J. F. Hancock, Chairman of the Committee, made a report. (Printed in last issue.)

Supplementing his report, Mr. Hancock stated that he had some photographs of the model of the proposed monument that he would like to pass down to the members present, and stated further that he wished to give Prof. Remington due credit as it was through his assistance and effort that the Committee secured the assistance of the few gentlemen who are alive who knew Prof. Procter in his lifetime by personal contact, special reference being made to one gentleman in particular who had been a student at the college and who was the most exacting critic of the soft model, which was changed by the sculptor; that it seemed to be the opinion of the critics that it was the best model that could be made. Mr. Hancock further said that he did not believe, nor did the Committee believe that anything better could be done than has been done; that many suggestions had been offered by Prof. Remington, who was his assistant while he was living, and who knew a good deal more about his personality than anybody else, and the sculptor got all the information from him that could be gotten; that the Committee also got from the daughter of Prof. Procter the passport that he received when he went to Europe to attend the International Congress, and that the Committee had done everything it could to get the most exact model of the proposed monument.

The Chairman further stated the money for the monument had been secured, but that it was necessary to have some money in excess of that amount in order to make a formal dedication, and that it was expected a meeting of the American Pharmaceutical Association would take place at the time of, or in the summer of the dedication at Washington. This inspiration came to the Chairman by being present at the dedication and unveiling of the monument to Dr. Probst, the eminent surgeon, which was a very formal, and a very interesting affair on the part of the American Medical Association, and the Chairman thought it the most appropriate thing to have pharmacy represented with medicine in the National Capital, in the Smithsonian Grounds which are the center of science in Washington; that it is well known that Washington will grow more in importance as the country becomes more densely populated; it will be like Rome, all roads will center at Washington, and that is the place for a monument to an illustrious character such as we desire to honor. Mr. Hancock stated further that we should also honor the heroes who were not engaged in war, as well as the heroes who were engaged in war; to honor the heroes who were trying to prevent, rather than those alone who created death and destruction.

Mr. Wallace moved that the report be received and take the usual course. Motion seconded.

Mr. Hancock said that he wished also to say that 19 of the 20 members of the

Committee had signed in favor of the sculptor, Mr. Burge, but the twentieth one stated he did not know the gentleman and did not vote at all.

Mr. Wallace then stated that there was a recommendation contained in the report of the Committee, and asked that for the information of the members present, that the Secretary read the recommendation again.

The Secretary read the recommendation to the Association.

Mr. England then stated that in personal consultation with Mr. Hancock a day or so previous, Mr. Hancock had told him that he hoped to have Congress present the granite base for the monument, and asked if that was provided for in the recommendation. Mr. Hancock said that it was. Mr. England said that if this were not provided for, he would suggest that Congress be memorialized at its next session, to take steps toward that end; that if the Association waited until 1917, it would be 1920 before Congress granted the appropriation.

Dr. Hancock then stated that he thought he had not properly explained the matter. He had taken his ideas from the experience of the American Medical Association in erecting the monument to Prof. Probst; that the Medical profession had had the bronze monument cast, but that the Government had given the base and the ground, after which the monument was transferred to the Government, it being in their hands and keeping, and the Government has appointed a Commission,—a Commission which is very exacting,—to see that nothing shall be placed there that is not in accord with the views of that commission, and so we have secured the approval of this commission.

He further explained that Mr. Burge had made a reputation for himself, having recently placed in one of the squares of Baltimore several monuments, one of which is a monument to Mr. Latrobe, seven times Mayor of Baltimore, which is regarded as an excellent piece of work, and that he will have placed by the 12th of September a monument to the Hero of Fort Henry, when Gen. Ross made the attack on the city in 1814. He had already seen this, and it was a very creditable piece of work, and for these reasons the Committee did not think they were taking much of a chance as they would be doing if they were to take the work of a man who had not had any experience, and who had not already established the character of his work. Mr. Hancock further stated that the sculptor had made a very low bid, and they could not in competition get as low a bid as this, and the reason for this is that to have a manument in Washington would be an advertisement to the sculptor even though he made nothing on the work.

Mr. Wallace inquired if the funds which were to be drawn from the treasury of the American Pharmaceutical Association were exclusively the funds of the William Procter Memorial Fund. President Beringer replied that such was the case, whereupon Mr. Wallace stated that he desired to add to his motion that the report be received and the recommendation attached thereto be adopted.

Motion seconded.

Mr. Remington then took the floor and said he thought the Association should not lose the opportunity of thanking Mr. Hancock for his work in this matter, as he had been the prime mover of the business of erecting a statue to Prof. Procter, and he therefore moved that the thanks of the Association be given to Mr. Hancock and he be empowered to proceed with this work, which is not yet finished;

and further, Mr. Remington stated that he personally felt exceedingly thankful that the Association had a man like John Hancock who had pushed the matter to completion after so many years of hard work.

(Applause.)

The President then asked Mr. Wallace if this could be submitted as an addition to his motion. Mr. Wallace said he was willing to accept any addition that Prof. Remington had to offer.

Mr. Lemberger, in seconding the motion, said that he had been familiar with the project for some years and he knew personally how industriously and assiduously and persistently his friend Mr. Hancock had worked on this scheme, and that he deserved the thanks of the American Pharmaceutical Association.

Motion with Prof. Remington's addition unanimously carried.

Mr. Mayo then moved that the American Pharmaceutical Association petition Congress to set aside a site and to supply a suitable base for the erection of this monument and that the matter be placed in the hands of the committee on the William Procter Memorial Fund.

President Beringer suggested that the motion should also provide for the Government taking care of the monument after it is dedicated. Mr. Mayo accepted the suggestion. Motion seconded by Mr. England and carried.

There being no further business before the Association at this time, on motion of Mr. Wallace, duly seconded, the Convention stood adjourned subject to the call of the Chair.

THIRD GENERAL SESSION.

President Beringer called the third general session to order Friday evening, August 28th, at 7:15 p. m., in the convention hall of the Hotel Pontchartrain, on the twelfth floor.

The Secretary read the minutes of the second general session held Tuesday morning, August 25th. On motion of Mr. Wallace, duly seconded and carried, the minutes were ordered approved as read.

Secretary England of the Council read the minutes of the session of that body. Printed at page 1388.

On motion of Mr. Mason, duly seconded and carried, the minutes of the Council were approved as read.

The President announced that the next order of business was the consideration of the report of the Committee on Time and Place of Meeting, and said that the status of the situation was that on Tuesday morning at the second meeting of the general session it had been moved, seconded and carried that the determination of the time and place of meeting be decided at a special meeting of the general session to be called by the Chair, which meeting was now called; that since that time the Committee on Time and Place of Meeting had prepared a supplemental report which they desired also to submit, and if there was no objection from any of the members present, the Secretary would read the supplemental report so that the members could have full information before them in considering the question.

The Secretary thereupon read the supplemental report of the Committee, recommending that the meeting of the Association be held in San Francisco in 1915.

President Beringer then asked the Secretary to read an invitation received that day from the Springfield, Mass., Board of Trade.

President Beringer then stated that the report of the Committee was before them for action, and asked for the pleasure of the convention.

Mr. Wm. C. Anderson, of Brooklyn, N. Y., moved that the supplemental report of the Committee on Time and Place of Meeting be adopted. Motion seconded by Lewis C. Hopp, of Cleveland.

Mr. Samuel L. Hilton, of Washington, D. C., moved to amend the motion and make the place of meeting Asbury Park. Motion seconded by Mr. C. P. Wimmer, of New York.

Mr. Remington then offered a substitute for the motion and the amendment and named San Francisco as the next place of meeting. Motion seconded by Mr. Weinstein.

Mr. Remington stated that in a way the Association was committed to go to San Francisco; that there had been no vote taken, and he believed there was nothing official on the subject, but like a great many other things, when the Association goes to certain place at a certain time, it has been a well established practice for the parties who want us to go to a certain place to begin their efforts in that direction two or three years beforehand and name the place as a possibility, of course; that there was nothing binding on the Association to go to San Francisco except that the proposition was favorably received at the time it was made although no vote had been taken.

Further, Mr. Remington said that last year the International Pharmaceutical Congress at its meeting at The Hague, was invited to come to San Francisco, and they were coming and would have been there, but the prospects at this time were not favorable for their coming; and it was impossible to tell what was going to happen during the coming year. In view of the fact that nobody could tell what was going to happen, he, for one, preferred, unless the Association cared to go to San Francisco, leaving the matter of time and place for Council to settle, when we know what is going to happen in this country and what is going to happen in foreign countries.

Mr. Remington in concluding said he wanted to record his preference at this time to go to San Francisco and carry out what was partially promised at previous meetings, and he therefore made the motion to go to San Francisco.

Mr. Schneider, as a member of the Committee and as a native son of California, spoke in favor of San Francisco, and said that Mr. Hatfield, field worker of the Exposition, and engaged in securing conventions, had met with the Committee yesterday and they had had quite a long talk with him. He further stated that quite a number of the members had asked him whether the Exposition was going to come off on schedule time, and in reply to that said there would be absolutely no hitch whatsoever; that the Exposition will open on the 14th of February and will remain open until the December following, which gives a long period of time during which visitors can come and stay as long as they wish. Mr. Schneider mentioned this in connection with the statement that was made, that during the time of the Exposition nobody could get accommodations, which was perhaps true in a measure of the World's Fair at Chicago, where the time that the Exposition was open was much shorter. Mr. Schneider said that the long period of time during

which the San Francisco Exposition will be open would give everybody an opportunity to come at a time when there is no congestion. He would make this promise, that if anyone who came to San Francisco, should the Association decide to meet there, had any trouble in getting accommodations, he would see to it that they got accommodations anywhere in the city where they wished to stay, either for the Convention, or later. The Exposition was coming off on schedule time as far as they now knew and that the only difference the war in Europe would make would be in the exhibits, possibly, of the three nations who are involved in the war, out of the thirty-six nations who have expressed their readiness and intention to participate in the Exposition, the three nations being France, Russia and Italy, Germany never having signified their intention of making a national exhibit, although, of course, some German manufacturers agreed to exhibit, and whether these exhibits would be discontinued or not Mr. Schneider could not say. The only effect of the war, would be to reduce the number of visitors from Europe, which, however, would not amount to much anyway; not more than five thousand visitors at the most would have visited San Francisco from Europe in case there had been no war. This would be offset by an increase in the number of visitors from the Western Hemisphere; and the exhibits, as far as the Western Hemisphere is concerned, will be increased as an offset against the decrease in the exhibits from the European countries.

Mr. Schneider said that the hotels in San Francisco had agreed not to raise their prices and that the members could make provision for hotel accommodations right now, and get good rates. The hotel rates in San Francisco are very reasonable, and were very much lower than they were in Detroit, and lower than they were in Los Angeles; that perhaps the members who attended the convention at Los Angeles would remember the rates charged at the Hotel Alexandria. Mr. Schneider assured the members that there were no such rates in San Francisco, and that they could get good hotel accommodations, good rooms, from a dollar up, mentioning the Hotel Fairmount, the largest hotel in San Francisco, many times larger than the Pontchartrain, where good rooms could be obtained for \$2.50.

In closing, Mr. Schneider said that he did not know of much more that needed to be said. He was satisfied the Exposition was coming off and no one need hesitate on that account. The California climate was ideal, and San Francisco was an ideal convention city. Every city made such claims, but San Francisco he felt sure, received more conventions than any other city in the United States. It was constantly decorated, and the first thing one would say in going up Market Street would be, "What is going on?" There would be one convention there one week and something else there the next week; constantly decorating and re-decorating, and he certainly hoped the Association would decide to come to San Francisco.

Mr. Wilbert said that we are living in troublous times; we don't know what tomorrow will bring forth, and that we should be cautious. He thought the number of members present was insufficient to be representative; that those who were "young" enough to remember fifty-five years back when the Association agreed to meet in St. Louis had no idea that St. Louis would be in the war zone the following year. We who are living today cannot say what the Pacific coast will encounter two weeks from now, three months from now, or six months from now, and he thought it would be unfair for the Association to take snap judgment at this

time with the limited number of members present, and for that reason moved as a substitute for all the motions that this matter of time and place of meeting be referred to the Council to be decided not earlier than January, 1915.

In concluding, Mr. Wilbert stated he thought this was an important matter, and it would be unfortunate for the Association to drop a meeting.

Motion seconded by Mr. Apple.

Mr. Albert M. Roehrig, of Buffalo, N. Y., did not understand how the Council would be more representative than the meeting the Association was holding, and it seemed to him a very fair expression of what the members desired could be obtained at the meeting and avoid the necessity of waiting until the Council decided the matter three, four, five or six months hence; that if the people want to go anywhere they desire to begin to make their plans now and to know how far they are going.

Mrs. Fletcher Howard, of Los Angeles, Cal., as President of the Ladies Auxiliary of the Pharmaceutical Association of the State of California, extended the greetings of the California Associations and said those who attended the meeting at Los Angeles a few years ago would know that California delivered the goods it promised in the way of entertainment. Mrs. Howard said that they were now decorating all over the state in preparation for the Exposition, and that even the street lamps in Los Angeles were decorated with golden poppies, and the buildings were decorated with ornamental plants; that the efforts being made were truly remarkable and that the members could have no conception of what is being done in the State of California to entertain the expected visitors; that as you come into the state at San Diego, San Francisco, or Los Angeles, you will find that California is waiting to welcome you with outstretched arms, and in addition to the natural beauties of California, you will receive an educational impulse and impetus from the wonderful exhibits at the Exposition which you cannot afford to forego; that the members should remember this, that if they decided to go to some other place, many of them could not afford to attend the Convention and the Exposition too.

In concluding, Mrs. Howard stated that in going to San Francisco the members would have the opportunity of attending two of the greatest expositions in America in addition to the beauties which they would see during the whole long trip to California, and also up and down the State of California, and that she knew they would come to California. (Applause.)

Mr. Jeannot Hostmann, of Hoboken, N. J., stated that as a loyal citizen and native son of the State of New Jersey, he thought he would indeed be derelict if he did not say something in favor of New Jersey; that as far as Asbury Park is concerned, from a convention standpoint, he did not think it was necessary to say that they can properly take care of any convention that should see fit to choose that place; furthermore, that as the President of the New Jersey State Association had seen fit to write the letter of invitation, that the members of the State Association would leave nothing undone to make it as pleasant as possible for the Association. As an additional reason why the Association should come to New Jersey, Mr. Hostmann said that most of the conventions in recent years had been held in the middle west or the far west; that if the convention came to the New Jersey coast the members would not find as many diversions to take them away

from the meetings as they would if they went to San Francisco when the Big Fair is on, something which happens once only in great while, and he feared that many of the members, if they went there to attend the convention, would be found at places other than at the section sessions.

Mr. Gordon said that he had originally moved that the next session be held at Atlantic City, but since talking the matter over with others, he had come to the conclusion that Mr. Wilbert had reached, that under the present circumstances, the war in Europe, he thought the wisest thing for the Association to do would be to leave the matter of place of meeting to the Council. It was not essential that the place of meeting be decided upon that night, that week or three months hence, as there would still be ample time for everybody to get ready and the Council could take into consideration many things which could not be taken into consideration in general debate, and for that reason he was heartily in favor of Mr. Wilbert's motion.

Mr. Holzhauer said so far as New Jersey was concerned, it was immaterial whether they met at Atlantic City or Asbury Park, but if they decided to go to either place, that the New Jersey Association would do their very best to please everybody.

Mr. Whelpley then took the floor to speak on Mr. Wilbert's motion and stated that he fully realized the force of his statement as to the uncertainty of the very near future, but personally did not agree with the conclusion that it was best to leave the entire matter to Council and leave the question of place of meeting undecided for an indefinite time; that the Council did not desire to shirk responsibility or duty, but the Council would feel that the number of people present there that evening were more able to express their preference than Council would be; that if a decision was reached as to the time and place of the 1915 meeting and some of the forebodings that had been mentioned came true so that it was not possible or desirable to carry out the vote of the Association, the Council could, and would be expected, by reason of the authority vested in it by the Constitution and By-laws, to act in accordance with the circumstances. He urged that a vote be taken then and leave to the Council's care the future.

Mr. F. J. Wulling, of Minneapolis, stated that the meeting of the American Chemical Association which was scheduled to meet in Montreal, had been called off by the governing body of the Association because Montreal is located in a country which is now a belligerent state, and should the occasion arise, the Council of the American Pharmaceutical Association would have the power to either change the time and place of meeting, or cancel it entirely, a contingency which was to be hoped, of course, would not happen at all.

Mr. Wilbert's motion was lost.

Professor Remington's substitute motion naming San Francisco was then voted upon and carried by a vote of 53 to 34.

Mr. Wilbert then moved that the Association vote to meet in San Francisco in 1915; motion seconded.

Mr. Lemberger then moved that the Association make it unanimous for San Francisco; motion seconded by Mr. Anderson and carried.

Mr. Wulling then moved that the date of the meeting be referred to Council for decision; motion seconded and carried.

The Chair then stated that there had been quite a number of propositions looking to the reform of procedure in the Association, and that at a meeting of the Council a committee had been appointed to prepare necessary amendments to the by-laws to carry out the decisions of the Council and asked if the Committee were ready to report.

Mr. Mason then read the report of the Committee on By-Laws.

(Printed in last issue.)

Mr. Wilbert then moved that the report of the Committee be received; that the rules as read be adopted and that the portion of the report relating to changes in the by-laws be laid over until the next meeting of the general session; motion seconded.

Mr. Remington stated that a committee had been appointed on the President's address, which had contained quite a number of recommendations, and that committee had been hard at work on the address, only to find that the Council had already taken up those things and voted on them; that the secretary's report had been turned over to the same "distinguished, hard working and suffering" committee; that now that the work had been completed, Mr. Mason had gotten up and that the work of his committee had been wiped out, and asked what was going to be done for the Committee on President's address.

The Chair stated that the report of the Committee on President's address would be received, and that the report of Mr. Mason's committee would be allowed to go through as presented.

Mr. Remington then moved that Mr. Mason's report be laid on the table until his committee could submit their report.

Mr. Mason replied as a matter of information he would like to state that that portion of the President's address which referred to the subject matter of his report was specifically not given to Prof. Remington's committee; that he himself, on Monday afternoon, had made the motion that that portion of the President's address referring to internal reforms be not referred to the Committee on President's address but set apart to the Council.

Mr. Remington replied that the Committee on President's Address had received no such instructions; that they had been given the address and had gone ahead like "honest, long suffering citizens" and had worked on it and were prepared to make their report, asking what disposition was to be made of it.

The President then stated the motion of Mr. Wilbert, that that portion of the report relating to amendments of by-laws be laid over until the next meeting of the general session, and that that portion of the report relating to rules for the guidance of future program committees be adopted.

Mr. J. M. Riber then moved that the report of the Committee on President's address be heard and that then the Convention would know what to do with both reports; motion seconded; motion carried.

Mr. Remington then submitted the report of the Committee on President's address, as follows:

REPORT OF THE COMMITTEE ON PRESIDENT'S ADDRESS.

Your Committee, to whom is entrusted the work of reporting upon the President's address, beg to present the following report:

1. The endorsement of the objects of the International Pharmaceutical Federation be approved and it is recommended that the Council be authorized to make application for *active* membership of the A. Ph. A.

2. The recommendation of the President to reduce the number of members necessary for the organization of a local branch be reduced from twenty-five to fifteen, and that the Chairman of the Committee on Local Branches provide for Bulletin to be issued to the local branches suggesting topics of importance for discussion.

3. The recommendation of the President that a Special Committee should be created on *Pre-requisite Laws* to take such action as will encourage the Pharmacists of each State where such a law does not exist to have passed an amendment to the Pharmacy Law which will secure the passage of such a Pre-requisite Law to take such action as will encourage the Pharmacists of each State where such a law does not exist to have passed an amendment to the Pharmacy Law which will secure the passage of such a Pre-requisite law. It is suggested by your Committee that the election of this Special Committee be referred to the Council for action.

Disapproved.

4. The suggestion of the President that the Council shall take into careful consideration the subject of the preparation of a *Pharmaceutical Syllabus*, expressive of the views of the pharmaceutical educators is approved.

5. The Recommendation of the President that a *Special Committee*, consisting of the President, of the Association and the living former Presidents to report to the Association at its next meeting upon the subject of standardizing of Pharmaceutical degrees, be approved.

6. Your Committee regards favorably the proposition to create an *Advisory Board* consisting of the ex-Presidents of the Association to whom may be referred such subjects as the Council may direct for their report and decision.

7. The recommendation is approved that this Association joins with other organizations in urging a modification of the Postal regulations to permit the shipment of medicines by Parcel Post or through the mail, provided that such medicines are *not* of such a character as to damage the contents of the mail bag and do *not* belong to the class of habit-forming drugs.

8. We approve of the President's recommendation that a Committee be appointed to prepare and introduce a new bill at the next session of the Congress improving the status of Pharmacists in the Army Service of the United States.

9. Your Committee approves of the recommendation of the President that some plans should be formulated for the protection of the public and for the prevention of accidents due to swallowing bi-chloride tablets or their solutions. Your Committee is not united in the selection of the form and shape to be recommended, but believe that this should be settled after a discussion in an open meeting of the Association.

10. The recommendation of the President that a Year Book of the A. Ph. A. be completed and published within a reasonable time after the expiration of the year, which it represents, is approved by your Committee.

11. The Committee recommends that the suggestion of the President to continue the publication of the *Code of Ethics* in the Year Book be approved.

12. The Committee on Publication, in view of the Publication of the Journal and other duties, require some addition to their clerical force and the recommend-

ation of the President is approved that the appropriation for the use of the Committee be paid in quarterly sums in advance. It is further recommended that the Council takes steps to give the Committee on Publication more extended power.

13. The Committee approves of the publication of an Epitome on the N. F. with the objects stated in the address and that there be established a Committee on Propaganda with the object of increasing the use and extending the influence of the N. F. preparations.

14. Your Committee approves of the suggestion of the President, that Committees recommended by the various Sections should be approved by the Council before assuming their duties.

15. The recommendation of the President that a filling of vacancies in the Offices of Sections should be filled by the President when occurring *ad interim* is approved.

16. Your Committee heartily approves of the recommendation of the President that more time should be given by the Nominating Committee when selecting candidates for the offices of the Association. There is no question that this is a reform greatly needed.

17. We approve of the recommendation of the President that local Branches of the A. Ph. A. should *nominate* a member for the Council and that the Council itself elects or declines as in its judgment seems best.

18. The recommendation of the President that the functions of the House of Delegates be restricted to the consideration of topics of general interest, is approved, but the Committee believes that a Special Committee should be appointed to take into consideration the whole subject of the function of the House of Delegates.

19. The recommendation that the Association should have its own Committee on Resolutions and that this Committee should hold open sessions for their discussion, is approved.

20. Your Committee approves the recommendation of the President to provide for Auxiliary of Women members who shall be eligible.

21. The plan recommended by the President for consolidating some of the Sections in his address with a view of facilitating the business of the convention is also approved.

Respectfully submitted,

R. H. WALKER,
JOS. L. LEMBERGER,
OTTO RAUBENHEIMER,
JOSEPH P. REMINGTON, Chairman.

Mr. Whelpley then moved that the report of the Committee on the President's Address and the further consideration of the special committee be laid over until the next general session; that in addition, he would like to call the attention of those present to the fact that this was an adjourned meeting of the general session and was occupying the time that was provided for in the general program for a joint session of the Boards of Pharmacy, Conference of Faculties and the Section of Education and Legislation; that this meeting had been called for a specific purpose, and that the other matters that had been brought up were incidental to the main issue.

The above motion being duly seconded, was carried.

Mr. Hugh Craig, of Chicago, stated that there was in the hands of the General

Secretary a communication from the Section on Education and Legislation which he thought should be brought up at this general session.

The Secretary then read the following communication :

The Section on Education and Legislation recommends the adoption of the following preamble and resolution :—

WHEREAS, National Anti-Narcotic Legislation regulating the traffic in Narcotics is absolutely necessary for the effective control of the Narcotic evil, and

WHEREAS, State laws regulating this traffic cannot be effectively enforced, without Federal Legislation that will provide a record of purchases of narcotics in inter-state commerce, and

WHEREAS, The personal attendance clause and the record keeping clause of H. R. Bill No. 6282 are not absolutely essential for the purpose for which the Bill is intended, therefore be it,

Resolved, That the American Pharmaceutical Association, in Convention assembled urges the passage of H. R. Bill, 6282, as it passed the Senate of the United States.

HUGH CRAIG, Chairman,

W. S. RICHARDSON, Acting Secretary.

Upon motion of Mr. Anderson, seconded by Mr. Nitardy, the communication was received and the recommendation adopted.

There being no further business to come before the session at this time, Mr. Whelpley moved an adjournment, which was duly seconded and carried.



W. S. RICHARDSON,
Chairman House of Delegates.



E. FULLERTON COOK, P. D.,
Ex-Chairman Section on Pharmacopœias and
Formularies.

REGISTER OF PERSONS IN ATTENDANCE ON CONVENTION AT DETROIT.

Abbott, W. A.	Caspari, Chas. E.	Flandermeyer, A. L.
Abrams, M. P.	Cassaday, Burton	Fletcher, G. W.
Abreu, Gerardo Fernandez	Chantler, A. E.	Flint, Wm. S.
Actenberg, F.	Chapin, J.	Flint, Wm. S., Mrs.
Allen, W. H.	Chase, Walter M.	Fogas, W. H.
Alpers, Dr. W. C.	Christensen, H. C.	Foot, C. E.
Altenberg, D. T.	Clancy, James	Ford, Chas. M.
Anderson, Wm. C.	Clancy, James, Mrs.	Francis, J. M.
Andrews, Geo. M.	Clark, A. H.	Fraser, E. I.
Andrews, Geo. M., Mrs.	Cobb, James W.	Freck, E. L.
Apple, Franklin M.	Cohen, M. M.	Freericks, Frank H.
Apple, Franklin M., Mrs.	Cook, E. Fullerton	Gaessler, W. G.
Archer, Fred. W.	Cooper, Zada M.	Gammon, I. P.
Archer, Fred. W., Mrs.	Craig, Hugh	Gathercoal, E. N.
Arledge, I. Curtis	Crane, G. W.	Gathercoal, E. N., Mrs.
Arny, Harry V.	Creedon, C. C.	Gayle, J. W.
Asher, Philip	Crowe, R. L.	George, G. B.
Atkinson, Lawrence	Culley, John	Gerald, D. H. F.
Austin, R. A.	Day, Elsie	Gietner, C.
Bagley, Anna G.	Day, Wm. B.	Gladding, C. P.
Ballard, C. W.	De Alemberte, H. H.	Glendenning, Harold
Barlow, L. F.	Deitrick, G. W.	Glover, C. C.
Bartells, C. W.	Dickson, F. W.	Godding, John G.
Barthel, A. E.	Diehl, C. Lewis	Godding, John G., Mrs.
Becker, Irwin A.	Diehl, Jennie	Gordin, H. M.
Belanger, Theo.	Diekman, Clara A.	Gordon, Fred'k T.
Bell, David W.	Diekman, Geo. C.	Gordon, Jean
Bent, E. C.	Dimmitt, Addison	Gorenflo, O. W.
Berger, E.	Dodge, R. B.	Graber, Howard
Berger, E., Mrs.	Doty, W. P.	Gray, M. M., Mrs.
Berger, L. E.	Doty, J. W.	Gray, Wm.
Beringer, Geo. M.	Douglas, M. H.	Grazeadei, J. M.
Beringer, Geo. M., Mrs.	Doyle, R. A.	Greenthal, J.
Bertram, E.	Duncan, Chester A.	Gregg, Thos. D.
Bibbins, Francis E.	Dwyer, F. B.	Gregory, Willis G.
Biddlecomb, P. E.	Dye, C. A.	Grew, F. J.
Black, James A.	Eagen, Frank	Grommet, G. H.
Blakeslee, L. G.	Eberbach, Ottmar	Grunow, O. H.
Blome, W. H.	Eberhardt, E. G.	Guest, W. H.
Bodemann, Wilhelm	Eberle, E. G.	Gundrum, George
Bolenbaugh, A.	Edmunds, W.	Hackney, J. H.
Boone, G. H.	Eisele, George	Hagenow, Theo. C.
Bowman, Waldo M.	Eldred, Frank R.	Hall, Wm. A.
Bradley, Theo. J.	Elliott, G. J.	Hallock, D. S.
Bradley, Theo. J., Mrs.	Emanuel, Louis	Hamilton, Mary R.
Bradt, Frederick T.	Engelhardt, H.	Hamilton, H. C.
Breitenbach, A. P.	England, Joseph W.	Hancock, John F.
Briggs, Clifton H.	England, Joseph W., Mrs.	Handy, John A.
Brown, Linwood A.	England, E. V., Miss	Hankey, Wm. T.
Burkhart, Glenn A.	Etzel, John L.	Harbord, Kittie W.
Burns, Helen R.	Farwell, O. A.	Harris, H. L.
Burrage, Severance	Faser, H. M.	Harwood, J.
Butler, Frank J.	Feil, Joseph	Havenhill, L. D.
Calkins, E. E.	Fennel, Chas. T. P.	Hayes, J. J.
Campbell, J. C.	Fiero, Wm. W.	Helfman, Joseph
Carter, Frank B.	Fish, A. E.	Herrera, Dr. Francisco

- Heuisler, Philip I.
 Hickey, Thos. D.
 Hill, A. P.
 Hilton, S. L.
 Holmes, R. C.
 Holthofer, H. J.
 Holzhauer, Chas.
 Hoover, G. W.
 Hopp, Lewis C.
 Horne, W. W.
 Hostmann, Jeannot
 Houghton, E. M.
 Howard, F., Mrs.
 Hubbard, W. S.
 Hubbard, G. W.
 Husted, A. B.
 Husted, A. B., Mrs.
 Hunsche, Frederick
 Hynson, Hy. P.
 Ingram, F. F.
 Irwin, E. D.
 Jackman, W. F.
 Jackson, John E.
 Jackson, John E., Mrs.
 Jacob, C. W.
 Jenkins, Elizabeth
 Jenks, C. C.
 Johnson, H. Martin
 Johnston, Ralph R.
 Jones, Nate
 Jones, A. E.
 Jones, D. F.
 Jones, H. W.
 Jones, H. W., Mrs.
 Jordan, C. B.
 Kagy, E. O.
 Kalusowski, H. E.
 Kauffman, Geo. B.
 Keene, J. J.
 Kennedy, E. J.
 Kerr, F. W.
 Killen, D. J.
 Kimmich, E.
 Kirchgessner, W. C.
 Klingensmith, C. F.
 Koch, Albert H., Dr.
 Koch, Albert H., Mrs.
 Koch, J. W.
 Kolbe, E. B.
 Kolbe, Alexander, Jr.
 Kremers, Edward
 Kremers, Edward, Mrs.
 Kretz, Edward J.
 Kuehn, H.
 Kuever, R. A.
 Kurz, O. R.
 LaPierre, Elie H.
 LaPierre, Elie H., Mrs.
 Leacock, W. G.
 Lee, Charles O.
 Lehmann, G. T.
 Leisenring, W.
 Lemberger, Jos. L.
 Lewis, E.
 Lewis, Henry
 Lewis, Lawrence C.
 Light, S. R.
 Loesser, Paul
 Lyman, R. A.
 Lyons, A. B.
 McClallen, E. G.
 McConnell, C. H.
 Macdonald, J. E.
 Macdonald, H. R.
 McGee, J. C.
 Mack, E. P.
 Magdalener, M.
 Main, Thomas F.
 Mallard, A. E.
 Mandabach, P. A.
 Mann, C. F.
 Mansfield, W.
 Marshall, E. C.
 Mason, Harry B.
 Master, Walter
 Matthewson, Wm.
 Mayo, Caswell A.
 Merrell, Chas. G.
 Messing, R. J.
 Meyer, Chas. L.
 Meyer, Chas. L., Mrs.
 Millard, D. R.
 Miller, M. E., Mrs.
 Miller, F. A.
 Miller, J. S.
 Miner, M. A.
 Mitchell, John J.
 Mitshkum, Mark D.
 Moerk, F. X.
 Morey, A. C.
 Morris, Geo. A.
 Morris, H. M.
 Morse, E. W.
 Muhlan, O. E.
 Murray, B. L.
 Newcomb, Geo. D.
 Newcomb, E. L.
 Newhoff, H.
 Nissle, G.
 Nitardy, F. W.
 Noll, M.
 Norman, Jno. E.
 O'Brien, John E.
 Osseward, C.
 Packard, C. H.
 Parker, A. S.
 Pasternacki, C. V.
 Patch, R. R.
 Patterson, C. W.
 Pauley, A. N.
 Payne, Geo. F.
 Pendleton, M. C.
 Perrin, D. Ed.
 Perry, F. W. R.
 Perry, E. A.
 Persons, Benj. S.
 Piaskowski, B.
 Pinkerton, H.
 Pittenger, Paul S.
 Platt, R. C.
 Porter, C. S.
 Porterfield, W. P.
 Pratt, Geo. O.
 Pretz, E. J.
 Price, W. C.
 Przybylowski, J.
 Przybylski, A. S.
 Puckner, W. A.
 Ramsay, C. F.
 Raubenheimer, Otto
 Reimann, Geo.
 Reimann, Geo., Mrs.
 Reisterer, A. G.
 Remington, Jos. P.
 Rennie, R. W.
 Reyer, Emil
 Richardson, W. S.
 Roberts, J. G.
 Roehrig, A. M.
 Roehrig, A. M., Mrs.
 Rohnert, F.
 Rosengarten, Geo. D.
 Rudder, W. H.
 Ruddiman, E. A.
 Rusby, H. H.
 Ryan, Frank G.
 Sala, A. F.
 Sala, A. F., Mrs.
 Sass, S. K.
 Sayre, L. E.
 Schackelford, H. S.
 Schafer, Geo. H.
 Schafer, Geo. H., Mrs.
 Scherer, Andrew
 Schettler, Geo. M.
 Scheuber, F. A.
 Scheurer, J.
 Schieffelin, Wm.
 Schneider, Albert
 Scholz, Oscar
 Schreiner, Albert

Schultz, G. M.	Stroup, Freeman P.	Wallace, John C.
Schwartz, Maurice P.	Stuart, E. E.	Ward, F. W.
Scott, W. C. M.	Sturgen, W. J.	Watson, G. N.
Scott, S. M., Jr.	Sturmer, J. W.	Watson, H. J.
Scoville, W. L.	Sumner, Jennie	Weaver, C. A.
Scoville, W. L., Mrs.	Swartz, G. G.	Webb, J.
Seltzer, Leonard A.	Szmigiel, V. J.	Webb, J., Mrs.
Selzer, Eugene R.	Taylor, Frank O.	Webb, Edward N.
Siegenthaler, H. N.	Teeters, W. J.	Webster, J. H.
Silver, M. E.	Thiesing, E. H.	Weems, M. L.
Simones, W. S.	Thomas, John B.	Weinkauff, Jacob
Singer, P. X.	Thomason, W. P.	Weinstein, Jos.
Skimin, E. C.	Thome, E. R.	Welsh, Jos. B.
Skinner, Chas. H.	Thompson, F. A.	Werner, Louis
Snow, Clyde M.	Thum, John K.	Werner, W. A.
Sonner, John L.	Thurston, Azor	Wheatcroft, J. C.
Spease, Edward	Timmons, G. D.	Wheeler, Carlton B.
Sprague, W. G.	Tobey, C. W.	Whelpley, H. M.
Staack, H. F.	Topping, G. B.	Whorton, Carl
Stanislaus, I. V. Stanley	Travis, W.	Wilbert, M. I.
Start, Roy C.	Turner, Jos. L.	Wilson, A. C.
Steele, E. P.	Ugnow, G. H.	Wimmer, Curt Paul
Stevens, Grant W.	Vanderkleed, Chas. E.	Windolph, J. F.
Stevens, A. B.	Vernor, James	Wisner, E. H.
Stewart, F. E.	Vordick, A. H.	Wolff, F. A.
Stewart, J. A.	Virisk, Anton	Woodruff, C. M.
Stingel, J. L.	Wafer, J. G.	Wulling, F. J.
Stockberger, W. W.	Wagner, A. C.	Young, F. H.
Stocking, Chas. H.	Walker, H. F.	Young, A. P.
Stolz, David	Walker, Alfred	Zaegel, Max R.
Strawn, May	Walker, A. H.	Zinn, C. E.



HERMANN ENGELHARDT, Chairman,
Scientific Section.



FRANK H. FREERICKS, Chairman,
Section on Education and Legislation.

PROCEEDINGS OF THE COUNCIL—(THIRD SESSION FOR 1913-1914).

The third session* of the Council of the American Pharmaceutical Association for 1913-14, was held at the Hotel Pontchartrain, Detroit, on Monday, August 24, 1914, at 9:30 a. m.

Chairman E. G. Eberle presided.

Present: Messrs. Alpers, Apple, Asher, Beringer, C. E. Caspari, Eberle, England, Godding, Havenhill, Hopp, Lyons, Koch, LaPierre, Mason, Mayo, Nitardy, Richardson, Ruddiman, Sayre, Schneider, Seltzer, Stewart, Thomas and Whelpley.

The reading of the minutes of the previous meetings of the Council and of the Council Letters was on motion, dispensed with, except Council Letters Nos. 30 and 31, which were read and approved.

The voting cards on Motion No. 48 of Council Letter No. 31 (on special order of business for Council meeting of August 25, 1914) had been sent out by the Secretary but the replies had not been received. Motion No. 48 was then taken up for reconsideration and H. B. Mason moved, seconded by G. M. Beringer, that the motion be adopted. Carried.

President Beringer discussed the subject of delegate-representation at the first general session of the Association to-day and urged that the usual courtesies be extended to the delegates at the sessions, which was agreed to.

The report of the Secretary of the Council was read, as follows:

To the Members of the Council:

Gentlemen—The Council held two sessions at the Nashville (1913) meeting and has transacted business by mail since.

Thirty-one Council Letters have been issued, covering 91 pages, and 48 motions.

The members elected number to date 404; the number last year by the first session of the Council was 299.

A synopsis of the motions of the Council is submitted and will become a part of the records. The minutes up to July 29, 1914, (Council Letter No. 29) have been published in the JOURNAL.

The membership of the Council now numbers forty, of which sixteen are Local Branch representatives.

The three members of the Council elected by mail on November last for 1914-15 were: Otto F. Claus, St. Louis; M. I. Wilbert, Washington, and William B. Day, Chicago.

Respectfully submitted,

J. W. ENGLAND, Secretary of the Council.

SYNOPSIS OF MOTIONS OF COUNCIL, 1913-14.

Motion No. 1—That the Sixty-second Annual Meeting of the American Pharmaceutical Association be held during the week beginning Monday, August 17, 1914. Carried.

Motion No. 2—That the date "August 24, 1914" be substituted in Motion No. 1 (C. L. No. 1) for the date of "August 17, 1914." The substituted motion will then read: "That the Sixty-second annual meeting of the American Pharmaceutical Association be held during the week beginning Monday, August 24, 1914." Carried.

* The first and second sessions of the Council for 1913-14 were held at Nashville, Tenn., August 22 and August 23, 1913.

Motion No. 3—That the sum of Thirty-five Dollars (\$35.00) or so much thereof as may be necessary, be appropriated for Badges and Bars.

Appropriation approved by the Committee on Finance. Carried.

Motion No. 4—Election of Members Nos. 1-8, inclusive. Carried.

Motion No. 5—That Wilhelm Bodemann be elected as the representative to the Committee on Transportation from Chicago. Carried.

Motion No. 6—That E. Floyd Allen be elected the representative to the Committee on Transportation from St. Paul or Minneapolis. Carried.

Motion No. 7—That Fred I. Lackenbach, of San Francisco, be elected a member of the Committee on Transportation to represent San Francisco. Carried.

Motion No. 8—That John G. Roberts, of Philadelphia, be elected a member of the Committee on Unofficial Standards, succeeding Francis Hemm. Carried.

Motion No. 9—That the bond of the Treasurer be renewed with the Fidelity and Deposit Company of Maryland. Carried.

Motion No. 10—That \$250 be appropriated for the use of the Committee on Membership. Appropriation approved by the Committee on Finance. Carried.

Motion No. 11—That \$25 be appropriated for the use of the Women's Section. Appropriation approved by the Committee on Finance. Carried.

Motion No. 12—That the annual salary of the Editor of the Journal be increased \$1,000, said increase to take effect as of September 1, 1913.

Motion No. 13—Election of Members Nos. 9-17, inclusive. Carried.

Motion No. 14—That the sum of Twenty-five Dollars be appropriated for the use of the National Drug Trade Conference. Appropriation approved by the Committee on Finance. Carried.

Motion No. 15—Election of Members Nos. 18-24, inclusive. Carried.

Motion No. 16—The Committee on Finance submits for approval the following:

Proposed Budget of Appropriations for 1914.

Item.

1—Salaries	\$6500
2—Journal	5000
3—Printing, Postage and Stationery.....	1000
4—Clerical Expenses Secretary's Office.....	1000
5—National Formulary.....	1000
6—Miscellaneous Expenses.....	300
7—Drayage, Freight and Expressage.....	150
8—Stenographers	250
9—Traveling Expenses.....	300
10—Committee on Membership.....	750
11—Committee on Unofficial Standards.....	300
12—Proceedings and Year Book.....	2500
13—Badges and Bars	50
14—Certificates	50
15—Premium on Treasurer's Bond.....	50
16—Insurance	50
17—Journal for Reporters.....	35
18—Section on Scientific Papers.....	25
19—Section on Education and Legislation.....	25
20—Section on Commercial Interests.....	25
21—Section on Practical Pharmacy.....	25

22—Section on Historical Pharmacy.....	50
23—Section on Pharmacopœias and Formularies.....	25
24—Women's Section.....	25
25—National Syllabus Committee.....	25

\$19,510

Motion No. 17—That the sum of \$250 or as much as may be necessary, be appropriated for badges and pins in accordance with the resolution of the Nashville (1913) meeting, that badges and pins be supplied to dues-paid members of the Association at the price of twenty-five cents each, which shall include cost of postage, and that the Secretary of the Council be authorized to order one thousand badges and pins, assorted, of best quality, design No. 3, as per bid submitted by the Whitehead & Hoag Co. Appropriation approved by the Committee on Finance. Carried.

Motion No. 18—That the Tentative Program for 62d Annual Meeting, as submitted, be approved. Substituted by Motion No. 19.

Motion No. 19—That the "Tentative Program for the 62nd Annual Meeting" be published and criticism and comments be invited before final adoption." Carried.

Motion No. 20—Election of Members Nos. 25-33, inclusive. Carried.

Motion No. 21—That the Report of the Committee on Publication with its recommendations and authority to employ E. C. Marshall as Advertising Manager be approved. Carried.

Motion No. 22—That the sum of one hundred dollars (\$100.00), or so much thereof as may be necessary, be appropriated for the use of the Committee on Status of Pharmacists in the Government Service. Appropriation approved by the Committee on Finance. Carried.

Motion No. 23—That the sum of two hundred and fifty dollars (\$250.00) or so much thereof as may be necessary, be appropriated for payment of the expenses of delegates to the National Drug Trade Conference during the year 1914. Appropriation approved by the Committee on Finance.

Motion No. 24—Election of Members Nos. 34-54, inclusive. Carried.

Motion No. 25—(1) That the American Pharmaceutical Association accept the complete assignment of the patent-rights of the Norwich Pharmacal Co. in and to a design patent for a Poison Tablet, Serial Number 801,748, as tendered by the said Norwich Pharmacal Company in their communication to the President of the Association, dated February 16, 1914, and presented in Council Letter No. 12.

(2) That the American Pharmaceutical Association hold such design patent exclusively for the free use of the medical and pharmaceutical professions of the United States, without restrictions except such as may be necessary to prevent possible abuse through use of the design for confectionery or other non-poisonous substances.

(3) That the American Pharmaceutical Association hereby tenders to the Norwich Pharmacal Company a vote of thanks for their generous and public spirited proposition. Carried.

Motion No. 26—Election of Members Nos. 55-90, inclusive. Carried.

Motion No. 27—Election of Members Nos. 91-123, inclusive. Carried.

Motion No. 28—That the resignation of James H. Beal as Editor and General Secretary to take effect May 1, 1914, or after the issue of the Journal for that month, be accepted. Substituted by Motion No. 30.

Motion No. 29—That Ernest C. Marshall, at present Advertising Manager of the Journal, be elected as Acting Editor of the Journal and Acting General Secretary of the Association until the annual meeting of the Association at Detroit during the week of August 24 next, the Association to pay him for all of his duties at the rate of three thousand dollars per year from the time when he takes full charge to the first of September. Substituted by Motion No. 31.

Motion No. 30—(Substitute for Motion No. 28.) That the resignation of Dr. James H. Beal as Editor and Secretary be accepted with the sincere regret of the Council and with the understanding that such resignation shall not take effect until September 1, 1914. Carried.

Motion No. 31—(Substitute for Motion No. 29.) That Dr. James H. Beal be relieved of the active work of the Secretaryship and Editorship of the JOURNAL as far as possible, and that he be authorized to make the best arrangements he can with Ernest C. Marshall or other person or persons that he may select, to carry on the work of the offices of Secretary and Editor under his direction until September 1, 1914. Carried.

Motion No. 32—That the organization of the San Francisco Branch of the American Pharmaceutical Association be approved. Carried.

Motion No. 33—That the appointment of Harry B. Mason as Chairman of the Committee on Commercial Interests be approved. Carried.

Motion No. 34—Election of Members Nos. 124-160, inclusive. Carried.

Motion No. 35—That the Program for the Sixty-second Annual Meeting as submitted be approved.

Motion No. 36—(Amendment of Program for Sixty-second Annual Meeting.) That the second session of the Commercial Section be held on Wednesday, August 26, at 9:30 a. m., instead of Friday, August 28, at 9:30 a. m., and (2) that the second session of the Conference of Pharmaceutical Faculties be held on Wednesday, August 26, at 10 a. m., and (3) that the original program as amended be substituted for the program given under Motion No. 35.

Motion No. 37—Election of Members Nos. 161-196, inclusive. Carried.

Motion No. 38—(Substitute motion for Motions Nos. 35 and 36 in re. Program for Sixty-second Annual Meeting.) Carried.

Motion No. 39—That the organization of the Columbus Branch of the American Pharmaceutical Association be approved. Carried.

Motion No. 40—That an appropriation of \$50 or less be made to the Section on Pharmacopœias and Formularies. Appropriation approved by the Committee on Finance. Carried.

Motion No. 41—(1) That the American Pharmaceutical Association accept the complete assignment of the patent rights of the William S. Merrell Chemical Co., in and to a design patent for a new, original and useful improvement in packages for Antiseptic Poisons, serial number 817,384, as tendered by the William S. Merrell Chemical Co. in their communication to Professor Julius A. Koch, dated May 15, 1914, and presented in Council Letter No. 21.

(2) That the American Pharmaceutical Association hold such design patent

exclusively for the free use of the medical and pharmaceutical professions of the United States, without restrictions, except such as may be necessary to prevent possible abuse through use of the design for non-poisonous substances.

(3) That the American Pharmaceutical Association hereby tenders to the William S. Merrell Chemical Co. a vote of thanks for their generous and public-spirited offer.

Motion No. 42—(Amended Motion of Motion No. 41 (par. 1), for Assignment of Patent Rights for Improved Package for Antiseptic Poisons) as follows: "Resolved, That the American Pharmaceutical Association accept the completed assignment of the patent rights of the William S. Merrell Chemical Co. in and to a design patent for a new, original and useful improvement in packages for Antiseptic Poisons, serial number 817,384, provided such patent and assignment is completed without expense to the Association or associated with any other conditions than that named in the assignment."

Motion No. 43—That the name of the subdivision of the American Pharmaceutical Association now known as the Women's Section be changed to the Women's Auxiliary, and that all matters of constitution and by laws of this Auxiliary be left to the determination of those who shall constitute it, with the provision that membership in the Auxiliary be limited to the women members of the immediate family of all members of the Association." Substituted by Motion No. 45.

Motion No. 44—Election of Members Nos. 197-281, inclusive. Carried.

Motion No. 45—That the consideration of Motion No. 43 be postponed until the annual meeting of the Association in Detroit. Carried.

Motion No. 46—That the Committee on National Formulary be authorized to call a meeting of the committee for the purpose of a personal conference during the two days succeeding the last session of the Association at Detroit, the matter of appropriation for expenses incurred by the Committeemen for transportation, sleeper, hotel expenses, etc., to be passed upon by the Council at the Detroit meeting. Carried.

Motion No. 47—Election of Members Nos. 282-345, inclusive. Carried.

Motion No. 48—That the whole subject of A. Ph. A. Reform (as contained in letter of H. B. Mason in Council Letter No. 31), be made a special order of business at the meeting of the Council on Tuesday evening, August 25, 1914.

The Report of the Secretary of the Council was received.

Applications for membership from Nos. 346 to 393, inclusive, were received, and the applicants elected. [For names see Council Letter No. 1, printed elsewhere.]

The Report of the Committee on Publication was presented as follows:

To the Members of the Council:

Gentlemen: At the Nashville (1913) meeting, the Association authorized the employment of an Advertising Solicitor and Assistant Editor of the Journal, at a salary to be fixed by the Committee on Publication, subject to the approval of the Committee on Finance and the Council.

Acting under this authority, the Committee on Publication elected Mr. Ernest C. Marshall at an annual salary of fifteen hundred (1500) dollars plus 20 per cent for commissions on the advertisements he secured up to a maximum of one thousand dollars and 10 percent on all advertisements secured through outside

solicitors working under his direction, to pay the latter. In this way, the Advertising Manager cannot receive more than \$2500 a year, and the Association can receive about \$6500 or more in advertisements.

This action was approved by the Committee on Finance and the Council, as was also, the recommendation that the cumbersome title of "Advertising Solicitor and Assistant to the Editor of the Journal" be changed to "Advertising Manager."

Mr. Marshall began service on February 1, 1914, for one year, residing in Columbus, Ohio.

The Association has sustained a serious loss through the resignation by illness of Dr. James H. Beal as Editor of the Journal and General Secretary of the Association, who tendered his resignation to take effect on May 1, 1914. Dr. Beal wished immediate action, but was prevailed upon to postpone the date of resignation until September 1, 1914, and the arrangements were made with Mr. Marshall, Advertising Manager, to act as an Acting Editor and Acting General Secretary at a salary of \$250 per month, for June, July and August in lieu of all other compensation as Advertising Manager, etc.

We deeply deplore the necessity that has compelled Dr. Beal to resign, and we earnestly hope that, relieved from routine work and responsibility, he will soon recover his health and vigor, and we know that we voice the sentiment of the entire membership of the Association when we express to Dr. Beal our sincere gratitude for the splendid services and personal sacrifices he has made in behalf of the Association.

Regarding the selection of a new Editor and General Secretary, Dr. Beal writes that:—

"Unless some acceptable Editor and General Secretary should present himself before the Detroit meeting, I suggest that, instead of making a final selection at that time, the matter be left with the Publication Committee with power to act. This will give the Committee not only a chance to discuss the subject at the meeting, but will enable it to take its time in making final choice." We recommend that the suggestion of Dr. Beal be adopted.

The Journal—The number of reading pages of the Journal in 1913 was 1600, and in 1912 was 1466, an increase of 134 pages. In character and comprehensiveness of subject matter, as well as financially, and in stimulating the work of the Association, the Journal continues to more than justify its existence.

Expenditures for the Journal—The expenditures for the Journal for 1913 were \$5465.83, plus the Editor's salary of \$2133.13, or a total of \$7598.96, being an increase over 1912 in Journal cost of \$962.68, and in editorial cost of \$333.13, or a total of \$1295.81.

Receipts for Journal—The receipts of the Journal from advertisements, etc., for 1913 were \$3395.80, a decrease of \$259.62 over 1912.

Net Cost of Journal—The net cost of the Journal for 1913 was \$4203.16 and for 1912, was \$2647.72, an increase of \$1555.44.

Expenditures for the Year Book—The Year Book for 1912 (Volume 1), corresponding to Volume 60 of the former Proceedings of the Association, was issued in June, 1914, and cost \$1718.99 for the printing and \$244.99 for the mailing, or a total of \$1963.98, which, including the salary (\$1200) of the Reporter on the Progress of Pharmacy, amounted to \$3163.98.

The cost of the 1911 Proceedings (Volume 59) including the salary (\$1200) of the Reporter on the Progress of Pharmacy was \$4262.54, indicating a decrease in cost of \$1098.56. The number of pages of reading matter in the two books was nearly the same—620 in the 1912 Year Book and 670 in the 1911 Proceedings.

The Committee feels that especial praise is due to Professor Diehl for his able work as Reporter on the Progress of Pharmacy. We know of no other work of reference, which, in its field, compares with our Year Book, because the work is a real digest of pharmaceutical literature and not a mere description index, as are so many similar publications. Year Books prepared along the lines laid down

by Professor Diehl, are of the greatest service for reference by pharmacists, and amply justify the wisdom of the Association in deciding to issue separate volumes, rather than including the subject matter of the same in the pages of the Journal.

Expenditures for all Publications—The total net cost of the publications for 1913 was \$7367.14 and for 1912 were \$6910.26, an increase of \$456.88. The estimated cost of the Boston (1911) meeting was \$6500 and the expenditures of the Proceedings for 1908, 1909 and 1910, averaged \$7000 for each year.

The total net cost of the publications for 1914 will be distinctly more than in 1913, because of the salary of Advertising Manager Marshall (\$1500) and because there has been no increase in the Advertising receipts, at least to date. This is not the fault of the Advertising Manager as he has had only four months service in such work alone. The rest of his time has been devoted to his newer duties of Acting Editor and Acting General Secretary.

In connection with the subject of the Year Book of 1913, Professor Diehl writes, August 1st: "The work of the Year Book is now so far advanced that I can send the list of most of the cuts required to the General Secretary in the course of the next eight or ten days, and I am confident that the abstracts will be completed and the matter arranged for the printing or shortly after the meeting in Detroit.

It is earnestly hoped that it will be possible to issue the 1913 Year Book immediately after the Detroit meeting, or at the earliest possible moment, even if it becomes necessary to borrow money to finance the National Formulary.

Treasurer Whelpley speaks very earnestly about the necessity of issuing our Year Book more nearly in conformity with the date. He writes:

"The A. Ph. A. members promptly paid their 1913 dues early in the calendar year. They have not yet received the Year Book for 1913. Such a condition does not place them in a very favorable frame of mind when the Treasurer asks for the 1914 dues."

National Formulary (IV)—The Committee on Publication has invited bids for the composition, electrotyping, printing and binding, etc., of the National Formulary (IV) from the same firms that were invited to bid for the U. S. Pharmacopœia, and the bids received will be opened by the Committee and reported upon to the Council later.

It will be recalled that at the Denver (1912) meeting of the Association, a communication was received from the Lloyd Library offering to take charge of all publications of the American Pharmaceutical Association under certain conditions. The offer was referred to the Committee on Publication and after consultation the original offer has been modified by Professor John Uri Lloyd as follows:—

"In reply to your letter of July 14th I will state that I first regret that the American Pharmaceutical Association could not see its way to accepting the proposition made in 1912 by the Lloyd Library, whereby the Society's publications would be systematically arranged and the Association relieved from detailed journalistic correspondence and the yearly distribution of its Proceedings.

Your suggestion that the Lloyd Library store your material, meets the approval of my brother and myself, but our Library is not at this time in a position to attend to the yearly publication distributions, or to the details of current exchanges. We can, also, arrange the yearly Proceedings consecutively, so as to enable you to fill orders as they come to you. These we can mail or express for you, on receipt of directions. The surplus stock of the Proceedings is, as you say, of no commercial value, but can occasionally be utilized in outfitting scientific libraries that are not in a position to make purchases, in which direction both the Lloyd Library and the Association would have passing opportunities. These volumes should, therefore be preserved, and as we have ample store room, we will systematically store them for you.

Therefore, if according to the foregoing, which seems to be the arrangement you

would like to have made, the publications of the Society be freighted, well boxed, to the Lloyd Library, Cincinnati, Ohio, they will be stored by the Lloyd Library and the reserve number of each year's proceedings systematically arranged in the manner herein suggested, thus being at the command of the Association. The journals, pamphlets, books and ephemeral publications we cannot undertake to sort out, but will store them, in bulk, if you desire, and hold them in store, subject to your order.

The publications will be at the command of the American Pharmaceutical Association, and will be transferred elsewhere, on their order. In case the Lloyd Library at a future date, cannot further store the documents, the society will remove them to some other location."

We recommend that the very generous offer of the Lloyd Library to care for the publications of the Association be accepted, with the thanks of the Association, that the General Secretary be authorized to make the necessary arrangements and to store the historical and other matters of the Association not taken care of by the Lloyd Library.

Very truly yours,

J. W. ENGLAND,

Chairman of Committee on Publication.

Mr. E. C. Marshall stated that the estimate of the cost of the Year Book for 1912 did not include the cost of expressage, which was about \$200.

This charge, it was explained by the Chairman of the Committee on Publication, was not contained in the figures furnished him by the Treasurer and the latter said that the information had been received by him subsequent to that of the data sent the Chairman. The express charges would increase the total net cost of the publications by about \$200.

The Chairman stated that the report was only a partial report and on motion the report was referred back to the committee to report upon in full later.

A communication was presented from E. Fullerton Cook, Chairman of the Section on Pharmacopœias and Formularies, upon the subject of the Section on Pharmacopœias and Formularies, and also, one from Miss Anna G. Bagley upon the subject of the Women's Section; the consideration of both was deferred until the meeting of the Council on Tuesday evening, August 25, 1914.

Chairman Eberle named the following committee on Credentials: F. W. Nitardy, Philip Asher and Dr. F. E. Stewart.

Dr. W. C. Alpers discussed the subject of adjourned Section meetings, stating that the privilege of holding adjourned meetings had been much abused. He moved, seconded by L. E. Sayre, that the Secretary of the Council be requested to notify the Chairman of the different sections of the Association that the sections must follow the program mapped out for them in the time allotted, and if they held adjourned meetings, they must adjourn to times that shall not conflict with the stated section meetings and general sessions. Motion carried.

Applications for membership from Nos. 394 to 404, inclusive were presented, as follows:

No. 394. J. A. Stewart, 720 Jefferson Avenue, E., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 395. J. T. Delzell, Hersey, Mich., by Wm. A. Hall and Leonard A. Seltzer.

No. 396. Charles Sumner Koon, 35 W. Western Avenue, Muskegon, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 397. Albert G. Riestein, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 398. Frank P. Lehr, 5400 Franklin Avenue, Cleveland, Ohio, rec. by Lewis C. Hopp and W. C. Alpers.

No. 399. Andrew Edward Walleck, 8341 Woodland Ave., Cleveland, Ohio, rec. by Lewis C. Hopp and W. C. Alpers.

No. 400. Morris E. Curtis, 3625 Detroit, Avenue, Cleveland, Ohio, rec. by Lewis C. Hopp and W. C. Alpers.

No. 401. Claude H. Parker, U. S. Marine Hospital, Boston, Mass., rec. by M. E. Berkowitz and Albert E. Roehrig.

No. 402. Wm. Daniel Hall, 35th and Queen Lane, Falls of Schuylkill, Pa., rec. by Robert P. Fischelis and H. V. Army.

No. 403. Theodore Charles Hageman, 1500 Chouteau Ave., St. Louis, Mo., rec. by G. A. Burkhart and J. W. Mackelden.

No. 404. John Durward Hyde, Sulphur Springs, Texas, rec. by R. H. Needham and H. M. Whelpley.

The applicants were elected.

On motion of H. M. Whelpley, seconded by J. W. England, an additional appropriation of \$50.00 for buttons and pins during the fiscal year of 1914 was made, the appropriation having been approved by the Committee on Finance.

Adjourned until Tuesday evening, August 25, 1914, at 7:30 p. m.

J. W. ENGLAND, Secretary.

(FOURTH SESSION OF THE COUNCIL FOR 1913-1914.)

The fourth session of the Council for 1913-14 was held on Tuesday evening, August 25, 1914, at 8 p. m., to consider the special order of business of Council Letter No. 31, under Motion No. 48.

Chairman Eberle presided.

President: Messrs. Apple, Asher, Beringer, Chas. E. Caspari, Clark, England, Fennel, Godding, Havenhill, Hopp, Koch, LaPierre, Mason, Nitardy, Payne, Richardson, Ruddiman, Sayre, Schneider, Seltzer, Stewart, Thomas, Whelpley and Wulling.

The recommendations of H. B. Mason contained in Council Letter No. 31 were taken up seriatim, as follows:

1. The customary addresses of welcome and responses thereto shall be omitted at the first general session and business will at once be started with the President's Address, exactly as is done in the Sections.

Decision: That addresses of welcome from local officials shall be omitted.

2. At the suggestion of the Local Committee the Council has already decided to hold its meetings in the evenings, with the exception of the opening session on Monday and Saturday mornings.

Decision: That as far as possible the meetings of the Council shall be held in the evenings, except the first and last sessions.

3. The Section work shall start promptly in the morning at 9:30.

Decision: Adopted.

4. The Section and Association meetings shall be confined to the morning and afternoon periods.

Decision: Adopted.

5. The principle of concurrent meetings of the sections has been extended more than ever before, and it should be arranged to co-ordinate the section work by a system of blackboards on which entries shall be made from minute to minute, showing precisely what is going on in the different sections at the same time.

Decision: Adopted.

6. Abolish the Section on Pharmacopœias and Formularies and let the work be done by the other sections.

A letter from E. Fullerton Cook, Chairman of the Section on Pharmacopœias and Formularies presented at the annual meeting of August 24, 1914, was read, as follows:

To the Members of the Council of the American Pharmaceutical Association:

Gentlemen:—The Section on Pharmacopœias and Formularies having been created by resolution, and not therefore enjoying the privilege of representation in the Council through its Chairman, has made it impossible for him, until recently, to have the opportunity of knowing of the discussion in the Council on the proposed reforms in business methods and organization; but his attention has just been called to the onslaught made by practically every would-be reformer upon the young and innocent Section on Pharmacopœias and Formularies. As Chairman of the Section it is permissible, perhaps, that a word of defense be added to the discussion.

The main argument advanced by all of those who would abolish the Section is that "its work can be done as well as by some other Section, such as Education and Legislation, Scientific or Practical Pharmacy." There has been apparently no attempt to discount the importance of the scientific work which the section may accomplish for the pharmacist, and there need therefore be no argument in defense of its possible activities, but the point which needs a reply is whether this field should be especially recognized and developed, or whether it would be blended with the hit-or-miss program of a general Section.

Recognizing the importance of the Pharmacopœia and various formulary books to the practicing pharmacist there seems ample justification for the assignment of a special section committee to this subject who will give it careful study throughout the year and develop a comprehensive program for the annual meeting. Without such definite assignment this important work is not likely to receive proper consideration by the chairman of other sections.

The proposal of Albert Schneider (see Council Letter No. 27, p. 76) that the sections be arranged in divisions, suggesting the several lines of work for each, partially covers this point, but in the plan proposed by Mr. Mason the value of this definite assignment of subject is entirely lost and one chairman is asked to develop a program covering four days of meetings, and along a variety of lines, in some of which he may have no interest or experience.

With the present plan of Sections a number of divisions covering specific lines of activity are provided and this need require no more time for meetings than in Mr. Mason's plan, which embraces simultaneous meetings of all Sections. If there are more divisions there will be at least two Chairmen developing programs for a smaller number of sessions each, instead of one Chairman often working in unfamiliar fields, trying to provide a program covering the entire time; also with the smaller divisions each Chairman will be selected for his familiarity with and interest in the specific subject of his section.

How illogical it is to expect a chemist to develop a program dealing with *materia medica* and pharmacognosy; yet this is exactly the condition Mr. Mason would ask you to provide. Many of Mr. Mason's proposals in Council Letter No. 31 (pp. 89-91) are excellent, but the abolishing of special sections should be very carefully considered before the vote is called.

Respectfully submitted,

E. FULLERTON COOK.

August 18, 1914.

Moved by F. M. Apple, seconded by F. E. Stewart, that the suggestion of President Beringer of a Section on Practice of Pharmacy with Committees on

Pharmacopœias, Formularies and Standards, on Commercial Interests, and on Practical Pharmacy and Dispensing be adopted, which motion was amended that the title of Commercial and Practical Pharmacy replace that of Commercial Interests and of Practical Pharmacy and Dispensing.

A substitute motion was then offered by H. B. Mason, seconded by L. A. Seltzer, as follows: That the Section on Practical Pharmacy and Dispensing be continued, but that there shall be within the latter a Committee on Pharmacopœias, Formularies and Standards to prepare a partial program for the section meetings. The substitute motion carried. The original motion and amendment were lost.

J. A. Koch rose to a question of privilege, stating that the hour for convening the meeting of the American Conference of Pharmaceutical Faculties had arrived, and moved that, by reason of this, the meeting of the Council be adjourned until Wednesday, August 26, at 9 a. m. The motion was lost.

It was moved by G. M. Beringer, seconded by F. J. Wulling, that the Section on Practical Pharmacy and Dispensing be renamed the "Section on Practice of Pharmacy," with two committees—(a) Operative Pharmacy and Dispensing, and (b) Pharmacopœias, Formularies and Standards. The motion was lost.

7. Discountenance the proposed Section on Materia Medica and Pharmacognosy as a separate section, but possibly favor it as a subdivision of the Scientific Section.

G. M. Beringer moved, seconded by F. H. Apple, that the work of the Scientific Section be divided into four committees (a) Chemistry, (b) Botany and Pharmacognosy, (c) Biologic Testing, (d) Bacteriology. The motion carried.

The opinion was expressed that the Committee on Program should be given authority to arrange all the details of the annual and section meetings.

8. Recognize the Report on the Progress of Pharmacy as being invaluable, but print it and give it no place at all in the program of the meeting. Adopted.

9. Adopt the general principle that the reports of standing and special committees should be presented to the Council as the board of directors of executive committee of the organization, and by the Council referred to the Association only when it deems such action necessary.

Moved by C. T. P. Fennel, seconded by L. A. Seltzer, that the reports of all standing committees must be in the hands of the General Secretary ten days prior to the date of the annual meeting.

On motion of G. F. Payne, seconded by F. M. Apple, it was urged, as a substitute motion, that the reports of all standing and special committees must be delivered to the General Secretary by the morning of the first general session.

The substitute motion carried and the original motion was lost.

On motion of G. M. Beringer, seconded by J. W. England, the power of appointing standing committees was directed to be more specifically defined in the by-laws—that is, whether they shall be appointed by the President of the Association, or by the Chairman of the Council.

The report of the retiring General Secretary and Editor of the Journal was read by request of J. H. Beal, to the Council.*

The recommendations contained therein were disposed of, as follows:

* This report having been presented to the general session also, it will be published only in the minutes of general session.—Secretary of the Council.

(1) That the portion of Article 1, Chapter VII of the By-Laws, which provides that any member of the Association may attend the meetings of the Council, be elevated to the dignity of a separate article, so as to emphasize the fact that the Council meetings are open to attendance by all the members of the Association; and also, that the requirement of a vote of the Council in order to permit non-members of the Council to speak, be changed so as to require only the consent of the presiding officer.

Decision: Adopted.

(2) That Section 3, Article 8 of Chapter VII be changed by striking out the requirement that the names of candidates for membership be read at the general session. Under our present practice there exists the anomaly that between annual meetings members are elected exclusively by vote of the Council, while if elected during the annual meeting, they must also be voted upon by the Association.

Decision: Adopted.

The by-laws require that applicants for membership elected by the Council shall receive a three-fourths vote of the members, and it was suggested that this be made a majority of the members, in view of the delay caused by the mail vote, but no action was taken.

(3) That the practice of reading the minutes of the Council at the General Sessions, which seems to be a matter of custom only and is not an express requirement of the by-laws, be done away with and the Council present to the general sessions only such matters as it deems of sufficient importance to require such reference.

Decision: That important matters of Council business shall be reported in full at the general sessions.

(4) Add a new by-law to Chapter VII, giving to any member of the Association, during any general session, the right to call for a report from the Council upon any matter which has received its consideration:

Decision: Adopted.

G. M. Beringer recommended that the custom of permitting each Local Branch to elect a representative of the Council be abolished.

On motion, the recommendation was not agreed to.

Recommendations Nos. 10 and 11 of H. B. Mason's letter (in Council Letter No. 31) were considered:

(10) The manuscripts of all section papers should be received at least four weeks before the annual meeting, and (11) all manuscripts shall then be sent by the Section officers to the General Secretary.

Decision: The chairman of the sections should use every endeavor to secure the manuscripts of all section papers within four weeks of the annual meeting and immediately send them to the General Secretary.

(12) The General Secretary should have accepted manuscripts printed in advance of the annual meeting, whenever, in the judgment of the chairmen of the sections, and the General Secretary, this is desirable.

Decision: Adopted.

(13) With all manuscripts in hand three or four weeks before the meeting, the General Secretary should prepare a collective program containing the detailed

programs of all the different sections, and indicating approximately when any given paper is coming up for attention.

Decision: Adopted.

(14) Have the Conference of Pharmaceutical Faculties meet either late the week before, or early the week following the A. Ph. A. itself, so as to avoid this element of confusion and scattered interest—either that, or else let these bodies use the evenings for their sessions.

Decision: Laid on the table.

Regarding the proposition to abolish the House of Delegates, the following motion was passed:

Moved by L. A. Seltzer, seconded by H. B. Mason, that a committee of three be appointed to consider the question of representation in and function of the House of Delegates, the committee to report to the Council.

The committee named by Chairman Eberle was: Messrs. Beringer, Whelpley and Stewart.

The proposition to form a Committee on Resolutions of ten members, five to be appointed by the President of the Association and five by the Chairman of the Council, as recommended by President Beringer, was, on motion, approved.

The suggestion to abolish the Historical Section was withdrawn.

The subject of the Women's Section was discussed.

The following letter from Miss Anna G. Bagley, Secretary of the Women's Section of the American Pharmaceutical Association (presented at the Council Meeting of August 24, 1914,) was read and discussed:

To the Members of the Council of the American Pharmaceutical Association:

Gentlemen:—Knowing that a motion is before Council to eliminate the Women's Section, the Secretary of the Women's Section begs to submit for the consideration of Council, this communication setting forth the views and desires of the women of that Section.

This matter was brought up in a discussion of reform for the conduct of the conventions and being wholly irrelevant to the discussion in hand, and unparliamentary, President Beringer moved to postpone action until the convention assembled. The charge of interference with other association affairs is absurd and needs no further comment.

As to the constitutionality of the Section: As we understand it the organic law of any organization is made up of the principles laid down in its constitution and the A. Ph. A. constitution empowers the Council to act on such matters as may be deemed good for the Association, whether it be the approval of an expense bill or the establishment of a new Section. Further, if we deny the right of Council to establish the Women's Section, then by the application of the same principle, the majority of Council proceedings become null and void. It would be a marvelous constitution indeed which could provide by specific mention for all matters which might come up for future consideration. And by the same application you destroy the House of Delegates, the Section on Pharmacopœias and Formularies, the Drug Trade Conference, the Commission on Patent Medicines, and most of the other progressive work which A. Ph. A. has done in the past few years.

Further, the acts of Council are subject to review by the Association. The Association has twice concurred in the establishment of the Women's Section; it was established by act of Council which was concurred in by the Association at Denver; it was confirmed by vote in the House of Delegates at Nashville, and the Association concurred in it, and it would seem that such a strong wish of the

body politic of the Association, twice expressed, would be respected, and sufficient to establish this Section for all time.

As to the non-professional women—It was fully understood when the Section was established and has been so understood when the matter has been discussed, that the Section was to be composed of both the non-professional women—those of your families who were willing to give to the advancement of A. Ph. A.—and the professional women who are already members of the Association.

These non-professional women do not expect any voice in Council, the House of Delegates, or representation in any voting capacity whatever, therefore the question of legality of their membership has no foundation.

With the question of legality removed, the argument then proceeds to the title of "Section," it being suggested that we be called auxiliary or given some other name of reduced rank.

The idea of a Women's Section originated in the Association and the women were invited to come into a "Section" it being understood that our privileges were limited as indicated above. So great were the loyalty of the professional women already members of the A. Ph. A. and so keen the interest of these non-professional, wide-awake women who have followed the fortunes of husbands, fathers and brothers in the practice of pharmacy, that when the call came, the answer was, "We are here. We are ready to work for A. Ph. A."

Through the title of "Section" you placed us in the ranks where we may work shoulder to shoulder with the members of A. Ph. A. to broaden its scope and help to win in some of the by-ways where the A. Ph. A. needs to exert its influence, but where it is too busy to spend its time.

We accepted the call, and perfected our organization at Nashville. But because we have endeavored to show a modesty becoming to a new Section, we have not heralded our plans and policies to the Association and for this reason, perhaps are misunderstood by some and looked upon as an unnecessary adjunct in an already over-burdened organization, and to disabuse the minds of any such members, we name a *few* of the things we hope to accomplish in the name of the A. Ph. A.

First, last and always our aim will be to secure members for the organization, both men and women. We now have a file of more than 500 women pharmacists in the United States with whom we are more or less in touch in soliciting membership. As to results: compared with the number of women who have been active in the work of the Women's Section, we have a much better showing in the number of members secured than has the rest of the membership of A. Ph. A.

We have a plan on foot for a nation-wide advertising campaign for A. Ph. A. through the medical and pharmaceutical press, the daily press, the organizations, the colleges, etc.

We shall aim to advance the cause of the woman pharmacist, help to guide the right kind of young people into the colleges of pharmacy, assist others in getting an education in pharmacy, etc., etc.

All such work would redound to the credit of A. Ph. A. but it can only be accomplished through the combined efforts of the non-professional and professional women.

Now, gentlemen, it makes a vast difference to this body of loyal women whether the name under which their efforts are made is "Section" or "Auxiliary."

The word auxiliary as applied to an organization signifies a hanger-on, a parasitical growth seeking its life from the host. Now this is just the opposite of what we propose to do. We want to work *with* you, side by side, *adding* to your strength, not sapping it, and to reduce us in rank not only will wound our self-respect, but will militate against the recognition accorded us both in the association and abroad.

Could we expect to approach strangers with any offer of service or ask for assistance and have any deference shown us as a body which the A. Ph. A. would

not have in its real ranks? No, but how different would be our reception as a "Section."

This, then, is what we ask of Council and the Association: That we be maintained as a "Section." We put the question frankly: Can the A. Ph. A. afford to dispense with this splendid service for the sake of a mere technicality, which of itself will avail them nothing?

Respectfully submitted,

ANNA G. BAGLEY, Secretary.

August 18, 1914.

Moved by H. B. Mason, seconded by G. M. Beringer, that the title of Women's Section be retained.

The following Committee on Revision of the By-Laws proposed at this meeting of the Council was named by the Chairman: Messrs. Mason, England and Nitardy, to report to the Association at its session on Friday at 7 p. m.

Adjourned until Wednesday, August 26, at 5 p. m.

J. W. ENGLAND, Secretary.

(FIFTH SESSION OF THE COUNCIL FOR 1913-14.)

The fifth meeting of the Council for 1913-14 was held on Wednesday, August 26, 1914, at 5 p. m., Chairman Eberle presiding.

Present: Messrs. Apple, Craig, Eberle, England, Fennel, Godding, Hopp, Mayo, Payne, Richardson, Seltzer, Stewart, Whelpley and Wulling.

The minutes of the previous meeting were read and approved.

On motion of L. A. Seltzer, seconded by H. M. Whelpley, Chapter 7, Article VIII, Section 2, was amended to read as follows:

Section 2: The Secretary of the Council shall submit the names of the candidates which have been proposed for membership, when a majority vote shall be sufficient to elect them.

J. C. Wallace presented the report of the Commission on Proprietary Medicines, as follows:

THE COMMISSION ON PROPRIETARY MEDICINES (Report of Progress)

To the Council of the American Pharmaceutical Association:

Gentlemen:—The resolutions creating the Commission on Proprietary Medicines which were adopted by your honorable body at the 61st annual meeting read as follows:

"That there is hereby created a standing committee, consisting of five members elected by the Council, to be known as the Commission on Proprietary Medicines.

Of the Commission first elected, the members shall be elected for terms of one, two, three, four and five years respectfully, and the vacancy annually occurring shall be filled by the election of a member for the term of five years. The Chairman of the Commission shall be annually designated by the Council, from the members of the Commission.

The duties of the Commission on Proprietary Medicines shall be:

(1) To inquire into and to report to the Council from time to time upon the general subject of proprietary medicines in their relations to pharmacy, medicine and the public health.

(2) To inquire whether any of the proprietary medicines commonly known as patent medicines, contain alcohol or habit-forming narcotic drugs in sufficient

amount to render them liable to create an alcohol or drug habit, or satisfy such habits when otherwise created.

(3) To inquire whether, or to what extent, the commonly advertised patent medicines contain potent drugs in sufficient amount to render them dangerous in the hands of the laity.

(4) To inquire into the extent to which patent medicines are fraudulently advertised, or differ in composition or origin from the claims made for them, or the extent to which they are advertised for the use of diseases for which no cure is known to medical science.

The Commission on Proprietary Medicines shall report progress annually to the Council, but no report or conclusion of the Commission shall be deemed as representing the views of the Association or Council until the same shall have been formally approved by the Association or Council. The Commission shall not make any expenditures of money, or create any debt against the Association in excess of such appropriations as may be made by the Council."

The membership of the Commission is as follows:

Thomas F. Main, New York City.....	Term expires 1914
James H. Beal, Chairman, Scio, Ohio.....	Term expires 1915
Martin I. Wilbert, Washington, D. C.....	Term expires 1916
John C. Wallace, New Castle, Pa.....	Term expires 1917
Chas. Caspari, Jr., Baltimore, Md.....	Term expires 1918

It will be noted from the resolutions that one member is to be elected annually for period of five years; that it is the business of the Council to annually designate the member of the Commission who shall act as Chairman.

The Commission organized for work in April of the present year by the selection of the following simple body of rules designed to facilitate discussion and parliamentary action by mail:

Rule 1. Motions and resolutions submitted for consideration by the Commission on Proprietary Remedies shall not require a second.

Rule 2. A motion to reconsider any action of the Commission may be offered by any member, whether such member voted for or against such action when originally taken.

Rule 3. Official letters from the Chairman to the Commission shall be known as circular letters, and shall be numbered and pagged consecutively.

Rule 4. Replies to Circular Letters, and motions or votes on matters contained therein shall be mailed not later than ten days from the date of such circular letters.

Rule 5. Motions, resolutions, and actions taken shall be consecutively numbered.

Except as above provided, the ordinary rules of parliamentary procedure govern the transactions of the Commission.

It was resolved that the work of the Commission for the first year should be largely of an exploratory nature, designed to bring under review the general subject of proprietary medicines and to develop general principles for the guidance of the Commission in its subsequent investigations.

As the first work, the formulation of definitions for the following subject was undertaken:

Proprietary Medicines, using that title in its widest sense, so as to include all varieties of proprietaries.

"Patent Medicines," so called.

"Ethical Proprietaries," so called.

Habit Forming Drugs and

Drug Habit.

While at first sight it might seem a simple matter to agree upon satisfactory definitions covering the above terms, experience has proven that quite a diversity of opinion is possible. Practically every member of the Commission has submitted one or more definitions for the above, and additional definitions have also been suggested by non-members of the Commission; judicial decisions have also been consulted so far as these have been available.

At the present time the members seem to be very nearly in accord upon definitions for each of the various terms considered; but, owing to delays in obtaining votes upon various motions, due no doubt to the absence of members on their vacations, the final vote upon the several propositions has not yet been taken; and these definitions are therefore not submitted for your approval at this time.

The Commission has also had up for consideration that class of prescription nostrums characterized by advertisement to the public under coined names designed to create the impression that the advertised nostrum is some well recognized drug or chemical compound that is to be obtained of the druggist and mixed with other popularly known medicaments either by the druggist or by the purchaser.

A preliminary vote has been taken upon a declaration covering this class of proprietaries, but as some additional suggestions have since been received it is thought wiser to resubmit this declaration, together with the proposed amendments for a new vote by the Commission before reporting the same to the Council.

The Commission also has before it for consideration a form of declaration designed to cover the case of formerly patented chemical products upon which the proprietors attempt to continue the monopoly once conferred by patent by the device of using their commonly accepted trade names as trade-marked titles.

In addition to the matters which have been already before the Commission for consideration, the Chairman has collected, through the medium of correspondence and by the examination of available literature, a considerable body of material bearing upon the various phases of the question, which will be placed in the hands of the Commission in the early future.

A "Parliamentary Commission on Proprietary Medicines," of the British House of Commons, during the past year has been considering practically the same questions as are included in the resolutions creating our Commission. This Parliamentary Commission has held a number of meetings, has examined numerous witnesses, and as a result has accumulated a considerable amount of information bearing upon the general subject, which has been embodied in a report recently made to the House of Commons. This report is designed to bring before the members of our Commission as soon as it is obtainable.

Future Work of the Commission—In order to inaugurate the work of the new year, it will be in order for the Council to elect a member of the Commission for five years, and to designate the Chairman of the Committee to act until the 1915 meeting.

The Commission recommends that there be an appropriation of \$25 for postage, stationery, and filing devices.

The resolutions under which the Commission acts, very properly provide that no action of the Commission shall be considered as the action of the Association until formally approved by the Council and, while this is undoubtedly quite proper, the Commission realizes that it would be possible to gather many valuable suggestions and much additional information if it were permitted to publish its tentative conclusions before their final formulation for presentation to the Council. We therefore ask permission to publish from time to time, in the official Journal, and elsewhere, such tentative propositions as we have under consideration, with a request for suggestions and information from all persons interested, in each case, to be accompanied by statements showing clearly that the proposi-

tions submitted are purely tentative and have not yet received the sanction of the Council or of the Association.

•Respectfully submitted,

J. H. BEAL, Chairman,
THOS. F. MAIN,
H. M. WHELPLEY,
JOHN C. WALLACE,
Commission.

The report was adopted.

Dr. F. E. Stewart presented a letter from Wallace Hatch, Superintendent of special Exhibits of the Panama-Pacific International Exposition, which reads as follows:

Dr. F. E. Stewart, Philadelphia, Pa.:

Dear Sir:—I have just received word from Mr. Jas. A. Barr, Director of Congresses, Panama Pacific International Exposition, that the American Pharmaceutical Association is to hold its 1914 meeting in Detroit, August 24th.

I think you will be interested to know—if you are not already familiar with the fact—that about two hundred and seventy-five different associations, representing many of the lines of work in which you are interested, will hold their 1915 session in or near San Francisco. It occurred to me that by bringing this matter to your attention you might be able to assist at the present convention in consummating arrangements for the 1915 gathering to be held here. Every effort is being made by the Exposition to assist both by special accommodations and by the grouping of scientific exhibits, to make sessions held in conjunction with the Exposition, of unusual value to all who are able to attend. Anything which you may be able to do toward enlisting the interest of this association, or any other with which you are connected, in favor of a 1915 session in San Francisco will be much appreciated by the Exposition and I think will be by your members.

I understand that Mr. J. H. Beal, of Scio, is secretary of the American Pharmaceutical Association. It is probable that he would have considerable influence in determining the place of meeting.

Dr. Albert Schneider is to represent the Exposition at the coming meeting on August 24th. It might be well for you to get in touch also with Dr. Schneider.

I am sending copy of this letter to the meeting in Detroit so that if the letter sent to your office does not reach you, the other may.

Very truly yours,

WALLACE HATCH,
Superintendent of Special Exhibits.

Dr. F. E. Stewart moved, seconded by C. A. Mayo, that a committee be appointed to consider the question of the American Pharmaceutical Association having an exhibit at the Panama-Pacific Exposition in 1915. The motion carried.

The committee named was Albert Schneider, Chairman; F. J. Wulling and E. Fullerton Cook.

Applications for membership from Nos. 405 to 429 inclusive were presented and the applicants elected. The list was as follows:

No. 405. Mrs. Alice Aldridge, 1816 N. Fourth St., Columbus, Ohio, rec. by Anna G. Bagley and Geo. B. Kauffman.

No. 406. Wm. S. Semones, 14 Market Square, Knoxville, Tenn., rec. by F. W. Ward and Ira B. Clark.

No. 407. John Gill Wafer, Homer, La., rec. by J. H. Beal and J. W. England.

No. 408. Edward Sewall Everett, 5 Bramhall St., Portland, Me., rec. by Chas. H. Davis and Alfred Page Cook.

No. 409. M. Van Vleet, 506 Gratiot Avenue, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 410. Frederick Rohnert, 455 Jefferson Avenue, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 411. Helen Ritz Burns, 22 E. Market St., Lewiston, Pa., rec. by Franklin M. Apple and Thos. F. Main.

No. 412. Harold Glendening, 1 Main St., Norwalk, Conn., rec. by Thos. A. Main and J. W. England.

No. 413. Stanley Herbert Collins, Lily, S. Dakota, rec. by Edward C. Bent and J. W. England.

No. 414. Hugh Stinson, Cor. Fourth and Douglas Sts., Des Moines, Iowa, rec. by E. O. Kagy and J. W. England.

No. 415. Ernest W. Westphal, Delmar Jct., Iowa, rec. by E. O. Kagy and J. W. England.

No. 416. Muzelle Powell, Klemme, Iowa, rec. by R. L. Parker and E. O. Kagy.

No. 417. Octavio Garcia, Mannabo, Porto Rico, rec. by R. L. Parker and E. O. Kagy.

No. 418. Arthur Lee Suter, 1295 Mardstown Road, Louisville, Ky., rec. by C. D. Porter and Geo. Eisele.

No. 419. Edward O. Rauchfleisch, 13419 Euclid Avenue, Cleveland, Ohio, rec. by Lewis C. Hopp and H. V. Arny.

No. 420. Peter Vellema, 5 Leonard St., N. W., Grand Rapids, Mich., rec. by J. C. Kirchgesson and Wm. A. Hall.

No. 421. Benjamin F. Nudd, Sgt. 1st cl., Hospital Corps, Field Hospital, No. 5, Texas City, rec. by H. W. Riess and John Duignan.

No. 422. Sinclair S. Jacobs, Jacobs' Pharmacy Co., Atlanta, Ga., rec. by George M. Beringer and J. W. England.

No. 423. Charles A. Rapelye, Hartford, Conn., rec. by T. F. Main and J. W. England.

No. 424. Frederick T. Bradt, 171 Blaine Avenue, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 425. Hamilton C. Ulm, 224 Jackson St., Toledo, Ohio, rec. by Waldo M. Bowman and Azor Thurston.

No. 426. Paul H. Hirth, 271 Lincoln St., Detroit, Mich., rec. by Leonard A. Seltzer and William A. Hall.

No. 427. Joe L. Horn, 601 St. Louis Ave., Fort Worth, Texas, rec. by R. H. Needham and William B. Day.

No. 428. Howard T. Graber, 636 Trumbull Ave., Detroit, Mich., rec. by H. M. Whelpley and J. W. England.

No. 429. Jean Gordon, West Suburban Hospital, Oak Park, Ill., rec. by H. M. Whelpley and Franklin M. Apple.

The following resolutions, referred to the Council by the Section on Education and Legislation, were presented:

Whereas. It is currently reported that the Congress of the United States may impose a stamp tax on proprietary remedies and toilet preparations as a means of making good the deficit in revenue due to the European war, and

Whereas. The experience with a similar tax during the war with Spain was shown that the manufacturers almost universally increased their wholesale prices more than enough to cover the cost of the stamp tax, and

Whereas. This higher price to the retail dealer has, with a few exceptions, been continued even after the abolition of the stamp tax, with the effect that the retail dealer has continued to pay this Spanish war tax after its abolition, but has since that abolition paid it to the manufacturer instead of to the United States Government, and

Whereas, The war tax was not passed on to the public by an increase of the retail price except by the cut price stores in the larger cities, leaving the small retail druggists in residence neighborhoods and in smaller towns to pay this war tax out of their profits, and

Whereas, The result has been that this war tax has to a very large extent amounted to a special tax on a worthy though far from wealthy class of the small retail druggists, and

Whereas, The taxation of a special class is contrary to the best public policy; therefore, be it

Resolved, By the American Pharmaceutical Association that the imposition of a stamp tax on proprietary remedies and toilet preparations becomes in its enforcement class legislation of an objectionable nature, and be it further

Resolved, That the Congress of the United States be and is hereby petitioned not to impose a stamp tax on proprietary remedies and toilet articles, but to impose any stamp tax which may be necessary on checks, receipts, notes and similar commercial papers which would distribute the tax throughout the whole commercial world rather than restrict it to a limited class of dealers.

The resolutions were approved.

On motion of Dr. H. M. Whelpley, seconded by Dr. F. E. Stewart, Dr. George H. Schafer, of Fort Madison, Iowa, was nominated and elected Honorary President for 1914-15.

Adjourned until Friday, August 28, at 7:30 p. m.

J. W. ENGLAND, Secretary.

(SIXTH SESSION OF COUNCIL FOR 1913-1914.)

The sixth meeting of the Council for 1913-14 was held Friday, August 28, 1914, at 9 p. m., Chairman Eberle presiding.

Present: Messrs. Alpers, Apple, Asher, Beringer, Diehl, Godding, Havenhill, Koch, LaPierre, Mayo, Nitardy, Payne, Craig, Eberle, Koch, England, Richardson, Schneider, Seltzer, Whelpley and Wulling.

The minutes of the previous meeting of the Council were read and approved.

Credentials for delegates from the Iowa State Pharmaceutical Association, Michigan State Pharmaceutical Association and the Vermont State Pharmaceutical Association to the House of Delegates were presented and approved.

Applications No. 430 and 431 were presented and favorably acted upon by the Council.

No. 430. Chas. A. Lee, Med. Col. Va. School of Pharmacy, Richmond, Va., rec. by A. Bolenbaugh and L. E. Sayre.

No. 431. Albert Schneider, Batavia, Ill., rec. by H. M. Whelpley and J. W. England. (Membership with publication.)

The following communication was presented by C. Lewis Diehl, Reporter on the Progress of Pharmacy:

THE PRINCIPAL CAUSE OF DELAY IN THE PUBLICATION OF THE REPORTS ON THE PROGRESS OF PHARMACY.

To the American Pharmaceutical Association:—

Gentlemen:—The delay of the appearance of the "Year Book" of the Association for 1912 requires some explanation, but in no sense an apology from me, since it was due entirely to the circumstances beyond my personal control. The cause of the delay is, however, not far to seek.

In my last year's report on the status of the Reports on the Progress of Phar-

macy for 1912 and 1913—the one past due, the other to become due—I have explained that if, as I hoped, the decision reached at Boston in 1911, to publish the Report in a separate volume would be definitely reaffirmed at Nashville, we could confidently look for the appearance of the “Year Book” for 1912 shortly after the beginning of the present year, followed by the “Year Book” for 1913 early during the summer, and that hereafter we might confidently expect that the Reports would be ready for publication within a reasonably short time after the expiration of the year to which they apply. Incidentally, also, I explained that the delay in the publication of the Report of 1911 was mainly due to the inability of the printer to supply proofs with regularity, owing to the fact that the paucity of equipment in type necessitated that the composition be interrupted at certain intervals until the corrected forms were printed and the type again distributed.

These observations are here quoted because they illuminate the principal cause of delay in publication of the Report, and point out the way in which it may be avoided in future.

The Association having definitely decided to publish the Report in a separate volume, entitled “Year Book of the American Pharmaceutical Association,” it became necessary to select a publishing house to assume this task, this selection—under the rules of procedure—necessarily delaying the beginning of the composition of the text several months, notwithstanding that the manuscript for the Report had been finished for some time before the Nashville meeting, so that the first proofs did not reach me for correction from “The Stoneman Press,” Columbus, Ohio, to whom the contract was awarded, until October 18, 1913.

This firm being the official printer of the “Journal” of the Association, I had every confidence that the publication of the Year Book would proceed with regularity and dispatch, and this trust seemed justified, the galleys and page proofs alternating with fair regularity until December 13th, when galleys 80-88 were received *with the admonition that the compositor was ready for more “Copy.”* This admonition was the more astonishing because with galley 88 the sections on Pharmacy, Materia Medica and Inorganic Chemistry, comprising, as subsequently developed, 163 of a total of 480 pages of the entire text, had not yet been touched by the compositor. The Manager was at once notified of this defect, but, unaccountably to me, no new galleys were forthcoming until January 22, 1914, when the first galleys of Organic Chemistry came to hand, although page proofs 161-298 (a total of 138) had reached me during the interim *in two installments*.

Asking for an explanation, I was informed by the Manager that the work on the composition of the Report had been unavoidably side-tracked on account of unexpected work which could not be refused nor delayed.

Now, in what I have said, or will say further, I desire it to be distinctly understood that it is with no intention to find fault with the Stoneman Press or its Manager, Mr. Berlin, but with the single purpose of finding a remedy for the delay in the supply of proofs, and more particularly of the page-proofs which are needed for the index. Our relations, which have been confined to correspondence, have been most courteous throughout, and I should regret it exceedingly if these remarks were interpreted by them as evidence of a captious spirit. I feel sure that the delay mentioned is due to a misunderstanding between the proof reader's requirements on the one hand, and the convenience of the compositor on the other. In so far as the correction of the proofs is concerned, this is an easy matter and has been done promptly on all occasions, the corrected proofs being usually returned on the day they were received, and never later than the following morning. But it is of the utmost importance that the typesetting having once begun there should be no interruption in the regular supply of proofs and that the page-proofs should follow the galley-proofs in quick succession—in so far as this is practicable—and not allowed to accumulate be-

cause of the convenience of the compositor, or for any other avoidable reason. It must be remembered that the abstracts of references for the index cannot be made until the page-proofs are available. If these come in small numbers, corresponding to the galleys, the task of abstracting the references from them goes hand in hand with the correction; but if they are allowed to accumulate, as has been the case in the present experience, then it becomes absolute labor, which should not be inflicted upon the compiler of the index. I have taken some pride in the preparation of the indices for the Report of 1911 and 1912 and have endeavored in the latter to improve on the preceding by including an Index of Authors. This proved a strenuous task, however, which is emphasized by the fact that although the final page-proofs of the text were received on February 21st, and the alphabetical arrangement of the text not until February 26th, while the final page-proof of the Index (covering 44 pages) was not received and returned until April 27th. *And on June 2nd, (36 days later), I received my copy of the Year Book for 1912.*

The text for the Report for 1913 is practically complete and will be available shortly after the Annual Meeting, and I feel confident that on consultation with the Manager of the Stoneman Press we can arrive at an understanding whereby the faults and delays encountered in the past can be materially modified, if not completely obliterated, and that hereafter there will be no delay in the publication of the Year Book chargeable to this account.

Respectfully submitted,

C. LEWIS DIEHL.

Louisville, Ky., August 22, 1914.

The report was received and at the suggestion of J. W. England, Chairman of the Committee on Publication, it was referred to his committee.

The following communication was presented to the Historical Section by the Committee on Address of Chairman and Report of Secretary, and referred by the Section to the Council:

To the Historical Committee:

Gentlemen:—We wish to express our appreciation of the admirable address of our Chairman and have followed his recommendations with interest as to these.

We favor the compilation of the biographs of our members and will add that this compilation should include not only biographs of members, present and future, but also those who have passed away, and that as quickly as time will permit.

We approve of the collection of this historical matter in some central point and suggest that until the Home of the Association is built, some college located at a central point be invited to give us space, where articles and biographical records can be placed.

If these ideas are carried out the care of the exhibit and records will require more time than we could expect from a volunteer and we therefore recommend that a custodian, preferably the Historian of the Association, be recompensed.

As to the recommendations of the Secretary, we approve of the Historian requesting duplicate files of journals for the historical collection.

We do not deem it advisable that the Editor turn his journals over to the Historian since files of journals should be in the library of the editorial office. It would be better to request duplicates either direct from journals or as donations from members.

C. M. FORD,
H. V. ARNY.

The communication was received.

F. J. Wulling, on behalf of the College of Pharmacy of the University of Minnesota, subject to the approval of the President and Regents of the University,

offered to exhibit and care for, in its fireproof building, the historical property of the American Pharmaceutical Association without cost to the Association.

Lewis C. Hopp offered, on behalf of the Cleveland College of Pharmacy, quarters for the storage and exhibit of the historical collection of the Association.

On motion of H. M. Whelpley, seconded by J. A. Koch, the communication and the several offers were referred to the Council of 1914-15.

The following recommendation from the Section on Pharmacopœias and Formularies was presented and laid on the table:

"It is recommended that Petrolatum replace benzoinated lard as the vehicle in ointment of zinc oxide of the Pharmacopœia."

A recommendation from the Conference of Pharmaceutical Faculties, session of August 26, 1914, was read. It was as follows:

"Moved by Dr. H. M. Whelpley that the American Pharmaceutical Association be requested to define a College of Pharmacy as an institution, meeting the requirements of the Conference of Pharmaceutical Faculties."

On motion of G. M. Beringer, seconded by F. J. Wulling, the communication was referred to the Association.

The following letter was presented, and on motion referred to the Association:

To the Council:

Gentlemen:—Following are recommendations made by the Chairman of the Recipe Committee, H. P. Hynson, before the Section on Pharmacopœias and Formularies and referred to the Council.

It is recommended to the Association, as a whole, the recommendations to be referred for consideration, as may be the Association's pleasure, as follows:

1st. That a permanent committee on Recipe Book be provided for, composed of seven members, appointed by the Council, and that vacancies be filled by that body.

2nd. That the Committee be authorized to collect recipes according to such rules as it may adopt, provided such rules are endorsed by the Council, it being understood that amendments to these rules shall also be endorsed by the Council.

3rd. That as soon as after the publication of the ninth revision of the Pharmacopœia and the fourth edition of the National Formulary, as practicable, the Committee's collections of recipes shall be published as a separate supplement to an issue of the Journal and a copy be furnished to each member of the Association with the issue of the Journal to which it may be a supplement.

4th. That the matter of publishing the recipes thereafter in book form be referred to the Council with power to act.

E. FULLERTON COOK,

Chairman of Section on Pharmacopœias and Formularies.

The following was presented to the Council from the Syllabus Committee:

The Syllabus Committee recommend:

First. The approval of the Syllabus by this Association.

Second. The annual appropriation of \$25 towards the expenses of the Committee.

The first suggestion was referred to the General Session to consider in connection with the report of the Committee on President's Address.

The second suggestion of an appropriation of \$25 was granted.

The following communication was received:

To the Council of the American Pharmaceutical Association:

Gentlemen:—On behalf of the Committee on Unofficial Standards, I submit the following report:

During the year there has been reported to the Council a number of monographs that have been tentatively adopted and these have been published in the Journal in accordance with the instructions of the Council at the Nashville meeting.

A number of other monographs have been considered by the Committee and their acceptance will soon be voted upon, so that a supplemental report to the Council can be made very shortly.

There has been considerable delay in our work because we have been awaiting the decisions of the Pharmacopœial Revision Committee as to the admission or deletion of quite a number of titles. These now appear to be definitely settled and we will have a basis for the additional work necessary for the N. F. standards.

The Chairman of the Committee accepts full responsibility for the delay of this year in the work of the Committee. The demands of other duties prevented him from giving the amount of attention to this Committee that it deserved. Being now relieved from other duties, he hopes to be able to take this up energetically and see that the work as far as the N. F. standards are concerned is completed at an early date.

Respectfully submitted for the Committee,

GEORGE M. BERINGER.

On motion of J. A. Koch, seconded by H. M. Whelpley, an appropriation of \$400 was made with which to pay the traveling expenses of the members of the Committee on National Formulary.

The complete report of the Committee on Publication and a supplemental report were presented. The former report was presented to the Council on the 24th inst., but the recommendations then made, with reference to the selection of a new Editor and General Secretary, that the matter be left to the Committee on Publication with power to act, was modified by eliminating the words, "General Secretary."

The supplemental report of the committee was as follows:

To the Members of the Council:

Gentlemen:—The Committee on Publication has asked for bids for the composition, electrotyping, printing and binding of the National Formulary, Fourth Edition, from the same printers as were asked to bid for the U. S. Pharmacopœia, Ninth Edition, and upon similar forms and specifications.

We recommend that the contract be awarded to the J. B. Lippincott Co., of Philadelphia, Pa., as the lowest and best bidder.

We recommend, also, that the Committee on Publication be authorized to invite bids for the agency and also of the National Formulary, Fourth Edition, along the lines of the forms and specifications used for the U. S. Pharmacopœia, Ninth Revision, and award the contract.

J. W. ENGLAND,

August 27, 1914.

Chairman of Committee on Publication.

The reports were received.

The recommendation that the matter of selecting an Editor be left to the Committee on Publication with power to act, subject to the approval of the Council, was approved.

The offer of the Lloyd Library was accepted.

On motion of G. M. Beringer, seconded by C. A. Mayo, the awarding of the

contract for the composition, electrotyping, printing and binding of the National Formulary (1V) to the J. B. Lippincott Company, of Philadelphia, was approved, and the Committee on Publication was empowered to make the necessary contract as soon as possible.

On motion of Philip Asher, seconded by F. M. Apple, the Committee on Publication was authorized to secure bids and make the necessary contract for the business agency and sale of the National Formulary, Fourth Edition.

The election for officers for the ensuing year was then held, the following being chosen:

General Secretary—William B. Day.

Treasurer—Henry M. Whelpley.

Reporter on the Progress of Pharmacy—C. Lewis Diehl.

Historian—Eugene G. Eberle.

The selection of a Local Secretary was referred to the Council of 1914-15.

Adjourned until Saturday, August 29, 1914.

J. W. ENGLAND, Secretary.

(SEVENTH SESSION OF THE COUNCIL FOR 1913-1914.)

The seventh session of the Council was held on Saturday, August 29, 1914, at 9 a. m., Chairman Eberle presiding.

Present: Messrs. Craig, England, Fennel, Godding, Hopp, LaPierre, Mayo, Nitardy, Richardson, Ruddiman, Seltzer, Whelpley and Wulling.

The following resolutions were passed by the House of Delegates and referred to the Council:

1. That the House of Delegates endorse the aims and purposes of the Chicago Veteran Druggists Association and recommend the formation of similar associations as Sections of the Local Branches of the A. Ph. A., provided that the members of such Association shall be also members of the American Pharmaceutical Association.

Decision: Approved.

2. That the American Pharmaceutical Association instruct its representatives in the National Drug Trade Conference to act immediately in connection with the representatives of the allied branches of the drug trade in the Drug Trade Conference to draft at the earliest possible moment a bill to reform the present patent law, registration of names of drugs and the granting of sole right to sell certain drugs to the people of the United States suitable to the best interests of the drug trade in the United States, and to urge its passage at the earliest possible opportunity, and the support of the A. Ph. A. is hereby pledged to such reform.

Decision: Approved.

3. That the A. Ph. A. make all possible effort to have only graduates of recognized schools of pharmacy nominated as members of the State Boards of Pharmacy by the State Associations and where possible have such amendments made to state laws as will make such qualifications a prerequisite.

Decision: Approved.

4. That the incoming president be and is hereby instructed to appoint a committee of three members, which committee shall confer with similar committees, appointed for the same purpose by other organizations, upon the advisability of forming a congress of national drug and pharmaceutical bodies under the auspices of the American Pharmaceutical Association. And be it further Resolved, That the results of the conference of these committees shall be reported to the several organizations represented and to the American Pharmaceutical

Association at their annual meetings in nineteen hundred and fifteen, with such recommendations as may be agreed upon.

Decision: Approved.

5. Whereas, The usefulness of the House of Delegates during its two years' existence, not having been such as was expected at the time of its installation, it is important that something be done to increase this usefulness; therefore, be it Resolved, That it is the sense of this House of Delegates that increased efficiency can be secured by making this body a permanent one instead of making its existence dependent upon the actions of the Council.

Decision: Referred to the Committee on House of Delegates appointed by the Council.

6. That it is the belief of the House of Delegates that the Year Book should contain abstracts of papers submitted by the members of the American Pharmaceutical Association and published in the Journal of the American Pharmaceutical Association.

Decision: Referred to the Committee on Publication with power to act.

7. That the President of the American Pharmaceutical Association, at the opening session of each annual convention, shall appoint an official censor whose duty it shall be to supervise matter given to representatives of the local press, and to insure that fair and accurate accounts of the proceedings and business of the Association during such meetings shall be fairly and accurately printed.

The subject of convention publicity received extended discussion.

F. J. Wulling moved, seconded by L. A. Seltzer, that the publicity work of the Association should be composed of two divisions: (1) preconvention work, (2) convention work.

(1) The preconvention work should be done by the Local Committee.

(2) The Convention work should be done by a committee composed of an Association Reporter, as Chairman, and the Chairmen of the several Sections of the Association and the General Secretary and Secretary of the Council as members who should report briefly in writing the proceedings and news of the several bodies to the Reporter, who should be the channel of communication to the press.

The motion was adopted.

8. That the principle in these two measures—the Metz Bill and the Stevens Bill, i. e., price standardization, be approved by this Association.

Decision: Adopted.

A vote on Motion No. 42 of Council Letter No. 27 on offer of Wm. S. Merrell Co., for assignment of patent rights for improved package for antiseptic poisons (which was an amendment of Motion No. 41 of Council Letter No. 26 on Assignment of Patent Rights for Improved Package for Antiseptic Poisons) was called for by J. A. Koch, seconded by C. A. Mayo, and the original motion was amended and as a whole was adopted.

The following applications for membership were presented and favorably acted upon:

No. 432. Geo. E. Doyle, 1190 West Fort St., Detroit, Mich., rec. by Wm. A. Hall and J. W. England.

No. 433. Adelbert P. French, 2782 Woodward Ave., Highland Park, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

On motion of H. M. Whelpley, seconded by J. A. Koch, the traveling expenses of the Secretary of the Council for this meeting were directed to be paid. The expenditure met with the approval of the Committee on Finance.

On motion of H. M. Whelpley, seconded by J. W. England, it was agreed that the Rules of Finance be so amended that the Committee on Finance shall audit all bills before payment is made.

J. A. Koch moved, seconded by F. J. Wulling, that the Acting General Secretary be requested to confer with the General Secretary elect, and arrange for the transfer of the property of the Association belonging to the secretarial office as soon as possible, and that the salary of the General Secretary elect be seven hundred and fifty dollars per annum and date as of September 1, 1914.

Adjourned.

J. W. ENGLAND, Secretary.

(FIRST SESSION OF THE COUNCIL FOR 1914-15.)

Immediately after the adjournment of the seventh session of the Council for 1913-1914, the first or organization meeting of the Council for 1914-15 was held on Saturday, August 29, 1914, at 10 a. m.

Chairman Eberle presided as Acting Chairman.

Present: Messrs. Whelpley, Wilbert, Eberle, Godding, Day, Shafer, Wulling, England, Hopp, Osseward and Mayo.

The following officials were elected:

Chairman—E. G. Eberle.

Vice Chairman—John G. Godding.

Secretary—J. W. England.

The Chairman and Secretary of the Council were named as the Committee on Nomination of Council Committees for 1914-15 to report to the Council later.

Adjourned.

J. W. ENGLAND, Secretary.

PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Sixty-second Annual Meeting, Detroit, Michigan, August 24th to 28th, 1914.
(First Session.)

The first session of the House of Delegates was called to order August 24th, at 8 o'clock p. m. in room "C" of the Convention Hall of the Hotel Pontchartrain.

The meeting was called to order by Chairman Clyde M. Snow, of Chicago.

The Chairman stated that the first order of business was the calling of the roll of delegates whose credentials had been approved by the Council, but that unfortunately the Council up to that time had not presented the roll of delegates whose credentials had been approved.

Chairman Snow stated he had discussed in a general way with some of the members the measures it would be best to adopt in the House of Delegates, and it seemed to be the opinion of the delegates in the room, at least, that the meeting proceed with the order of business so far as it can. It had been suggested that the Committee on Resolutions will have but little time to consider proposed resolutions, and it seemed well that the meeting should at least appoint a Committee on Resolutions and receive as many of them as possible from the members present.

Chairman Snow stated that under the Constitution and By-laws of the House of Delegates the second order of business was the election and installation of officers, but at the meeting at Nashville, the order of business was amended to make the election and installation of officers sixth in order instead of second, and that inasmuch as the credentials have not been approved by Council, the next order of business will be No. Three, the appointment of the Committee on Resolutions.

The Chairman then appointed as a Committee on Resolutions, William Mansfield, New York, Henry M. Faser, University, Miss., Cornelius Osseward, Seattle, Wash., Fred W. R. Perry, Detroit, Mich., Wm. B. Day, Chicago.

The Chairman then called for the fourth order of business, the reading of communications from the Association Sections and the Council. The Secretary reported that none had been received.

The Chairman then called for the fifth order of business, Reports, Resolutions, and Communications from the delegates.

Mr. Wilhelm Bodemann, of Chicago, offered the following resolution:

That the House of Delegates endorse the aims and purposes of the Chicago Veteran Druggists' Association and recommend the formation of similar associations as Sections of the Local Branches of the A. Ph. A., provided that the members of such Association shall be also members of the American Pharmaceutical Association.

The Chairman stated if there was no objection the resolution would be referred directly to the Committee on Resolutions.

Mr. George F. Payne, of Atlanta, Ga., inquired as to how old the applicants were required to be before they could be received into the membership of the Veteran Association. Mr. Bodemann replied that he had to be allied with pharmacy for a period of twenty-five years.

The Chairman then called for further resolutions from the delegates present.

Mr. Nitardy presented the following resolution:

Resolved, That the A. Ph. A. make all possible efforts to have only graduates of reputable schools of pharmacy nominated as members of State Boards of Pharmacy by State Associations, and where possible, have such amendments made to state laws as will make such qualifications a pre-requisite."

Mr. W. C. Alpers, of Cleveland, Ohio, stated he did not wish to oppose the motion, but desired to call the attention of the members present to the fact that the resolution might be unconstitutional. Under the state laws, certain persons are eligible to hold a position on the Board of Pharmacy. A man who is a licensed druggist has the same standing as though he held a college diploma, and the question was determined by the laws of the several states. He was in full accord with the desirability of the law, but he thought the result would not be attained in the manner proposed. The advisable thing would be to secure the passage of the pre-requisite law in every state, so that, in time, only druggists who are graduates of colleges would be eligible to the Boards, but the present members could not be legislated out of their rights. Mr. Alpers said he only mentioned this to obtain an expression of opinion.

Mr. R. H. Walker, of Gonzales, Texas, said he thought the proposition was, as offered, a violation of state rights. You could not make New York or any other state adopt it if they did not want to. The legislation proposed was a state matter and if a date were named when it should take effect that most of the

states would encourage its passage. For instance, at the present time a proposed amendment was being considered by the Legislature in Texas which if passed would take full effect in 1920. It provides that no person could be a member of the Board of Pharmacy unless he were a graduate of a reputable college, and the amendment defines a reputable college. The State Association is favoring this amendment, but they realized that you have to bring about such a reform gradually: the first step will be made in 1916, a further step in 1918 and by 1920 a person will have to be a full fledged pharmacist, to be a member of the Board of Pharmacy in Texas. He hoped the measure would be passed and they were all working with that end in view.

Mr. Chas. M. Ford, of Denver, Col., stated it was well known that there were men on some state boards of pharmacy who are not pharmacists and that this whole subject had been covered by the President in his address and had been referred to the Committee on President's Address and therefore this question, in a very elaborate and fundamental way, was before that committee. He thought the matter had been so well covered by the President that it could be dropped.

Mr. P. A. Mandabach, of Chicago, suggested that there be interjected in the resolution that it was the sense of this body to recommend to the various state associations, that they select for future appointments graduates in pharmacy, stating he believed this would eliminate the chief contention.

Mr. C. Osseward, of Seattle, said that Washington did not have such a law, but the State Board has made a ruling that, under the pharmacy law of that state, the Board has the right to prescribe the preliminary education of students, and they had made the ruling that the preliminary education required is a three-year college course, and next month the first examination would be held under this ruling.

Mr. Nitardy explained to Mr. Osseward that his resolution did not have reference to the preliminary education of pharmacists, but simply had reference to the qualifications for membership on Boards of Pharmacy.

Mr. Chas. T. P. Fennel, of Cincinnati, said he thought the proposed resolution would be absolutely unconstitutional; that in the first place, every Governor of every state had a right to appoint whoever he saw fit as a member of the Board of Pharmacy, whether he was a pharmacist or not, although the State Association could recommend, the Governor could go outside the recommendation and did so occasionally. He did it in the State of Ohio and the matter was fought through the courts to the Supreme Court of the state and Governor Hoadley was upheld; the court deciding that the Governor had the right to go outside the recommendation; and he believed that Governor Dean, of Illinois, had done the same thing.

Mr. Gordon said he could not see that the recommendation was unconstitutional. It simply recommended that the American Pharmaceutical Association do all it can to bring this about and asked Mr. Nitardy if that were not correct. Mr. Nitardy replied that it was, and said there was nothing unconstitutional about it. The Governor's power of appointment under the proposed resolution was simply limited to the appointment of graduates of schools of pharmacy as members of the Boards of Pharmacy.

Prof. Albert Schneider, of San Francisco, said he had been very much inter-

ested in the discussion with regard to the powers of the Governor. He asked what could be done with the chief executive of a state who absolutely refused to make any appointments whatsoever. He said that the Governor of California had absolutely refused to appoint any member on any board, either old members or new members, and he believed Illinois had had some such experience.

Mr. Whelpley moved the reference of this resolution to the Committee on Resolutions; motion adopted.

Mr. Frederick T. Gordon then submitted the following resolution:

"Resolved, That the American Pharmaceutical Association instruct its representatives in the National Drug Trade Conference to act immediately in connection with the representatives of other allied branches of the drug trade in the drug conference, and to draft at the earliest possible moment a bill to reform the present patent laws of the United States suitable to the best interests of the drug trade of the United States, and to urge its passage at the earliest possible opportunity, and that the support of the American Pharmaceutical Association is hereby pledged to such reform."

Referred to the Committee on Resolutions.

Mr. Hynson said he was very serious in what he was about to offer and he asked for the sincere and earnest thought of all the delegates. Mr. Hynson said he wanted to say by way of explanation that he had the greatest respect for the House of Delegates as a House of Delegates, representing so many pharmacists throughout the United States, and that he also had great respect for the organization of pharmacy from a national standpoint; that it had been his duty to study national organization and he had found that pharmacy as a whole is beautifully and wonderfully organized—unusually well organized; that every interest of pharmacy that he knew of, except possibly the errand boy and the scrub woman, was organized into a splendid national organization, and he thought it was time now, under the auspices of the American Pharmaceutical Association for those national associations to be correlated into a body to treat upon subjects of general import.

He offered the following amendment to the Constitution and By-Laws of the House of Delegates:

AMENDMENT TO BY-LAWS.

"Amend Chapter 2, Article 1, to provide that: the representation or the membership of the House of Delegates shall consist of three regularly elected or appointed delegates from each of the several pharmaceutical associations, all of whom shall be members of the American Pharmaceutical Association."

In discussing his amendment Mr. Hynson said he had the greatest respect for every delegate present; that he had great respect for every representative present and for every Association that was represented in the House of Delegates, but that it was an unequal representation; that the National Associations, International Associations, medical societies, local societies, state societies, local branches and every other body that he knew of, were well represented except the State Associations. The local branches were now represented in the Council, and the national associations should be represented in that senate, meaning the Council. There were but few other scattering bodies and there might be some great associations who would send their delegates to the general session of the American Pharmaceutical Association. Mr. Hynson asked them to think over the matter and stated, in his opinion, it would be a fine thing if all the members of the House

of Delegates were equal members and there was an exact equality of members, each member representing his state association.

Mr. Hynson assured the members that he had no object in this other than to help the profession which he had worked and labored in, and to make it better for those who are to follow, and a more honorable profession in every way.

Mr. Hynson further said in support of his amendment that, while there might be delegates who felt that other associations should be represented in the House of Delegates, they would never have an effective, active, working body unless they had equal representation, a representation equally responsible and consisting of delegates of equal power.

Mr. Hynson also offered the following resolution:

"Resolved, That the incoming President be, and he is hereby instructed to appoint a committee of three members, which committee shall confer with similar committees appointed for the same purpose by other organizations to consider the advisability of forming a congress of national drug pharmaceutical bodies under the auspices of the American Pharmaceutical Association; and

"Be It Further Resolved, That the results of the conference of these committees shall be reported to the several organizations represented, and to the American Pharmaceutical Association at their annual meetings in 1915,—most of which will be held in San Francisco, with such recommendations as may be agreed upon."

Mr. Hynson stated there was nothing radical or secret about this matter. It had simply been evolved in his mind and in the minds of a great many others, that these great associations which are so well organized and so well represent pharmacy in all its branches, should be correlated in some concrete body, and as he proposed, that body should consist of three representatives from each national association, and he believed a great deal of good would come out of it; that this was simply a matter to be passed on to the Committee on Resolutions, and the amendment to the By-laws should be taken up at a subsequent session.

The Chair then stated that he trusted the delegates all understood that Prof. Hynson had brought up two matters, one being an amendment to the Constitution and By-laws of the House of Delegates, which could be voted upon at the next meeting, and that the resolution which he had offered, unless there were objections, would be referred to the Committee on Resolutions.

Mr. Whelpley took the floor and requested that every one register so they could get on the official record; also made an announcement as to the button of the Association.

The House of Delegates then adjourned to 7:30 p. m., Tuesday, August 25, 1914.

SECOND SESSION.

The second session of the House of Delegates was held August 25th, 1914, at 7:30 p. m. in Room C. of the Convention Hall of the Hotel Pontchartrain.

The first order of business was the calling of the roll of delegates, as follows:

Bureau of Medicine—Willard G. Steadman, Jr., U. S. Navy, Navy Recruiting Station, Detroit.

Bureau of Chemistry—Dr. George W. Hoover.

Bureau of the Public Health Service—M. I. Wilbert, Washington, D. C., Dr. G. A. Morris.

Department of Commerce Bureau of Standards—Dr. F. A. Wolff.

American Medical Association—Dr. R. Sollman, Dr. A. H. Hewlitt, Prof. W. A. Puckner.

The American Association Pharmaceutical Chemists—E. N. Webb, Columbus, O., Ralph R. Patch, Boston, Mass., J. Weinkauff, Chicago, Ill. *Alternates*—Dr. C. H. Searle, Dr. O. S. Burdick, F. A. Thompson.

Cuban Pharmaceutical Association—Gerardo Fernandez Abreu, F. Herrera.

National Association Boards of Pharmacy—T. A. Miller, Richmond, Va., J. W. Gayle, Frankfort, Ky., F. C. Dodds, Springfield, Ill.

National Association of Drug Clerks—P. A. Mandabach, Chicago, Chas. H. Bowersox, Columbus, Ohio, Milo Miller, Mansfield, Ohio.

National Association, Manufacturers of Medicinal Products—Chas. M. Woodruff, Detroit, Mich., Dr. A. R. L. Dohme, Baltimore, Md., B. L. Murray, New York City, N. Y.

National Association Retail Druggists—Chas. F. Mann, Chairman, Detroit, Wilhelm Bodemann, Chicago, Ill., William S. Flint, Boston, Mass.

National Wholesale Druggists' Association—James E. Davis, Detroit, F. E. Bogart, Detroit, Lee M. Hutchins, Grand Rapids.

New Orleans C. P. Alumni Association—Norman C. Richards, Ph. G., New Orleans, John B. Murphy, Ph. G., New Orleans.

Massachusetts College of Pharmacy, Alumni Association—Frederick W. Archer, Dorchester, Jennie H. Summer, I. P. Gammon.

Alumni Association College of Pharmacy City of New York—Thomas F. Main, New York.

Albany College of Pharmacy—Alfred B. Husted, Wm. A. Larkin.

Brooklyn College of Pharmacy—Dr. Wm. C. Anderson, Dr. Henry W. Schimpf, Dr. Jacob H. Rehfuß.

Buffalo College of Pharmacy—Willis G. Gregory, Frank E. Lock, Albert P. Sy.

Cincinnati College of Pharmacy—Chas. T. P. Fennel, Fred S. Kotte, Chas. F. Harding.

Colorado School of Pharmacy—Homer C. Washburn, John B. Edeley, Francis Ramaley.

Creighton College of Pharmacy—Prof. I. Curtis Arledge, Herbert F. Gerald, M. D.

Illinois School of Pharmacy—C. M. Snow, Chairman, A. H. Clark, E. N. Gathercoal.

Iowa College of Pharmacy—Wilber J. Teeters, R. A. Kuever, Zada M. Cooper.

Jersey City College of Pharmacy—Otto Raubenheimer, Ph. D.

Kansas School of Pharmacy—L. D. Havenhill, G. N. Watson, L. E. Sayre.

Louisville College of Pharmacy—C. Lewis Diehl, Ph. M., John D. Lansing, Ph. G., Wm. Votteler.

Maryland College of Pharmacy—Henry P. Hynson, E. Frank Kelly, Chas. Caspari, Jr.

Massachusetts College of Pharmacy—Theo. J. Bradley, Elie H. LaPierre, John G. Godding.

Michigan School of Pharmacy—J. O. Schlotterbeck, A. B. Stevens, W. S. Hubbard.

Minnesota College of Pharmacy—Frederick J. Wulling, Edwin L. Newcomb, Gustav Bachman.

Nebraska School of Pharmacy—Rufus A. Lyman, Elsie Day.

New York College of Pharmacy—Geo. C. Diekman, Chairman, H. H. Rusby, M. D., Harry V. Arny, Ph. D. *Alternates*—Ewen McIntyre, Ph. G., Chas. Holzhauser.

Ohio Northern College of Pharmacy—D. C. Mohler, Rudolph Raabe.

Ohio College of Pharmacy—Clair A. Dye, Edward Spease, Geo. B. Kauffman.

Oklahoma School of Pharmacy—Chas. H. Stocking.

Philadelphia College of Pharmacy—Joseph P. Remington, F. X. Moerk, Chas. LaWall. *Alternates*—E. F. Cook, E. P. Stroup.

Pittsburgh College of Pharmacy—J. A. Koch, J. H. Beal, J. C. Wallace.

Purdue School of Pharmacy—C. P. Jordan, A. H. Dewey, W. F. Gidley.

St. Louis School of Pharmacy—Prof. Chas. E. Caspari, H. M. Whelpley, M. D., Prof. Alfred W. Pauley.

Texas Christian University, Medical Department—R. H. Needham, Cassius C. Martin, Chas. L. Taylor.

Valparaiso School of Pharmacy—Geo. D. Timmons, Eber H. Wisner, Mason L. Weems.

Vanderbilt University Department of Pharmacy—E. A. Ruddiman, J. T. McGill, M. E. Hutton.

Virginia School of Pharmacy—Albert Bolenbaugh, Chairman, Wortley F. Rudd, Chas. O. Lee.

George Washington University Department of Pharmacy—Henry E. Kalusowski, Willard S. Richardson, Lewis Flemer.

Cleveland School of Pharmacy—W. C. Alpers, W. T. Hankey, Lewis C. Hopp.

Pharmacy Department Detroit Technical Institute—B. D. Edwards, W. Ward, Ph. G., R. T. Lakey, B. Sc.

Northwestern University School of Pharmacy—John H. Long, Harry M. Gordin, Maurice A. Miner.

Highland Park College of Pharmacy—E. O. Kagy, R. L. Parker.

Medico-Chirurgical College of Philadelphia—J. W. Sturmer, C. E. Vanderkleed. *Alternates*—Dr. F. E. Stewart, Paul S. Pittenger.

STATE ASSOCIATIONS.

Alabama Pharmaceutical Association—L. C. Lewis, Tuskegee, Ala., Carl Whorton, Gadsden, Ala., S. L. Toomer, Auburn, Ala.

Colorado Pharmaceutical Association—F. W. Nitardy, Denver, Colo., C. M. Ford, Denver, Colo.

Connecticut Pharmaceutical Association—Chas. A. Rapelye, Hartford, Conn., P. T. Garvin, Bethel, Conn., Arthur E. Lathrop, Simsbury, Conn.

Delaware Pharmaceutical Society—Herbert J. Watson, Newark.

Florida State Pharmaceutical Association—Macon Thornton, Ormond; E. Berger, Tampa, W. J. Maloy, White Springs.

Georgia Pharmaceutical Association—Dr. Walter L. Meadows, Columbus, Ga., Dr. G. B. George, Gainesville, Ga., Dr. Ben S. Persons, Macon, Ga.

Illinois Pharmaceutical Association—C. H. Avery, Chicago, Ill., J. C. Wheatcroft, Greyville, Ill., W. B. Day, Chicago, Ill.

Indiana Pharmaceutical Association—Chas. A. Jordon, Lafayette, Ind., Frank H. Carter, Indianapolis, Ind., Geo. D. Timmons, Valparaiso, Ind.

Kansas Pharmaceutical Association—Mathias Noll, Atchison, Kan., W. E. Sherriff, Ellsworth, Kan., L. E. Sayre, Lawrence, Kan.

Kentucky Pharmaceutical Association—C. Lewis Diehl, Louisville, Ky., L. A. Brown.

Pennsylvania Pharmaceutical Association—Louis Emanuel, Pittsburg, Pa.

South Carolina Pharmaceutical Association—Sam Hodges, Greenwood, S. C., J. P. Glenn, Jr., Liberty, S. C., C. H. McMurray, Abbeville, S. C.

South Dakota Pharmaceutical Association—Edward C. Bent, Dell Rapids, S. D., Geo. F. Swartz, Red Field, S. D.

Tennessee Pharmaceutical Association—F. W. Ward, Memphis, Tenn., M. E. Hutton, Nashville, Tenn., J. L. Sonner, Knoxville, Tenn.

Texas Pharmaceutical Association—E. G. Eberle, Dallas, Texas.

Utah Pharmaceutical Association—John Culley, Ogden, Utah.

Virginia Pharmaceutical Association—T. A. Miller, Richmond, Va., Geo. T. Mankin, Falls Church, Va., E. S. Eley, Suffolk, Va.

Washington Pharmaceutical Association—Dr. C. W. Johnson, Seattle, C. Osseward, Seattle.

Wisconsin Pharmaceutical Association—Edward Kremers, Madison, Wis., Otto J. S. Boberg, Eau Claire, Wis., Geo. H. Kesten, Milwaukee, Wis.

District of Columbia Retail Druggists' Association—F. T. Stone, Washington, D. C., Lewis Flemer, Washington, D. C.

California Pharmaceutical Association—Mrs. Fletcher Howard, W. H. Guest, Dr. Albert Schneider.

New York County Pharmaceutical Society—J. Leon Lascoff, Otto Raubenheimer, Thomas Latham.

New Yorker Deutscher Apotheke Verein—Prof. Otto Raubenheimer, Geo. T. Riefflin, Prof. Harry V. Army.

Vermont State Pharmaceutical Association—C. H. Skinner, E. G. McClallen.

King's County Pharmaceutical Society—Wm. C. Anderson.

Kentucky Pharmaceutical Association—C. Lewis Diehl, Louisville, Ky., L. A. Brown, Lexington, Ky., Robin H. White, Mt. Sterling, Ky.

Maine Pharmaceutical Association—Frank H. Tupper, Chairman, Martin L. Porter, Danforth, Me., Chas. H. Davis, Bangor, Me., W. J. Jackman, by proxy.

Maryland Pharmaceutical Association—Dr. Henry P. Hynson, Baltimore, Md., Dr. John F. Hancock, Baltimore, Md., Dr. D. R. Millard, Baltimore, Md.

Massachusetts Pharmaceutical Association—Arthur C. Morey, Brookline, Mass., Prof. C. F. Nixon, Leominster, Mass.

Minnesota Pharmaceutical Association—J. Eckstein, Clear Lake, Minn., Frederick J. Wulling, Minneapolis, Minn., W. A. Frost, St. Paul, Minn. *Alternates*—H. Martin Johnson, St. Paul, Edwin L. Newcomb, Minneapolis, Minn.

North Dakota Pharmaceutical Association—J. S. Miller.

Missouri Pharmaceutical Association—Chas. E. Zinn, Wm. Mittelbach.

Nebraska Pharmaceutical Association—N. P. Hansen, Lincoln, Neb., D. J. Fink, Holdrege, Neb., Autumn V. Pease, Fairbury, Neb.

New Hampshire Pharmaceutical Association—N. S. Whitman, Nashua, N. H., John I. Hoyt, Penacook, N. H., Dante Smith, Manchester, N. H.

New Jersey Pharmaceutical Association—Geo. M. Beringer, Camden, N. J., Chas. Holzhauser, Newark, N. J., Geo. M. Andrews, Woodstown, N. J. *Alternate*—Jeannot Hostman.

New York Pharmaceutical Association—Caswell A. Mayo, Brooklyn, N. Y., Albert B. Husted, Delmar, N. Y., Joseph Weinstein, New York, N. Y.

North Carolina Pharmaceutical Association—E. V. Howell, Chapel Hill, N. C., E. V. Zoeller, Tarboro, N. C., G. P. Greyer, Morgantown, N. C.

Ohio Pharmaceutical Association—Chas. L. McIntyre, St. Marys, Ohio, Edward Thiesing, Cincinnati, Ohio, Chas. S. Ashbrook, Mansfield, Ohio.

Oklahoma Pharmaceutical Association—Winfield Scott Samuels, Pawuska, Okla.

Pennsylvania Pharmaceutical Association—Louis Emanuel, Pittsburgh, Pa., Chas. H. LaWall, Philadelphia, Pa., Joseph L. Lemberger, Lebanon, (Chairman).

Boston Association of Retail Druggists—Elie H. LaPierre, C. Herbert Packard, John G. Godding.

Syracuse Drug Association—David Stolz.

BRANCHES.

Chicago Branch American Pharmaceutical Association—Wilhelm Bodemann, William Gray, I. A. Becker.

Cincinnati Branch—Theo. D. Wetterstroem, F. H. Freericks, C. G. Merrell.

Columbus Branch American Pharmaceutical Association—Edward Spease, M. N. Ford, Geo. T. Lehman.

Denver Branch American Pharmaceutical Association—Prof. H. C. Washburn, Hugh SeCheverell.

Nashville Branch American Pharmaceutical Association—Dr. E. A. Ruddiman, Dr. J. M. Rogoff, F. W. Ward.

New England Branch American Pharmaceutical Association—Carlton B. Wheeler, Fred A. Hubbard, Wm. A. Glover.

New York Branch American Pharmaceutical Association—Caswell A. Mayo, J. Leon Lascoff, Dr. Jeannot Hostmann.

Northwestern Branch American Pharmaceutical Association—D. F. Jones, Watertown, S. Dak.

St. Louis Branch American Pharmaceutical Association—Glenn A. Burkhart, Theodore C. Hagenow, A. W. Pauley.

Washington City Branch American Pharmaceutical Association—W. S. Richardson, L. F. Kebler, M. I. Wilbert.

Northern Ohio Branch, American Pharmaceutical Association—W. C. Alpers, W. T. Hankey, A. L. Flandermeier.

WOMEN'S ASSOCIATIONS.

Women's Pharmaceutical Association of the Pacific Coast—Miss Clarissa M. Roehr, Dr. Josephine E. Barbat-Winslow, Mrs. K. K. Voluntine.

Women's Organization National Association Retail Druggists—Mrs. J. W. England, Mrs. E. H. LaPierre, Mrs. Chas. Mann.

The following Delegates have credentials from two or more Organizations and according to By-Laws of the House of Delegates, should choose whom they will represent :

L. E. Sayre, C. L. Diehl, H. P. Hynson, F. J. Wulling, E. G. Newcomb, Ch. Holzhauer, Chas. LaWall, Geo. T. Timmons, L. Flemer, Wm. Bodemann, E. Spease, H. C. Washburn, E. A. Ruddiman, J. M. Rozoff, M. I. Wilbert, C. A. Mayr, J. Hostman, F. P. Stroup, A. W. Pauley, J. L. Lascoff, Otto Raubenheimer, H. V. Army, W. C. Alpers, W. T. Hankey, L. C. Hopp, Dr. A. Schneider, J. G. Godding, E. H. LaPierre, Wm. C. Anderson.

Respectfully submitted,

Signed

(Signed) PHILIP ASHER.

F. E. STEWART.

F. W. NITARDY, Chairman.

Sixty-one answered as being present.

The Chair stated there still seemed to be some confusion about the recognition of delegates, and trusted that every member present would recognize the fact that the House of Delegates in itself, could not recognize a delegate unless his credentials had been approved by the Credentials Committee of the Council. Unless his credentials had been approved by the Council a delegate had no standing in the House of Delegates.

The Chair then, for the information of the Delegates who were not present at the first meeting, stated that he had named the following as the Committee on Resolutions:—William Mansfield, New York, Henry M. Faser, University, Miss., Cornelius Osseward, Seattle, Wash., Fred W. R. Perry, Detroit, Mich., Wm. B. Day, Chicago.

The Chair called for the reading of communications from the Association Sections and the Council. The Secretary informed him there were none.

The Chair then called for reports, resolutions and communications.

Mr. Jeannot Hostmann, of Hoboken, N. J., offered the following resolution:

"Be It Resolved, That it is the belief of the House of Delegates that the Year Book of the A. Ph. A. should contain abstracts of all papers submitted by members of the A. Ph. A. and published in the Journal."

He stated, as a reason for this resolution, that at the present time the papers submitted at the meetings are not abstracted and the only place to get them *in toto* was in the Journal.

Referred to Committee on Resolutions.

Professor W. S. Jackman, of Detroit, read a communication from the Maine Pharmaceutical Association, asking that the Association meet in Maine in 1917 and assist the Maine Association in celebrating their fiftieth anniversary.

Mr. Woodruff, of Detroit, stated that while he had no resolution to offer, with the unanimous consent of the delegates, he would like to give them a very important piece of information. He stated that in Arizona they are to vote next November upon a constitutional amendment which will absolutely prohibit the introduction of wines, spirits, liquors or alcohol in any form, denatured alcohol being excepted from the provisions of the amendment; that those who are campaigning in favor of this proposed constitutional amendment are claiming that denatured alcohol will answer all the requirements of pharmacy and that the Government has especially provided denatured alcohol for that purpose; that the inquiry came to him from Arizona as to whether that was true, and the last he knew about the law permitting the manufacture and use of denatured alcohol was that it absolutely prohibited it to be used for liquid medicinal preparations. He stated he did not know but what possibly some amendment had been made to the law that he had not heard of that would warrant the assertion of the campaigners in Arizona, and in order to find out, he called up the Revenue Office in Detroit and they advised him if there had been any such amendment they had not heard anything about it. Evidently the people in Arizona who are so anxious to amend their state law are either mistaken as to the Federal law or they are deliberately deceiving the people.

He stated further that if any delegates were present from Arizona this would undoubtedly be interesting information to them. In any event it is of academic interest to all the delegates because they ought to know that denatured alcohol cannot be used in liquid medicinal preparations.

Mr. Gordon then presented the following resolution:

"Resolved, That the President of the American Pharmaceutical Association at the opening session of each annual convention shall appoint an official censor whose duty it shall be to supervise the matter given to the representatives of the local press to insure that fair and accurate accounts of the proceedings and business of the Association during such meetings alone are printed."

Mr. Gordon stated he offered the resolution in view of the article that appeared in one of the Detroit papers that morning which would give the impression to the lay public that the President of the Association had recommended that the druggists have the mails thrown open to the free transmission of "dope" in medicines and drugs, the word "dope" being printed in big black type. That of course we understood perfectly well what the President's recommendation meant; that pharmacists should be allowed to receive packages, such things as heroin tablets from the wholesale druggists, but that the way the headlines were worded, it would seem that the American Pharmaceutical Association was trying to have

the mails thrown open to the free distribution and traffic in "dope," and therefore he thought an official censor should be appointed at each meeting to supervise as far as possible the matter given to the press and the way it is to be handled.

The Chair stated if there was no objection, the resolution would be referred to the Committee on Resolutions.

Prof. Otto Raubenheimer, of Brooklyn, said he did not quite understand what a censor could do; that such things must be done before the articles are printed. It was the duty of the Publicity Committee to furnish proper news and proper publicity to the papers, which was done at the Nashville meeting.

Mr. Gordon replied it would be the censor's duty to see that a fair and accurate account is printed. He would have that for his special duty and nothing else, and if he could not manage to get out a fair account, then he could be "fired" and another censor appointed.

Mr. Woodruff said that the resolution was practical enough so far as the text of the matter supplied to the press was concerned, but wanted to know how the censor could control the headlines; that the censor could give the press any account he pleased, but the newspapers would put any scare head over it they wanted to.

Mr. Gordon explained that the idea would be for the representatives of the press to come to the censor, and that his experience had been that newspaper reporters are very decent fellows, and if they knew that there was an official appointed to furnish the press with whatever information the Association desired, it would act in the nature of a check on irresponsibility. He did not claim that the scheme would absolutely prevent such things as had occurred that morning, but it would be a step toward preventing it, would not do any harm and might do some good.

Mr. Hynson stated that there is a press committee of the American Pharmaceutical Association which has this matter in charge, but that in this instance, unfortunately, it had slipped through that committee, and that the Chairman had told him a half hour ago that it had worried him very much and he had sought a correction in that afternoon's paper, and the correction would be found in the same paper. Mr. Hynson said he thought the members ought to know there was a press committee which was active, and that Mr. Harry Mason happened to be chairman that year, and that this was simply an unfortunate slip.

The Resolution was referred to Committee on Resolutions.

Mr. William Gray, of Chicago, stated that he would like to call upon Prof. Remington to say something about the Pharmacopœia.

The Chair stated he was sure that every member present would be interested in anything that Prof. Remington had to tell them about the Pharmacopœia.

Prof. Remington then said that there was to be a meeting of the Section on Pharmacopœias and Formularies the following morning when the Pharmacopœia would be discussed; that he would say now briefly that the Pharmacopœia was now in press; that they had started to print the book and that there had been sent to the printer about 200 pages of the back part, covering volumetric solutions and the tables and the part of the Pharmacopœia which will be used in correcting the text of the book; that naturally, the standard tables were in the back

part of the book; that they must be corrected and amended and gotten exactly right. Each member of the committee would get a copy of these tables and they would be used when they started in with the text; and they would start in on the text immediately after this part of the work is through. He might say incidentally that the British Pharmacopœia was finished and that he fully expected to have a copy of it to show to the members at this meeting; but word come from the editor that the book would not be issued at all. As a result of the war they had held up the publication and the printing of the Pharmacopœia. Prof. Remington said he mentioned this as a matter of interest to the members because possibly some of them did not begin to realize what this war is going to mean to the future. He did not know the specific reasons for withdrawing the work or postponing publication. There were still a number of questions to be settled and the Committee on Revision was to have a meeting before the adjournment to go over the situation. Outside of a few things there seemed now to be nothing, after the tables are printed, in the way of going right ahead with the book. It would probably take four months to read the proof sheets, and it might take longer in case any questions came up, so he could not at that time set the date of the publication of the Pharmacopœia, but unless the United States became involved in war, the United States Pharmacopœia would appear before the British Pharmacopœia.

Mr. Hynson, under the question of unfinished business brought up the amendment he offered to the by-laws at the first session, stating that he was quite anxious for the House of Delegates to seriously consider this matter, as he believed the life of the House of Delegates was somewhat dependent upon a readjustment of the delegations, and if he was not mistaken, this idea of making it a body of equal delegates representing the splendid state associations would be a successful solution of the trouble. He thought it should appeal to the delegates as an opportunity for the organization and correlating of the state associations of this country under the auspices of the American Pharmaceutical Association, and it seemed to him so patent a thing as to hardly need any argument.

Mr. Hynson moved that this amendment be adopted by the Association. If the amendment were voted down, he would feel that his responsibility had been relieved and he had gotten the matter out of his system and the delegates had taken the responsibility and the House of Delegates into their hands.

Mr. Weinstein, of New York, wanted to be informed whether the proposed amendment would bar colleges from sending delegates to the American Pharmaceutical Association, as they had been doing in former years. In other words, whether Doctor Hynson means to separate the House of Delegates for executive work, for resolutions, etc., from the general sessions of the Association and whether the proposed amendment meant the delegates could not be received in the House of Delegates but on the floor of the general meeting.

The Chairman said that this certainly would not prevent the sending of delegates.

Mr. Hynson in reply to Mr. Weinstein, said if an association were of sufficient importance to claim representation, they should be received. Delegates by courtesy are sent to this association from, for instance, the American Medical Association and the American Chemical Association, and that those national asso-

ciations were of sufficient importance to be received in open session at the opening meeting, as had been heretofore done, but it was not to be supposed after the passage of this resolution, if it was passed, and the House of Delegates reorganized along this line,—that they would ask for and receive delegates from local associations or from colleges or from other organizations as had been the practice. The reason that those delegates came in the past was because they had no national representation in a regular national association, but that this was no longer true and they had such representation so that there was no need for a college of pharmacy for illustration, sending a delegation to the House of Delegates as they had representation in their own national organization which was affiliated with the American Pharmaceutical Association.

Mr. Weinstein said that it was not clear to his mind yet; what he wanted to know was whether delegations from the bodies he mentioned could be sent to the American Pharmaceutical Association and not to the House of Delegates. If the intention was to make the House of Delegates a true representative institution of the states, and each state send three delegates for the purpose of passing upon resolutions and doing executive work, he heartily supported the amendment; if it meant that it would bar delegates from the retail drug associations, the colleges of pharmacy or an organized association of any other order, who now have the right to come here as delegates to the main body of the Association and who are granted the privilege of the floor and accepted as delegates, then he opposed the amendment.

Mr. Hynson replied that he could not see how the proposed by-law could prevent these people from coming to the Association as delegates, but he hoped it would bar delegates from any association other than a national body, and there was no reason why the American Pharmaceutical Association should at this time receive delegates from every college and every local association; and he believed that the affairs of the Association would get along very much better if the small local associations would send representatives to the American Pharmaceutical Association through their national association in which they are already represented.

Mr. Raubenheimer said the idea of Professor Hynson, in his mind, was an excellent one, and he would certainly be in favor of it.

To inform Mr. Weinstein, Mr. Raubenheimer stated that the delegates from the smaller associations do not bring greetings as the National Associations do to the A. Ph. A. He referred to the delegate from the American Medical Association, and to Mr. Bodemann of the National Association of Retail Druggists who brought the greetings of these associations to the A. Ph. A. The adoption of this amendment would disbar small associations of retail druggists from sending delegates to the A. Ph. A. or the House of Delegates. He said if the smaller associations had any question they wished to bring before the A. Ph. A., they could appeal to the state association and ask the state association to bring such matters before the A. Ph. A.

Mr. Frank H. Freericks, of Cincinnati, Ohio, stated that he did not wish to appear as opposing anything that his friend Doctor Hynson proposed, but it occurred to him that the real sense of the amendment was that the House of Delegates as constituted at the present time is really not representative. In

other words, that it is not big enough because it is made up of the various representatives of the various smaller organizations. It seemed to him they were getting just a little away from the original purpose which caused the founding of the House of Delegates. If he remembered correctly, the primary purpose in founding the House of Delegates was to give the men who represented the smaller associations, and who were unacquainted, an opportunity to get in somewhere, and to know that they represented something and that the others who were there were there because they represented something. The House of Delegates originally, if he understood correctly, was organized primarily as a sort of clearing-house and to do away with a great many things that interfered with the general work of the association and give everybody an opportunity to be heard more or less. He agreed that up to this time the original plan had not worked out properly and that there was something missing. There was not the proper spirit about it. There might be a reason for it which they might be able to remedy, but he was not prepared to say that Professor Hynson's proposition of limiting the representation exclusively to delegates from State Associations was not a good one. He recalled in the early days when he attended the A. Ph. A. convention when he didn't know anybody, and when he came as a representative from a small local association, it would have made him feel much better if he had known that he had a place in the Association somewhere, and it was that very thought that caused the formation of the House of Delegates.

He did not want to appear as opposing the proposition as submitted by Dr. Hynson, for everyone would agree that there was something lacking in the matter of the conduct of the House of Delegates and of preparing its work. If it was to have any work to do, it should be work that would be of service. He recalled that the House was rather hurriedly organized and brought into life at Denver; that there were some who were instrumental in its organization who had given it much thought, but possibly not developed thought, and who may not have been called upon to add to what they originally proposed and to further work it out. It occurred to him that a better purpose might be served if a committee were appointed to thoroughly study the activities of the House of Delegates and the work that might be turned over to it, rather than to undo the original idea, and doing away altogether with representatives from the smaller associations in the body. It seemed to him it would be worth while to give it study, and in that connection he did not think the proper effort had been made in the way of giving notice to the various local associations to prepare resolutions and present them. He did not think that anything along that line had been done particularly, or if it had been done, it had been done after the various associations had held their meetings so they could not prepare resolutions. He thought those were the things that should be worked out so that instead of having a purposeless meeting of the House of Delegates, something might be done that would be really worth while and done without changing the manner in which the House of Delegates is at present made up.

Mr. Hynson asked Mr. Freericks what he would think if the House of Representatives at Washington were composed of members from the state; or the congressional districts, and also from the counties.

Mr. Freericks replied that he fully agreed with Mr. Hynson's argument if the

House of Delegates were really to be the all-important body of the Association, but he was not willing to grant that it was to be the all-important body of the Association; he believed that the general sessions of the Association should continue to be the all-important sessions of the meetings.

While he heartily agreed with the contention that it seemed idle to bring delegates together from the larger associations, the national associations and state associations and the smaller associations, still it was not originally the intent of forming the House of Delegates to constitute or be constituted of representatives simply from the important organizations. The purpose of creating the House of Delegates was to make it a sort of clearing-house for things that could not be otherwise handled. He realized that it was not serving a good purpose at the present time because it was doing no work, but he did believe that if a committee were appointed to study out proper functions for the House of Delegates, it could do good work and it would really serve the purpose for which it was originally intended.

Mr. Gordon said that the by-laws creating the House of Delegates provide places for the delegates from the small colleges and small associations who come in and find they have no other place in the workings of the association. The House of Delegates was originally thought out by Professor Beal to provide a place for all of these delegates in the association and to give them some work to do, with the hope that when a college or state association had some matter that it wanted to bring before the parent association, it could be brought up by their delegate and discussed in the House of Delegates and prepared as a resolution, and the resolution either approved or disapproved by the House of Delegates and the final recommendation presented to the Council.

He said the idea was to provide the House of Delegates for those who came to the meetings alone and unacquainted, and give them a human interest in the work of the Association. He agreed with the other speakers that the House of Delegates had not done well, but it was not the fault of anybody but the House of Delegates itself, and he would second the motion, if he were a delegate, that a committee be appointed to outline a comprehensive plan to make the House of Delegates an active working body of the American Pharmaceutical Association to work as a clearing house for all the colleges of pharmacy and state associations. So long as they were interested enough in the American Pharmaceutical Association to send delegates to its meetings, it was no more than fair that the Association should return the courtesy by giving them something to do in the meeting.

Mr. Freericks said that if a committee were appointed along the line suggested, it could work out something that would serve a splendid purpose, and they could still continue the House of Delegates as a sort of a clearing-house, which would give an opportunity for the smaller organizations to take part in the activities of the Association. He was thoroughly convinced the House of Delegates could be used for the purpose of giving new men, gradually, an opportunity of working-in, and of feeling free to stand up on the floor and speak their minds. He was certain if the various bodies who were now represented had known they could offer resolutions, that they would have prepared and presented them. If they had that opportunity many of them would accept it, and it would add to the Association spirit.

Mr. Edw. N. Webb, of Columbus, O., stated that he had never before attended a meeting of the Association, but he had been a member for nine years of the A. Ph. A., and a member of the American Chemical Society for ten years, and that if he were permitted to take a moment of their time he would point out something that had occurred to him. It seemed to Mr. Webb that the question before the House of Delegates properly resolved itself to this: Is the American Pharmaceutical Association to be a name, or is it to embrace the business and profession of pharmacy in this country?

Mr. Webb thought that few of the firms such as his,—The Columbus Pharmacal Co.,—would trouble to attend a meeting of the state association to present a petition or resolution to be brought before the American Pharmaceutical Association; that they did not have to; their business was established and growing, and growing without the necessity of presenting resolutions; that if the Association wished to keep them interested there was only one way, and that was through the House of Delegates, because the general sessions of the A. Ph. A. would not bring them to the convention.

He said the objection which had been made to the drug clerks being represented in the House of Delegates did not appeal to him. While he did not represent the drug clerks, he ventured the assertion that as most of the proprietors came from the ranks of the drug clerks, if the Association was going to keep the clerks out they would keep out the proprietors of the future, and thus limit the representation of the profession as a whole.

Mr. Woodruff stated his understanding of the purpose of the House of Delegates was that it was simply to be a sort of an advisory body where a consensus of opinion of the various branches of pharmacy might be obtained upon questions which were of interest to all the branches of pharmacy in common, and therefore be a sort of clearing-house, as the term had been frequently used, for resolutions originally introduced into the meetings of the associations of general, rather than of special interest, for illustration, matters of legislation in which not only colleges of pharmacy are interested academically, but the retail and wholesale druggists were interested practically, and in which the manufacturers were also interested. Resolutions that related to matters of that kind were to be referred, as he understood it, to the House of Delegates, in order to give all interested an opportunity to be heard, after which the House of Delegates would simply make its recommendations to the Council, and Council could do as it saw fit. He understood that the House of Delegates would simply be a sort of advisory board, rather than a body that could control the affairs of the Association.

Mr. C. G. Merrell, of Cincinnati, said that there was undoubtedly a great deal of truth in what Doctor Hynson had said in presenting his resolution. The representation in the House of Delegates was rather unusual in an organization of this kind. It was heterogeneous, and it did not represent the membership of the American Pharmaceutical Association, as the membership in other bodies was represented. However, Dr. Hynson's remedy did not seem to him to be a good one in view of the fact that the state associations are not constituent bodies of the American Pharmaceutical Association, but were independent bodies and a large portion of their members were not members of the A. Ph. A. It was a question in connection with the general questions brought up in the President's address

and the Secretary's report, which ought to be considered together. It was a question that could not, possibly, be considered at the present meeting, and he believed the suggestion of Mr. Freericks that a committee be appointed was the only solution of the matter, and if it was in order for the body to do so, he would like to second the motion of Mr. Freericks that a committee be appointed to make a study of the matter and to report at the next meeting. It seemed to him it was worth whiel to take this step, and something good might come out of it. It was evident something was needed, but it was also evident that they had not yet hit upon the proper remedy.

Mr. Joseph L. Lemberger, of Lebanon, Pa., stated that he had been listening to all that had taken place at the meeting. It was the first time he had been in the House of Delegates as he had not attended the last two meetings. He did not believe there was a single body that had sent delegates which was not perfectly justified in sending them. He looked upon the body as a representative body of all the branches allied with the American Pharmaceutical Association. He did not believe there was any delegate there who had not a full understanding of his privilege as a delegate to the body. He came principally to represent the Pennsylvania Pharmaceutical Association, and he believed that all these associations, such as the National Wholesale Druggists' Association, the National Association of Retail Druggists, had active members in the American Pharmaceutical Association, and he believed they made it a point to send delegates to the A. Ph. A. to represent them. He would like to see the House of Delegates get right down to business. They were in a sort of a formative period and he did not believe in smashing the egg they were hatching, until they knew it was not sound, but to give it a chance. He said that if there were any weaknesses he felt sure they would develop, and with the aid of the parent association, the difficulties would be corrected. He had an idea what led up to the formation of the House of Delegates, and he believed the matter was wisely considered. The plan seemed to be working well in the American Medical Association, which he believed was the pattern after which this body had been organized, and he did not believe that it had had the opportunity of showing what it could do because it was, so to speak, in its formative period, and he would like to see the original plan of the House of Delegates carried out. He wanted to impress one fact upon the delegates and that was that any delegates who had been sent there, and whose credentials had been approved, should have the courtesy of the floor for suggestions, and it was up to the House of Delegates itself to consider the suggestions presented. He advised proceeding with caution. He had heard intimations that the House of Delegates did not amount to anything, but he did not believe it. He thought it did and that the best thing to do was to get in good working-shape.

Dr. W. C. Anderson, of Brooklyn, N. Y., stated he hoped that Mr. Freericks' motion with reference to the appointing of a committee to make a study of the matter and determine what the work of the House of Delegates is, should be carried. He felt that the condition present was due to a misunderstanding. The House of Delegates, in reality, was intended to be a Committee on Resolutions; in other words, the resolutions brought before the meeting of the American Pharmaceutical Association should be referred to the House of Delegates and considered by that body. A sub-committee, if you please, should formulate the action

of the body into a definite list of resolutions, so that at the last general session of the American Pharmaceutical Association there would be presented to that body a complete list of resolutions outlining the policies of the organization that could be acted upon at that meeting. The plan suggested had been carried out in some organizations with a great deal of success and in order to make it absolutely successful in this organization, practically all the recommendations and resolutions that are offered at the sessions should be referred to this body, and this body act as a committee on resolutions, allowing free discussion, and then its action recorded, and its approval or disapproval sent to the parent body for its final action. He believed the idea of having these resolutions after they passed go into the Council for its approval or disapproval and then come back into the general session, makes the procedure cumbersome and wastes a lot of valuable time, which he thought was unnecessary. If the original plan were carried out, reports of officers, for instance, would be referred to the House of Delegates, together with the recommendations or reports that come up in the different sessions. It would act as a clearing house for these things. The idea of admitting other than members of the organization to seats in the body, was with the idea that members of the A. Ph. A. would constitute the body principally, and the representatives of organizations that had not membership in the A. Ph. A., would have an opportunity to say something on propositions which they themselves might bring into the organization and would have the privilege of offering resolutions, because they would have no other way of bringing resolutions or the opinions of their organization on certain subjects to the American Pharmaceutical Association. He believed if the House of Delegates were constituted in that way and the officers and sections of the American Pharmaceutical Association understood what this body was to do, it would facilitate the work of the organization very much.

Dr. Anderson said, in this connection, he might refer to the National Association of Retail Druggists which works on this plan. In that body all resolutions are referred to the Committee on Resolutions. This committee holds meetings at which a free discussion of the resolutions takes place and that then a report upon the resolutions was made to the Association for discussion and action. This procedure facilitated the work of that Association in a large degree. In fact he might say that it would be impossible to conduct that organization along proper lines and get through with the work, if that method was not followed. He trusted that there would be no movement that night without deliberate consideration, to radically change the body, and was very much surprised that any member of the A. Ph. A. having its interest at heart should come into a new organization and introduce anything that would tend to disrupt it. If any members of the Association could not understand just what the body could do, they at least should give sufficient time for a study of it. They ought to study it because there were members who saw things very quickly and it took others a longer time to understand them, particularly anything that they originally have been opposed to, and therefore, he believed that they should give deliberate consideration to this matter and have this committee report at a later session, possibly, of this meeting, just what, in their opinion, the province of this body is and see if a way could not be provided for the representatives of these other organizations to meet with the A. Ph. A. and join in the discussions and help in the work of the Association.

Mr. Bodemann stated that the reason the Resolutions Committee referred to, worked so successfully and so skillfully, is, that there are not three, or four, or five cog wheels in it. All the resolutions are referred to the Resolutions Committee and that committee has no sub-committee in its own body. The House of Delegates has to report to the Council and they can either disapprove matters sent to it by this House or report them to the Association. In the N. A. R. D., resolutions are referred to the committee and the committee has an open session, and they report their action back to the general session, and it is settled right then and there. But in this association it goes through three or four cog-wheels and the members do not know whether it is acted upon or not, and sometimes they never hear of the resolutions again.

The Chair stated that there was no special motion before the meeting; that Prof. Hynson had offered an amendment in writing but it had not received a second.

Mr. Hynson replied that he thought it had been seconded and he understood the amendment had been referred to the Committee on Resolutions at the first meeting.

The Chair stated that it had not been, and for the information of the delegates present called their attention to Chapter 7, Article 2, amendments, providing that every proposal to amend the by-laws shall be submitted in writing at one session of the House and may be voted upon at the next session and only upon receiving the affirmative vote of three-fourths of the members present it shall become a part of the by-laws, and asked if the members were ready for the ballot.

Mr. Frank Ryan, of Detroit, stated he was not a delegate but in observing the proceedings it seemed to him he had discovered the reason that there is no business before the body, and if they would permit him, he would like to say that it is apparent that the associations sending these delegates have really placed nothing in their hands to bring before the House of Delegates. If they wanted to keep that body alive they would have to take steps to have the various associations understand that their delegates are the proper people to bring resolutions before the body, and anything the various associations wanted to bring before the American Pharmaceutical Association should come through their delegates to this delegate body. Unless they told these associations of the purpose of the House of Delegates they would never get any resolutions, and it seemed to him the trouble was, the fact that the delegates have not any resolutions to bring; that in order to keep the House of Delegates alive they had to do something in the way of informing these associations what the House of Delegates was for.

Chairman Snow replied that for his information and that of the delegates present, he had written the president of every state association between the first of January and the first of March, informing him of the meeting of the Association and asking to have each state association represented by three delegates, and especially asking them that they send with the delegates resolutions in which the state associations were interested.

Mr. Ryan replied that that was very commendable but it was necessary to do more than that, that the Chairman would have to pound it in with a hammer.

Mr. Merrell inquired if he had confined his notices to the state associations, and the Chair replied that he had, because of a lack of time.

Mr. Merrell said that was just the point he tried to make, that the members of the state associations are not all members of the A. Ph. A. and that perhaps they were not directly interested in the work of the House of Delegates as perhaps some of the colleges or branches or other organizations of that kind.

Mr. Hynson said he recognized the difficulty of reaching a decision that evening. The question was one requiring much study and thought. At the meeting at Hot Springs in 1908 he had proposed the formation of a House of Delegates, to consist of representatives from State Associations and the idea was ridiculed. Since that time he had given the matter deliberate consideration and he was still of the opinion that the logical way of organizing the House of Delegates was in that manner. He believed that the House of Delegates was a splendid thing for the Association, but that its faults of organization should be corrected. The American Medical Association has a House of Delegates composed of delegates from state-bodies and from nothing else, and that was what he was trying to accomplish for this body. By such an organization of this House the State Associations would be brought into close and intimate touch with the Association and more interest would be taken in its work and a greater dignity given to its deliberations. He believed that the proposed plan was so based upon order, precedent and good example and also was so founded upon common sense that it must be adopted in time. He therefore moved to table his amendment and to move that a Committee of five be appointed to consider the organization of the House of Delegates and its interests in connection with the parent association and that the amendment which he had proposed should be referred to this committee when appointed.

Mr. Freericks seconded the motion and said that the committee should have a year's time to consider the matter and to give it thoro study. It was true beyond question that the organization was not working well,—as we would like to see it work and he believed that the proposed committee would be able to devise some plan by which it could be made most useful to the Association.

On motion of Mr. Bodemann the House adjourned to meet on Friday evening.

THIRD SESSION.

The Third Session of the House of Delegates was called to order, August 28th, at 8:00 p. m., in room "C" of the Convention Hall, of the Hotel Pontchartrain.

The meeting was called to order by Chairman Snow, to listen to the report of the Committee on Resolutions, and the election of officers. The Chairman announced, that if there was no objection, the body would take action on the resolutions *seriatim*, as read by the Chairman of the Committee on Resolutions.

The Chairman of the Resolutions Committee, Mr. Mansfield, then read the first resolution, as follows:

"*Resolution No. 1.* It was moved by W. Bodemann, seconded by Mr. H. M. Whelpley, that the House of Delegates endorse the aims and purposes of the Chicago Veteran Druggists Association,' etc.

Mr. Mansfield said that the above resolution had been approved by the Resolutions Committee, and the Committee recommended that the Resolution be adopted by the House of Delegates.

Chairman Snow explained to Mr. Mansfield that the House of Delegates existed by virtue of the action of the Council, and it had to report to the Council, that if the Committee on Resolutions saw fit not to concur in some of the resolutions that were submitted to them, that action could be disapproved by the Council.

Secretary Kuever said he was under the impression that any resolution the Committee would approve would not go to the Council at all, and was advised by Chairman Snow that they reported to the Council with their approval or disapproval, and if the Council did not see fit to accept the action of the Committee on Resolutions, they did not do so.

Mr. Mansfield then proceeded to read Resolution No. 2, as follows:

2. *Resolved*, That the American Pharmaceutical Association instruct its representatives in the National Drug Conference to act immediately in connection with the representatives of the allied branches of the drug trade in the Drug Conference to draft at the earliest possible moment a bill to reform the present patent law, registration of names of drugs and the granting of sole right to sell certain drugs to the people of the United States suitable to the best interests of the drug trade in the United States, and to urge its passage at the earliest possible opportunity, and the support of the A. Ph. A. is hereby pledged to such reform.

Mr. Frederick T. Gordon, of Philadelphia, stated that the whole system of patent laws needed reformation, as everybody would concede, and that now was the time to get it, because the Congressmen themselves felt the need of it at this time, and there never had been a better time to push the matter; that the N. A. R. D. has passed a similar resolution, and the other associations represented in the Drug Trade Conference would probably pass it, and he thought if the representatives of the different associations in the Drug Trade were properly instructed, something would be done.

Chairman Snow stated that if there was no objection the House of Delegates adopted the report of the Committee, on this resolution. There being no objection, the report was adopted.

Mr. Mansfield then proceeded to read the third resolution as follows:

3. That the A. Ph. A. make all possible effort to have only graduates of recognized schools of pharmacy nominated as members of the State Boards of Pharmacy by the State Associations and where possible have such amendments made to state laws as will make such qualifications a pre-requisite.

Mr. Mansfield in explanation of the action of the Committee on the third resolution stated that the Committee had thought that the resolution would do no harm, but that they did not think it would do very much good because they did not know how it could be enforced.

Chairman Snow stated that it put the Association on record as favoring such a proposition. Mr. Mansfield said that was the idea the Committee had in mind, and that was the reason they recommended its adoption.

The resolution was adopted.

Mr. Mansfield next proceeded to read Resolution No. 4 as follows:

4. *Resolved*, That the incoming President be and is hereby instructed to appoint a committee of three members, which committee shall confer with similar committees, appointed for the same purpose by other organizations, upon the advisability of forming a congress of national drug and pharmaceutical bodies

under the auspices of the American Pharmaceutical Association. And be it further

Resolved, That the results of the conference of these committees shall be reported to the several organizations represented and to the American Pharmaceutical Association at their annual meetings in nineteen hundred and fifteen, with such recommendations as may be agreed upon.

Mr. Mansfield explained in regard to the above resolution that here again the Committee felt that it was a move in the right direction; that the proposed congress would be a congress of the national pharmaceutical bodies of the country which would be able to do a great deal of good.

There being no objection the House of Delegates adopted the report of the Committee on Resolution No. 4.

Mr. Mansfield then read Resolution No. 5, as follows:

5. WHEREAS, The usefulness of the House of Delegates during its two years' existence, not having been such as was expected at the time of its installation, it is important that something be done to increase this usefulness; therefore, be it

Resolved, That it is the sense of this House of Delegates that increased efficiency can be secured by making this body a permanent one instead of making its existence dependent upon the actions of the Council.

The Committee recommended its adoption.

Chairman Snow stated that the resolution above seemed to be in accord with the sense of the delegates and if there was no objection the report of the Committee would be adopted.

Mr. Hostmann said that his idea in bringing this up was because he had heard that the Council had appointed a committee to consider the question of the usefulness of the House of Delegates, and he knew that there had been a committee appointed by the House of Delegates, but he thought it would not do any harm to impress upon the Council that some of the delegates thought there was some usefulness in the House of Delegates.

Mr. Gordon said that the House of Delegates was not dependent upon the Council for its existence; that it had been created by a vote of the Association, at Denver, and it would take a vote of the Association to abolish it.

Chairman Snow replied that he thought Mr Gordon was correct.

Mr. Gordon continued there had been considerable debate upon the House of Delegates proposition at the first session of the Denver convention, and it was such a serious innovation that he made the motion himself that the whole thing be printed and distributed to the members so that the matter could be gone over in private, and discussed among the members, and have the matter taken up at a later session; that the proposed constitution and by-laws were, in accordance with that motion, printed and distributed among the members, and the matter was discussed during the week and at the last session the matter was taken up and adopted, and the vote was almost unanimous to establish the House of Delegates, and the Council had nothing to do with it.

Chairman Snow stated that he did not know but what Mr. Gordon was correct, but that he had a personal letter from Dr. Beal, in which he made the statement that the House of Delegates existed by action of the Council, and he felt that action should be taken to make it a permanent section.

Mr. Hostmann said that he believed Mr. Gordon was right, but he thought the

resolution referred to would not do any harm, and would call attention to the fact that there was a lot of misunderstanding about it.

Mr. Gordon said he thought the suggestion was all right, and he only wanted to bring out his point.

There being no objection the report of the Committee on the above resolution was adopted.

Chairman Mansfield then read Resolution No. 6, as follows:

6. That it is the belief of the House of Delegates that the Year Book should contain abstracts of papers submitted by the members of the American Pharmaceutical Association and published in the Journal of the American Pharmaceutical Association.

Mr. Mansfield said in regard to the above resolution that many of the most valuable papers that are published during the year are papers that are read before the different sections of the Association, which are never abstracted and never appear in any of the proceedings, and he thought every one felt that a presented paper certainly ought to be abstracted and placed in the Year Book, and for that reason recommended the adoption of the resolution.

The report of the Committee was adopted.

Chairman Mansfield then read resolution No. 7, as follows:

7. That the President of the American Pharmaceutical Association, at the opening session of each annual convention, shall appoint an official censor whose duty it shall be to supervise matter given to representatives of the local press, and to insure that fair and accurate accounts of the proceedings and business of the Association during such meetings shall be fairly and accurately printed.

In regard to the above resolution, Mr. Mansfield said that the Committee felt that it was a resolution which they would favor because it would not do any harm, although they did not feel it would do much good.

Report of the Committee on the above resolution adopted.

Chairman Snow stated that he had a resolution from the Section on Education and Legislation, which seemed to have been taken up by that section Thursday, and which had been referred to the House of Delegates, and if there was no objection, the House of Delegates would take action upon it. He read the following Resolution:

8. That the principle in the two measures—the Metz Bill and the Stevens Bill, i. e., price standardization, be approved by this Association.

Mr. W. S. Richardson, of Washington, D. C., moved that the Resolution be approved. Motion seconded by Mr. Mansfield and carried.

Chairman Snow stated that he believed the consideration of resolutions was completed, and that a motion had been made and carried that the Chairman appoint a committee to investigate the House of Delegates, and see if its usefulness could not be improved. Chairman Snow appointed the following, as members of the Committee:

H. P. Hynson, of Baltimore, Md., F. H. Freericks, of Cincinnati, O., Joseph Lemberger, of Lebanon, Pa., W. C. Anderson, of Brooklyn, N. Y., F. M. Apple, of Philadelphia, Pa.

Chairman Snow stated that the motion which had been passed contained the suggestion that the above Committee make their report at the next year's meeting.

The next order of business before the House of Delegates was the election of officers.

Mr. Hostmann inquired whether they should proceed with this matter, in view of the fact that they might elect somebody as an officer who would not be a delegate to the next annual meeting. Chairman Snow replied that they should, and stated that the procedure had been changed at the Nashville meeting for the reason that when they elect officers at the beginning of the meeting for that meeting, they might find it necessary to elect some delegates as officers who had no idea of their duties, or of the business to be done by the House of Delegates.

Mr. Gordon inquired as the House of Delegates is not a self-perpetuating body, how they could elect officers for the next meeting; how it could be known that the officers would be delegates to the next meeting.

Chairman Snow replied that they were delegates at present and were delegates until a successor was chosen, and the idea was, as he had just explained to Mr. Hostmann, to avoid electing a delegate an officer who would have no chance to look over the situation and inform himself on what duties he should perform.

Mr. Gordon said that if a delegate wanted to come back to the next meeting, he would have no trouble in being appointed a delegate.

Chairman Snow stated the next order of business would be the election of officers for the House of Delegates for the ensuing year, and explained that the constitution and by-laws provided for the election of a chairman, two vice-presidents and a secretary, and that nominations were in order for the office of Chairman for the House of Delegates.

Chairman Snow further stated there was a provision in the constitution and by-laws for as many sessions as were required to transact the business of the House of Delegates, but that under ordinary conditions the session at which the Resolutions Committee reported was the final session. After making this explanation, Chairman Snow stated that nominations for Chairman for the ensuing year were in order.

Mr. Mansfield said it seemed to him in view of the several resolutions which had been adopted by the House about the effectiveness of the organization, and in view of the fact that its reorganization required special knowledge of the workings of the society, that the present president of the House of Delegates should be re-elected to the position in order that he could go on with the work and bring about the results he thought best.

Mr. Mansfield stated that was the way it appealed to him and for that reason took great pleasure in placing the name of Mr. Snow in re-nomination for president.

Seconded by Mr. Hostmann.

Chairman Snow stated with all due regard to Dr. Mansfield it did not seem possible that he would be able to go to California and he thought he had already received sufficient honor in having served one year, and for this reason would have to decline. He stated he appreciated very much Dr. Mansfield's action but he could not consider serving another year.

Prof. Remington asked the Chair for a little information. He stated some one had told him,—he could not remember who,—that the House of Delegates had not elected any officers, and if it was true, he only wanted to say he thought it

was a very grave mistake to omit such an important matter; that he did not think the election of officers should be omitted as the Council and the Committee had not yet voted to give up the House of Delegates and he had great hopes that this "child" would acquire a lusty growth in the future, and until the action of the Association should be taken there was nothing else to do but for the House of Delegates to elect its officers just as though it were going to continue, and pay no attention whatever to these uncertain plans until the Association otherwise directed.

Mr. Faser nominated for Chairman Mr. W. S. Richardson, of Washington, D. C. This motion was seconded by Dr. Mansfield.

Mr. Remington then moved that the nominations be closed and the Secretary instructed to cast the ballot of the house for W. S. Richardson for Chairman; motion seconded and unanimously carried.

Mr. Frank H. Carter, of Indianapolis, Ind., nominated Mr. C. B. Jordan, of Lafayette, Ind., as First Vice Chairman; motion seconded.

It was then moved by Mr. Hostmann, seconded and unanimously carried that the nominations be closed and the Secretary instructed to cast the ballot of the house for C. B. Jordan for First Vice-Chairman.

Prof. Remington nominated Mr. H. M. Faser, of University, Miss., for Second Vice-Chairman; motion seconded.

It was then moved, duly seconded and unanimously carried that the nominations be closed and the Secretary instructed to cast the ballot of the House for H. M. Faser, of University, Miss., for Second Vice-Chairman.

Mr. Faser then moved that the present efficient secretary, Mr. Rudolph A. Kuever, of Iowa City, Ia., be re-elected.

Mr. Kuever thanked the House very much but said it would be impossible for him to serve because he had been elected to another position which would take a great deal of his time.

Prof. Remington nominated Mr. Joseph Weinstein as Secretary; motion seconded by Dr. Mansfield, who said that he was very glad to be able to second this nomination as he believed Dr. Weinstein would make a very efficient secretary for the organization.

On motion duly made, nominations for the office of secretary were closed and the Secretary directed to cast the ballot of the organization for Mr. Weinstein.

Chairman Snow then appointed Mr. Joseph Lemberger a committee of one to conduct the officers to the platform for installation.

Mr. Lemberger then conducted Mr. Richardson to the rostrum and presented Mr. Richardson as the newly elected president of the House of Delegates, stating he felt sure there had been no mistake made in electing Mr. Richardson, and that he would make good.

Chairman Snow then advised Mr. Richardson that he had been duly elected Chairman of the House of Delegates and he was now installed in his office.

Upon calls being made for a speech, Chairman Richardson stated that the House of Delegates would have to excuse him from making a speech, although he wanted to thank them for the high honor conferred upon him and he prophesied that the House of Delegates was going to be a very important body of the Association.

(Applause.)

Mr. Lemberger then introduced to the Chairman and the body, Mr. C. B. Jordan, the newly elected first vice-chairman, and said he felt sure that in this case they had made no mistake. Mr. Jordan, upon being declared the duly elected first vice-chairman, said he thanked the delegates very much for the honor and that he would try to perform the duties that might devolve upon him to the best of his ability.

Mr. Lemberger then escorted Mr. Faser to the front and introduced him to the new chairman, stating that Mr. Faser had been elected second vice-chairman and he believed the House had made no mistake in the selection of Mr. Faser, and that the time might come when the duties of the office of chairman would rest on his shoulders, although he was second vice-chairman; that those things had happened before, and that if it happened during Mr. Faser's administration he felt sure Mr. Faser would be able to handle the body.

Chairman Richardson declared Mr. Faser the duly elected and installed second vice-chairman of the House of Delegates.

Mr. Faser stated he had been looking for a long time for an office with no work attached and he believed he had found it, in view of the fact that there were two men ahead of him. (Laughter.)

Mr. Lemberger then introduced to the Chairman the newly-elected Secretary, Mr. Weinstein, and stated he felt Mr. Weinstein would discharge the duties of his office with fidelity; that the office was a responsible one and the organization had confidence in the new secretary.

Chairman Richardson declared Mr. Weinstein the official secretary of the House of Delegates. Mr. Weinstein said his election had been a great surprise to him and he appreciated very highly the honor conferred upon him. There was one consolation, namely, he did not know what functions the Secretary would have to perform and if he did not perform them properly it would be because of his ignorance of what he was supposed to do.

Mr. Snow said he would soon find out what his duties were.

Mr. Hostmann thereupon moved that the House of Delegates adjourn.

Motion adopted.

ESTIMATION OF CREATIN IN URINE.

A quantity of the urine containing between 7 and 10 Mgm. of total creatinin is placed in a small flask or beaker, and 10 to 20 mls of normal hydrochloric acid added together with a pinch or two of powdered or granulated lead. The mixture is boiled over a free flame until nearly down to dryness, and then evaporation is continued on a water-bath, until most of the excess of hydrochloric acid gas has been expelled. The residue is dissolved in about 10 mls of hot water, and the solution passed through a plug of cottonwool into a 500-mil volumetric flask. Twenty to 25 mls of saturated picric acid solution is added, and about 7 to 8 mls of 10 percent sodium hydroxide solution, which contains 5 percent of Rochelle salt. The flask is filled up to the mark at the end of five minutes, and read in the usual way. —S. R. Benedict (Journ. Biol. Chem., Baltimore, July, 1914.)

Reports and Papers of General Sessions

THE WORK OF THE BUREAU OF STANDARDS AND ITS RELATION TO THE AMERICAN PHARMACEUTICAL ASSOCIATION.

DR. FRANK A. WOLFF, ASSOCIATE PHYSICIST, BUREAU OF STANDARDS.

For the first time, I believe, the Department of Commerce has been invited to send delegates to your convention. The hearty appreciation of your invitation, as indicated by its prompt acceptance, places me in the happy position of bringing you Secretary Redfield's greetings and best wishes in your work and to extend to you his offer of hearty coöperation with the American Pharmaceutical Association along any lines within the proper scope of the Department of Commerce, subject, of course, to such limitations as may be imposed by the appropriations granted by Congress.

The work of the Bureau of Standards is, perhaps, more closely allied with your aims than that of any of the other bureaus of the Department of Commerce and I have been assigned to briefly indicate wherein that Bureau might be of service to your organization.

According to your articles of incorporation one of the principal objects you labor for is, "the establishment of uniform standards for the use and guidance of those engaged in the practice of medicine and pharmacy in the United States." *Standardization* is also the basis of all our own activities. The Bureau, which I have the honor to represent, is in fact a national standardizing and research institution, research being essential for arriving at a proper solution of practically every problem presented.

To briefly indicate the scope of our work, I might say that standards of weight or measure are involved in practically every commercial transaction. One of our functions is therefore the custody of and maintenance of standards recognized by the Government. (Using the term *standards* in its broadest sense.) Thus we have the more familiar standard of length, mass, capacity, etc. In some cases, standards are primarily defined in terms of the metric standards of length and mass and the unit of time. It is, therefore, necessary in such cases to provide also for the *construction* of standards to the highest accuracy of reproduction, from their definitions as well as for their maintenance and custody after construction. The standards used in the measurement of electrical quantities belong to this class.

It is however not only necessary to provide for the custody, maintenance and the construction of standards, but it is also essential to provide means for putting these standards into actual use. This is accomplished by furnishing the individual states with certain standards used in their weights and measures inspection service, and by providing facilities by which manufacturers of standards and measuring apparatus, municipalities, scientific and industrial standardizing and research lab-

oratories, colleges and universities, and all others interested may have their own standards and measuring apparatus verified and attested thus laying the foundation for general uniformity.

When the Bureau was first organized there was practically no inspection of commercial weights and measures in this country, only a few States and a few of the larger cities were doing anything whatever, and as a consequence false and incorrect weights and measures were the rule rather than the exception. Following the organization of the State weights and measures officials into a national association, which meets annually in Washington, new laws have been drafted and passed by a majority of the States. In the States of Massachusetts and Wisconsin not only are the sealers testing weights and measures used by pharmacists in selling to the public but they are also testing such measuring glassware as cylinders and cone graduates to see whether they are constructed in accordance with specifications. It need only be suggested that every effort should be made to coöperate with the local sealers in their administration of the law. All measuring apparatus sold should be correctly graduated and, where there are specifications adopted by the State in which the sale is made, they should be complied with.

Inasmuch as the specifications heretofore adopted by the States for weights and measures have not been uniform and are not likely to be, the Bureau is seeking authority to officially approve the design and construction of all weighing and measuring apparatus used throughout the United States, subject to requirements of accuracy and limits of tolerance which may reasonably be expected, such approval to be necessary before the apparatus can be sold and after approval such apparatus may be sold anywhere without being subject to State or local regulation.

Among the subjects dealt with by the weights and measures division having a more or less direct interest to your organization, are the following:

1. The relation between the metric units and the U. S. customary units.
2. Standard Density and Volumetric Tables.
3. Specifications for
 - (a) Chemical volumetric glassware,
 - (b) Prescription graduates,
 - (c) Hydrometers,
 - (d) Weights,
 - (e) Sieves.

These will be briefly discussed in the order given.

The fundamental standards for all weights in the United States whether metric, apothecaries, avoirdupois or troy, is the United States Prototype Kilogram. This standard is made of an alloy of platinum with 10% of iridium which is undoubtedly the best material that has yet been found for standards of mass. This standard was made and certified by the International Bureau of Weights and Measures, which is a bureau maintained by a union of 27 of the leading nations of the world. This insures the agreement of the weights of the countries that depend on this international bureau, especially since arrangements are made for the periodical verification of the fundamental standards. The derivation of the apothecaries, avoirdupois, and troy weights from the kilogram insures the maintenance of the exact relations between the various units.

In a similar way our customary standard of length is derived from the international meter by the relation

$$1 \text{ yard} = \frac{3600}{3937} \text{ meter.}$$

The other relations are similarly fixed and equally definite. There would seem, therefore, to be no good reason why different values should be given by different authorities for such equivalents. In looking over tables of equivalents from various sources, however, it is soon discovered that they are neither correct nor uniform. For example, the relation between the liter and the United States fluid dram is given in a certain publication to nine decimal places and the value given is incorrect in the fourth place. The value given is, no doubt sufficiently exact for most purposes, but it would have been much better to have given the value to only four places. This very common practice of carrying values beyond reasonable limits should be discouraged.

A new edition of the Table of Equivalents published by the Bureau will soon be ready for distribution, and it will be found useful in settling many doubtful cases of this kind.

Standard Density and Volumetric Tables. Probably nowhere in scientific literature is there greater lack of uniformity than in density and volumetric tables. Take for example, alcoholometric tables in common use. The names of Gilpin and Bladgen, Tralles, Gay Lussac, Mendeleeff, Morley, and Squibb are familiar to most of you. The alcohol tables of some of these authorities have been in use for about one hundred and twenty-five years. Since these tables are all different the question naturally arises as to which is most nearly correct. In many publications this question is avoided by publishing them all and thus putting the responsibility of a decision upon the user. This is obviously unsatisfactory. The user is in general in no position to judge their relative value and is as likely to choose the worst as the best. For that reason it would be much better for those in charge of any publication to give only a single table or set of tables for alcohol based on what they consider the most reliable piece of work, and omit all others.

Of the investigations in alcoholometry Mendeleeff's work, carried out about 1865, is unquestionably superior to anything done up to that time and is worthy of all the re-calculation it has been subjected to. Nearly fifty years, however, have elapsed since the work of Mendeleeff, and in that time considerable advance has been made in the refinement of physical and chemical methods. It was thought advisable, therefore, that similar work be done under the best possible modern conditions, and in 1910 the work was undertaken at the Bureau of Standards. This work has now been completed and the results published in the Bulletin of the Bureau and also in a circular of standard density tables. These tables have been adopted by the Bureau and are coming into very general use. We believe that they are superior to any alcoholometric tables ever published and that they should be universally adopted, to the exclusion of all others.

Another case of lack of uniformity in the use of tables is that of the Baumé scale. This is an arbitrary scale supposed to bear a certain relation to specific gravity. In 1881 the question of Baumé scales was studied by Prof. C. F. Chandler of Columbia University, and in a paper read before the National Academy

of Sciences he stated that he had found twenty-three different scales for liquids heavier than water and eleven for liquids lighter than water. It will readily be understood that such an array of tables, all passing under the same name, would inevitably lead to confusion. This confusion, though now reduced to some extent, still exists, as may be seen by consulting recent publications. There has, however, been manifested a decided tendency to discard most of the early so-called Baumé scales and, at the present time, there are in use in this country only only a very limited number but there is still opportunity for further reduction.

In 1903 the Manufacturing Chemists' Association of the United States adopted two definite Baumé scales, one for liquids heavier than water and one for liquids lighter than water. These scales are based on the following relation to specific gravity:—

For liquids heavier than water,

$$(1) \text{ Degrees Baumé} = \frac{145}{\text{Sp. Gr. } 60^\circ} - \frac{60^\circ}{F^*}$$

For liquids lighter than air,

$$(2) \text{ Degrees Baumé} = \frac{140}{\text{Sp. Gr. } 60^\circ} - \frac{F}{60^\circ} - 130.$$

When the work of testing hydrometers was undertaken by the Bureau of Standards, the good example that had been set by the Manufacturing Chemists' Association was followed by the Bureau, the same two Baumé scales being adopted. At that time careful inquiry was made and it was learned that all manufacturers of hydrometers in this country were using, or at least thought they were using, the same two scales though it has since developed that a certain manufacturer of hydrometers for the oil trade, is, through an error, still using a different Baumé scale.

In the last edition of the U. S. Dispensatory, are given three tables of liquids heavier than water, and three for liquids lighter than water. Two of these in each case should be omitted.

The third subject I had in mind to discuss, was specifications for various kinds of laboratory apparatus. Volumetric glassware is discussed in detail in Circular No. 9 of the Bureau and need not be considered at length here. I would, however, like to call your attention to two points, namely, the unit of volume and the standard temperature. In all volumetric analysis the unit of volume should be the liter, defined as the volume occupied by a kilogram of pure water at the temperature of its maximum density. For convenience the one-thousandth part of the liter called the millimeter or the cubic centimeter is used for small quantities. It should be clearly understood that this unit of volume called the ml. or the cc. is the one-thousandth part of a liter and not the one-thousandth part of a cubic decimeter. For practical purposes in volumetric analysis the two are equal, but for

* Sp. Gr. 60°/60° F. means the specific gravity at 60° F. in terms of water at 60° F. as unity.

more precise calculations the difference which amounts to approximately .003% should be taken into account.

In regard to the standard temperature, it may be said that there is some question whether 20° C. or 25° C. is preferable. 20° C. has been chosen by the Bureau as being closer to the actual laboratory temperature throughout the year, but it is probable that 25° C. is closer to that of a chemical laboratory under normal working conditions. However, the Bureau advocates the general adoption of 20 degrees as the standard temperature, in the interest of national and international uniformity. In any case the really essential thing is that each piece of volumetric apparatus be marked with its standard temperature. If standardized at 20° and used at 25° or *vice versa*, it is a simple matter to correct from one temperature to the other, whenever the accuracy required makes it necessary.

In regard to prescription graduates, the Bureau is not yet in position to make any definite recommendation, except that uniform specifications should be adopted in the different states. The question has only recently come up for consideration by the Bureau, and by weights and measures officials throughout the country, and is at present in a rather unsettled state. The types of graduates to be approved and the accuracy to be required, are very important questions and will receive careful consideration.

The question of hydrometers, is fairly well covered by Circular No. 16 on the Testing of Hydrometers, and by the hydrometer tables in Circular No. 19. What has been said in regard to standard density tables, applies with equal force to standard hydrometers. One thing may be said as a word of warning to those who may have occasion to use hydrometers; that is, no instrument should be assumed to be correct, unless it has been tested by direct comparison with a certified instrument, or by some other means sufficiently exact for the purpose. It is possible to make hydrometers of surprisingly high accuracy, and certain manufacturers are putting out that kind of instruments, but unless the name of a reliable manufacturer is on the instrument, it should not be depended upon and even then it is much safer to test it.

Sieves.—The fineness of a powder, is usually expressed in terms of the sieve through which the powder will pass, and the fineness of the sieve, is given in the number of meshes to the inch, and by the diameter of the wire of which the sieve cloth is made. It is evident, therefore, that in order for the fineness of a powder to be definitely given in terms of a sieve, both these factors of the sieve must be known.

The diameter of the sieve wire, is usually expressed in terms of its so-called "gauge." Now it so happens that there are several wire gauges in use in this country, and for that reason the statement that the wire of a sieve shall be of a certain gauge, is not sufficient to fix the diameter of the wire.

Two of the most important sieve manufacturers in the country use different wire gauges, and for that reason a No. 36 wire to one of them is by no means a No. 36 wire to the other. That being the case, when the statement is made that a No. 60 powder is one that will pass through a 60 mesh sieve of No. 36 wire the question at once arises as to whether it is intended to mean the 60 mesh sieve of one of these manufacturers or the other. A simpler and more satisfactory method would undoubtedly be to specify the diameter of the wire, instead of any gauge

number. This practice is coming more and more to be followed and thus all ambiguity avoided.

The recent revival of interest in the metric system furnishes another avenue through which the Bureau may coöperate with your association. In the performance of its functions the Bureau is required to study every phase of the weights and measures question; and in common with all who have given this subject deep study and attention, has reached the conclusion that the adoption of the metric system by the United States would be a most important step in the development of its social and commercial progress. The Bureau has neither the time nor the inclination to take the lead in the movement to render the use of this system compulsory throughout the country. However it does not hesitate to express its favorable opinion when occasion requires. It is manifest that, under our form of government, such a change can only be brought about by an expressed public demand which has thus far not been forthcoming. The action in your organization regarding the metric system, is a move in the right direction and will be followed by others. The increasing interest in the metric system, is evidenced by the great and increasing demand for the metric chart published by the Bureau.

The bearing of the work of the Chemical Division of the Bureau, upon that of this Association and its various committees of revision is quite obvious.

Atomic Weights. In the Eighth Revision of the Pharmacopœia, the table of atomic weights based upon hydrogen = 1, is in use. Since 1906, all the tables published by the International Committee on Atomic Weights have been based on oxygen = 16; which is now almost universally used. For the sake of uniformity and convenience, no doubt the new international basis will be adopted by your association, even though such a change would involve the revision of a considerable number of tables, and of the factors used throughout the text.

The Bureau is now planning an exhaustive investigation regarding standards for volumetric analysis. Preliminary to such a study, inquiries for opinions and suggestions were addressed to a large number of chemists, including some engaged in pharmaceutical work. The replies were, in practically all cases, favorable to such an investigation, and, at least, three pointed out the specific need of more accurate information regarding methods of testing pharmaceutical products. It is unfortunate that the results of any such work, will not be available for use for the next revision of the Pharmacopœia. We are not now in a position to make any specific recommendations regarding the standardization or use of acidimetric or iodometric solutions. Sufficient work has been done however upon the standardization of permanganate solutions, to warrant our selection of sodium oxalate as a primary standard, which is now sold by the Bureau as a standard sample. For a summary of the information upon this subject, I would refer you to Circular No. 40, on "Sodium Oxalate as a Standard in Volumetric Analysis." We suggest therefore that standardization of permanganate by means of sodium oxalate, be included at least as an alternative method in the forthcoming Pharmacopœia.

Testing of Reagents. Information secured at this Bureau and from numerous other sources, has indicated the great need of taking measures to improve the quality of chemical reagents, especially those bearing analysis-labels. No doubt

the same situation exists, at least in some degree, with respect to pharmaceutical preparations. As a necessary preliminary to effective steps in this direction, we hope to make a study of the delicacy and suitability of the tests used to detect or determine the impurities present in such materials. The results of such a study, will no doubt be of considerable value in fixing and maintaining standards of purity for chemicals to be used either for pharmaceutical or analytical purposes.

Our ability to take up the experimental problems outlined depends, however, entirely upon the willingness of the legislative bodies in Congress to provide the ways and means. The work contemplated covers a vast field and calls for the uninterrupted services of a good many chemists of high grade over a good many years. If taken up at all, it is probable that these problems will have to be attacked by degrees and that the progress will be slow. While the Bureau of Standards is preëminently an institution in which researches of this kind might be prosecuted, we are in no position to give guarantees of any kind, since we, obviously, have no independent control of funds for maintaining large researches of the kind in question.

There is a further reason which makes it out of our power to accomplish much along new lines of work for the next two years, and that is our lack of room to accommodate the men who are to do it. However, Congress has only recently authorized the construction of a new building, as large as any now in the Bureau of Standards grounds, which is to be devoted entirely to chemistry and is planned to house over 100 workers instead of the 45 or 50 now employed.

Pharmacists may also be interested in many other lines of work of the Chemical Division, for example the work on methods of rubber analysis. Rubber goods are often sold under guarantees which mean nothing, but if bought under standard specifications and tested in accordance with reliable chemical methods and subjected to proper physical tests, it would result in general satisfaction to the buyer, as well as the druggist who now sells merely on the makers' claims and guarantees.

The Bureau is also actively engaged in investigating the methods of specifying color standards, in the establishment of reliable color standards and in the development of methods of color analysis. The relation of such work to your aims is of course obvious.

In addition the work of the Bureau on Polarimetry might be mentioned. The methods of polarscopic analysis are described in Circular 44. New apparatus has been designed for precision-polarimetry and besides the Bureau has placed on sale sugar of exceptional purity by means of which, instruments may be tested through solutions of known concentration.

The work of the Bureau on Chemical thermometers is too well known to require more than brief mention. Besides it will be dealt with more fully by Mr. C. A. Mayo in a paper before the Section on Practical Pharmacy and Dispensing

One of the great problems that confronts the Bureau of Standards, as well as the Government in general, is that of getting into touch with the people of the country. All the theoretical knowledge and all the splendid equipment of the government, is of little value unless it accomplishes something, and certain of this information and equipment can best accomplish its purpose through the

various mediums of the Government publications, and publicity given to these publications by the organs of Societies such as yours.

Among the publications of the Bureau of interest to members of your association are the following:—

The National Bureau of Standards, (Descriptive Pamphlet).

History of the Standard Weights and Measures of the United States.

Metric Chart.

Metric Pamphlet.

Units of Weight and Measure, (Definitions and Tables of Equivalents).

Circular No. 3, Verification of Standards of Mass.

" 5, Testing of Chemical Thermometers.

" 8, Testing of Thermometers.

" 9, Testing of Volumetric Apparatus.

" 16, Testing of Hydrometers.

" 19, Standard Density and Volumetric Tables.

" 24, List of Publications of Bureau of Standards.

" 38, The Testing of Rubber Goods.

" 40, Sodium Oxalate as a Standard in Volumetric Analysis.

" 44, Polarimetry.

Scientific Paper No. 17,

Scientific Paper No. 92. The Testing of Volumetric Glass Apparatus.

Scientific Paper No. 197. Density and Thermal Expansion of Ethyl Alcohol and its Mixture with Water.

These may be obtained free of charge by application to the Bureau of Standards.

I have perhaps given sufficient examples to bring out the statement made in the beginning, that standardization is to be desired above all else both in the work of this association and in that of the Bureau of Standards. If by working together we can help to bring about that end then our work will not have been in vain.

REPORT OF THE COMMITTEE ON PHYSIOLOGICAL TESTING.

The Members of the American Pharmaceutical Association.

GENTLEMEN: We may briefly report that the following is an epitome of the work that has been published on the subject of Physiological Testing in this country and abroad during the past year:

I. *Ergot*.

Dr. Wm. A. Pearson, Journ. Am. Pharm. Assn., 1913.

The Blood Pressure Method of assay is recommended on the basis of the vasoconstrictor action of active extracts of *Ergot*. Tracings are shown which apparently correctly indicate the degree of activity by the rise in blood pressure of an anæsthetized dog. The effect on the cock's comb is claimed to be due to this action.

Paul S. Pittenger and Chas. E. Vanderkleed, Journ. A. Ph. A.

These authors suggest the use of the excised guinea pig uterus for assaying *Ergot* extracts and submit tables to show the parallelism between the uterine and Blood-pressure Methods, and tracings to show the sensitiveness of the method.

This method had been recommended by Kehrer Archiv. f. Exp. Path. u. Pharm., 1908.

Chas. C. Haskell, Jour. A. Ph. A., 1914.

The author considers the uterine method of assay to be the only logical one and that the blood pressure test has no relationship to the activity of a preparation, for obstetrical purposes, while the uterine and cock's comb methods seem to parallel each other.

II. *Pituitary Extracts.*

Herman Fuhner, From Zeit. f. d. Gesamte Exp. Medizin, 1914.

The excised uterus of the guinea pig is recommended as the only logical tissue to use for testing these extracts. The article is replete with tracings showing the variation in contractions of the uterus resulting from various doses of the active extracts.

H. H. Dale, P. P. Laidlaw, Zeitschr. f. Biol., 1913.

Jour. Pharmacology and Exp. Therap., 1912.

The uterus method of assay is described in detail with tracings to show its applicability.

Fritz Heidelberg, Paul S. Pittenger and Charles E. Vanderkleed,
Jour. A. Ph. A., 1914.

This is essentially a corroboration of the findings of the preceding authors.

III. *Digitalis Preparations.*

R. Gottlieb, Mun. Med. Woch., 1914.

The frog heart method is not objected to, but the sources of error are pointed out. He calls attention by protocols, to the necessity for using a considerable number of frogs in any assay so that these errors, such as variation in resistance due to known and unknown causes may be obviated.

R. Heinz, Merck's Report, 1913.

The author suggests a number of methods for standardizing these preparations each of which has its field for determining some specific action. Five different methods are summarized without indicating the choice of the author.

Chas. C. Haskell, Am. Jr. of Pharmacy, 1914.

The use of guinea pigs is recommended in assaying the digitalis preparation because of the relatively uniform resistance the pigs have. Seasonal variation, however, is an important factor. The interesting fact was brought out that alcohol, in the preparations tested, has a protective action and decidedly lowers the toxicity.

Chas. E. Vanderkleed and Paul S. Pittenger.

Journ. A. Ph. A., 1914.

The slight seasonal variation in sensitiveness of guinea pigs to the action of the onabian is proved by an extensive series of experiments.

IV. *Cannabis Sativa*.

C. R. Eckler and F. A. Miller, 8th Inter. Cong. of Applied Chemistry, 1912.

The activity of American grown *Cannabis Sativa* is claimed to be inferior to that of the Indian grown drug, whether from native seed or seed taken from the imported drug. The method of assay is described in detail.

H. C. Hamilton, A. W. Lescohier and R. A. Perkins,
J. A. Ph. A., 1913.

The comparative activities of the extracts of American and Indian-grown drug were tested by these authors noting and describing the effects produced by the two extracts on the same subject.

Early in the year it was not deemed wise to undertake active laboratory work on the important problems of physiological testing, as the Chairman of the Sub-committee of the American Pharmacopœial Revision Committee stated that it had been decided not to introduce into the Pharmacopœia methods for the physiological assay of drugs; but to recommend certain methods to be used when desired. The information relative to these recommendations was expected to have been available several months ago so that the members of our Committee could consider the material which would appear in the Pharmacopœia and determine its practical bearings. Up to two weeks ago, however, this data was not available. Various members of our Committee were asked for assistance by the Chairman of the Sub-committee and such has been cheerfully given.

We would recommend that the Committee on Physiological Testing be continued for another year, in order that it may give careful detailed consideration to whatever statements are finally made in the new edition of the United States Pharmacopœia and report to the American Pharmaceutical Association the practical bearings of the recommended methods. Also to consider and report upon any other subjects that seem to be of practical importance.

Very truly yours,

E. M. HOUGHTON, Chairman,
PAUL S. PITTINGER.

August 26, 1914.

REPORT OF COMMITTEE ON EBERT PRIZE.

To the Scientific Section of the American Pharmaceutical Association.

GENTLEMEN: After a careful examination of the papers presented to this Section at the Nashville meeting the Committee on awarding the Ebert Prize begs to report that in its opinion one of these papers meets the requirements of the donor, although there are several which have many merits.

EMERSON R. MILLER,
B. L. MURRAY.

September 24th, 1914.

Scientific Section

Papers Presented at the Sixty-Second Annual Convention

MEDICINAL PLANT GARDENS.

DR. W. W. STOCKBERGER,

Physiologist in Charge of Drug-Plant and Poisonous-Plant Investigations,
Bureau of Plant Industry, United States Department of Agriculture.

It is not my intention in this paper to present a descriptive account of Medicinal Plant Gardens in general, or even to discuss the more important ones of this country, except in so far as reference to them may be necessary by way of illustration. I shall endeavor, however, to point out what to me appear to be some popular misconceptions concerning the scope and function of such gardens, and to suggest how they may be made to increase their usefulness to *Materia Medica* and Pharmacognosy.

For the purpose of this discussion Medicinal Plant Gardens may be regarded as falling under one of two general classes, the first being pedagogic, the second industrial. The pedagogic garden is naturally an adjunct of a School of Pharmacy, or of a Botanic Garden. Its scope includes all medicinal plants that are adapted to existing soil and climatic conditions, supplemented by greenhouse facilities. Its function is to familiarize students with the habit and appearance of the entire living plant, some part of which is used as a plant drug, to supply the need for authentic specimens for observation and demonstration in the classroom, and to furnish materials for research work on the morphology and chemical constituents of drug plants. Necessarily it will be found desirable to grow a large number of species in this type of garden, but, owing to the cost of maintenance, the space which can be devoted to any one species will be very small.

The industrial garden, on the other hand, is an adjunct of public or private enterprises, the object of which is to give additional information concerning our agricultural resources. Its scope is the same as that of the pedagogic garden, but it differs very materially in function which is to serve for the determination of the adaptability of medicinal plants, not only to soil and climatic conditions, but to economic conditions as well. In the industrial garden, a large number of species will be tested on a small scale to determine whether the soil and climate are suitable for their growth, then the few promising ones must be tried out on an area large enough to yield reliable data on the actual conditions of commercial production. A considerable acreage of land is indispensable for this type of garden, if the results secured therein are expected to have much economic significance.

There is no lack of evidence that the general public often, if not as a rule, fails to differentiate the functions of the pedagogic and industrial gardens, since advice

is freely sought from both regarding the production of medicinal plants for the sole purpose of deriving profit therefrom. It is also an open question whether this distinction in function is in every case clearly understood by those responsible for the management of medicinal plant gardens. Statements sometimes unguarded, or not properly qualified, and sometimes based upon inconclusive and insufficient data, have on several occasions inspired the imagination of writers for the popular magazines or daily press, and, as a result visions of large and easy profits have been portrayed under various alluring titles, as, for example, "Big Profit from Drug Weeds," "The Herb Grower Has a Chance at an \$18,000,000 Business," "A Profit of One Hundred Dollars Per Acre from Growing Medicinal Weeds." Moreover, the wide-spread interest in the possibility of growing medicinal plants for profit, which has been developed in this country during the past decade has been capitalized by a number of crafty promoters, who use the mails and the columns of journals and magazines to disseminate flamboyant advertisements of the enormous profits which may be made by growing certain medicinal plants. Frequently, the name of the plant is withheld until the victim has remitted from one to five dollars, for which he receives practically valueless instructions for the cultivation of some plant poorly adapted to our economic conditions. A typical get-rich-quick scheme, of this class, is explained thus: "It has to do with a certain plant which grows like a weed; it is cut and cured like hay and sells for 45 cents per pound, which is at the rate of \$900 per ton." The investment of one dollar brings the name of the herb with the further information that the product of one acre will sell for \$1800!" As a matter of fact the commercial cultivation of this plant is almost unknown in the United States, and there is yet no established market for the American product.

These illustrations will account for the doubt which has arisen in my mind as to the propriety of purely pedagogic gardens being used as a basis for generalizing on the question of drug growing for profit. In agricultural experimentation, it is well recognized that the results from small trial plots must be interpreted with due regard for the large factor of error, which is always present. With proper care and attention, it is relatively easy to grow a luxuriant crop of any one of a number of drug plants on a square rod of good garden soil but what can be done under ordinary agricultural conditions on one or more acres can not be calculated therefrom by "a simple sum in arithmetic," as one writer has naively said.

There are numerous well authenticated instances in which the production of some medicinal plant has resulted in a fair profit, but there is yet no evidence at hand to justify the belief that satisfactory results can be secured without some practical experience in gardening, some knowledge of the requirements of crude drugs and due regard for economic conditions.

Every pharmacist and physician is or should be interested in obtaining crude drugs of highest quality and standard efficiency, but material progress toward the attainment of this end will not be favored by encouraging a large number of persons to become small producers. The result of small individual collections varying widely as to time, place and method of gathering is seen in the miscellaneous aggregates all too frequently found in our crude drug markets, and unless a perpetuation of this condition is desirable, little encouragement should be given

to the suggestion that whoever has a small back yard available may become a producer of plant drugs.

The educational opportunity open to the pedagogic gardens is almost limitless. The dissemination of knowledge to countless individuals not having access to the garden itself regarding the history, geographic distribution, methods of preparation and uses of crude drugs may be accomplished through illustrated lectures and carefully prepared articles written for the less technical periodicals. Such misconceptions as, for example, that the production of ipecac in New England and vanilla beans in Iowa is a commercial possibility, or that stramonium is produced by a "melon weed" are all too prevalent, and should be corrected. But educational work along this line deserves little tolerance unless inspired by some motive more commendable than that of merely arousing interest in growing drug plants, otherwise the whole movement will sooner or later be discredited. Recently a reputable pharmaceutical journal published an article in which the writer set forth at some length the possibilities for the commercial production of a certain drug plant in the southwest. A request for further information brought forth from this writer the astounding statement that he had no personal knowledge of conditions in the southwest, but, *having grown this plant in one of the northern States*, he saw no reason why it should not be profitably grown in the southwest "on rocky and otherwise unprofitable land, on hillsides or arid desert soil." In this case, the motive was evidently merely the arousing of interest, and the writer mentioned displayed a fine disregard for the practical difficulties attending the growing of the plant in question which sharply localize the areas on which it may be economically produced.

The time is certainly ripe for injecting into discussions and recommendations regarding the cultivation of medicinal plants some of the sanity and discrimination which characterize conservative business operations. Such a course is necessary if the interest already aroused is to be retained and directed along lines productive of beneficial results. It should be remembered that the expense of agricultural operation varies widely according to location. In some localities, the outlay for farm labor will be three and one-half times as much as in others. Sometimes we find a low expense for labor associated with a heavy outlay for fertilizers, sometimes heavy expense for both labor and fertilizers, and, again, low expense for both. The complications introduced by these factors alone render it practically impossible to make any safe general statement as to the profitability of drug growing. Furthermore, two localities separated by a distance of less than fifty miles may present a totality of conditions so different that a drug-growing enterprise which could probably be conducted at a profit in the one would with equal probability fail absolutely in the other.

I do not wish to be understood as taking the position that there is no opportunity in the cultivation of medicinal plants, for I have abundant evidence that given the *necessary favorable conditions* a fair return may be expected from several drug crops. On the other hand, I also have abundant evidence that hundreds of persons have received the impression that drug crops can be grown by anybody anywhere at a profit far in excess of that to be obtained from ordinary cultivated crops. I am convinced that in some cases optimism and enthusiasm have

been allowed to outrun common sense, but if in the future due consideration is given to the fundamental principles of agricultural economics, I believe that a rational attitude toward commercial drug plant cultivation may be developed.

The founders of the several excellent pedagogic gardens which are now maintained in connection with certain Schools of Pharmacy have inaugurated a movement which promises much for the future of *Materia Medica* and Pharmacognosy. It is sincerely to be hoped that their example will lead to the establishment of such gardens in connection with each of the 75 or more Schools of Pharmacy in the United States, and to an extension of the scientific study of medicinal plants. The problems demanding attention are very numerous, but some of the lines of study and investigation which need to be emphasized are those concerning the adaptation and acclimatization of medicinal plants, the conditions under which the active principles of plants are formed, and the behavior of the plants themselves under varying conditions of climate and culture. Moreover, the selection and breeding of medicinal plants not only promises to yield results of great practical importance, but also affords a field for the widest scientific activity.

It is to be regretted that at present there is no satisfactory way in which the investigations being made upon medicinal plants in different sections of this country can be properly correlated and reduced to form for definite comparison. Especially desirable is a practicable basis of correlation for studies of the variation in plant constituents due in part, at least, to differences in geographical location. When two more or less widely separated workers attempt to compare the results of their studies, it frequently happens that they experience the greatest difficulty in harmonizing their results. This is due in part to differences in the response which plants make when under different environmental conditions, in part, probably, to variations in the method of procedure followed in the cultivation, curing and analysis of the plant, and in part, no doubt, to differences in the genetic relationship of the plants studied by the respective investigators.

There seems to be an opportunity for some arrangement or mutual agreement between the representatives of our various medicinal plant gardens, under the terms of which, multiply samples of seeds or plants of common parentage could be distributed for the production of plants to be used experimentally. If under such an agreement, uniformity of treatment, throughout the processes of culture, curing and analysis could be secured, comparison of results would be much more profitable than at present, and the tabulation and summarizing of the results of experimental work conducted along the lines indicated in a number of localities would permit the drawing of conclusions having a significance far greater than those that can be reached by a single isolated worker. The suggestions here offered, contemplate nothing like a general coöperative investigation, but rather the adoption of what might be regarded as a standard method of procedure analogous to official methods of analysis, etc. The tabulation and summarizing of results might well follow individual publication, as no other course is likely to give satisfaction.

In conclusion, I wish to say that the resources of the experimental drug gardens of the Office of Drug-Plant Investigations, Bureau of Plant Industry, are open to any School of Pharmacy desirous of starting a medicinal plant garden, as are

also the facilities of that Office for effecting the distribution of material for experimental purposes, and for furthering the collection and compilation of data on the cultivation of medicinal plants under great diversity in conditions of growth.

DISCUSSION.

MR. FRED T. GORDON: May I ask Dr. Stockberger, have you ever noticed any difference in the attacks of insect pests on plants? For instance, we had the army worm in Philadelphia not long ago, and they ate every blade of grass as they moved forward, but they would not touch clover, and in the same way certain insects eat certain vegetables and leave certain weeds alone, like milkweed. Do insects attack such plants as belladonna?

DR. STOCKBERGER: Yes.

MR. GORDON: I know that insects do not seem to attack stramonium very much, although there is an insect, the tobacco worm, which eats tobacco. I was questioning whether there were any special differences in plants in this respect.

PROF. KREMERS: I should like to see the question brought up and discussed. I may say, although I am not a very close observer of animal life, that I have had occasion in recent years to have my attention drawn to things of this sort. Indeed I should enjoy an opportunity for study along this line, and to observe more.

With regard to stramonium, for instance, this plant is attacked by insects. When you pick up a stramonium leaf you will find it perforated with hundreds and hundreds of small holes. If you approach a field of stramonium, from a distance of several rods you will hear a peculiar noise. It is a very faint noise, in a way, and yet the noise reminds one of the distant roar of the ocean waves. This noise is made by countless small beetles, which upon your approach rise and then settle down again. The noise thus produced reminds one of the surf.

We have experimented with something like fifteen or twenty species and varieties of stramonium, and we have found that practically all of them, except one, I have forgotten which, is attacked by this particular beetle. If we could effect a hybridization of the other species of *Datura* with this one, which would give us the alkaloid-content desired, and also the necessary resistance, and thereby eliminate these beetles, we could produce a much finer looking drug than we can at present.

I have also observed the Colorado beetle or common potato bug on hyoscyamus. Both instances clearly demonstrate that alkaloids do not necessarily render plants beetle-proof.

In connection with the remarks made by Dr. Stockberger, I should like to call attention to a somewhat discouraging feature in drug standardization. For some years past, we have had occasion to make a special study of stramonium. In connection with this work, we have made a compilation of all the stramonium-assays we could find in the world's literature, and not a single generalization could be drawn from all of them. We began work of our own, and compared the results of two consecutive years from materials obtained from the Northern Station for the Cultivation of Medicinal Plants. In writing up the results, we naturally drew conclusions. We did not, however, publish our data immediately. Because of the results obtained, during the third year of the investigation, we were obliged to strike out our generalization upon each and every variety that we had studied.

This is not very encouraging. We are now starting work along the line of plant breeding, and if we can continue this for five or ten years we may secure some results. That is the character of the work that has to be done.

One feature that possibly needs emphasis in connection with drug cultivation should be mentioned. As a simple illustration, let me again use stramonium, will suffice. When the Pharmacopœia of 1900 or 1904 went into effect, it called for 0.35 percent of alkaloidal content, if I am not mistaken. Soon complaints were received from drug jobbers and pharmaceutical manufacturers that stramonium of that strength was not obtainable in quantity. Stramonium was then put down to 0.25 percent alkaloidal content. Any ignorant drug-collector can get stramonium that will come up to this requirement.

What we should have done was to have established a proper standard and have adhered to it, but we should also have given the market sufficient time to adjust itself to the new requirement.

Again, I suppose, it is too late now. After ten years nothing has been done. If we revised the Pharmacopœia as it ought to be revised, we would insist on the right standard after having given people an opportunity to raise stramonium. We can raise, without trouble, stramonium on good garden soil, and we can raise it on poor agricultural soil with 0.35 percent alkaloidal content. But, as long as the Pharmacopœia calls for 0.25 percent, there is no use trying to raise stramonium with 0.35 percent.

The people down south can go and collect a handful of stramonium and take it to the corner-grocery and get their pipe of tobacco, or bottle of whiskey for it. That is the way drugs are frequently collected. As Dr. Stockberger has remarked, our "crude drugs" are frequently exceedingly crude.

I do not want to take up too much of your time, but I might say a word about the present war-situation. I am not a believer in war, and I do not know that there is any justification for the war. But if we had had warning that this war was coming, and known the result, we might have produced sufficient thymol for the United States in northwestern Wisconsin. However, it is too late now.

Monarda punctata grows freely in the sandy areas along the lower course of the Wisconsin river. This plant yields from one-half to one percent of volatile oil, fifty percent of which is thymol. Whereas the related species, *Monarda fistulosa*, grows abundantly on heavier soil, it seems difficult to propagate the former species in the heavier soils of our gardens or farms. Nevertheless *M. punctata* may be improved by cultivation on poor sandy soils. Thus it has been shown that a straggling wild plant, when transplanted and cultivated, is greatly improved. The former may be a foot or two high, with a few straggling branches six inches long. After cultivation in the same soil, this same plant could not be covered by a bushel basket.

In connection with this plant, a few observations have been made that throw some light on the attitude of animals toward plants. Both *Monarda fistulosa* and *M. punctata* grow wild in the meadows, but neither is touched by grazing cattle. However, if the oil, which, as already stated, contains fifty percent of phenols, is removed by distillation, cattle and sheep will feed on the exhausted material. During a summer that produced a scarcity of hay, such exhausted *Monarda* was sold for the price of hay.

Man's relation to the genus *Monarda* is very similar. Thus *Monarda didyma* has long been used as a substitute for tea but not the botanically related *punctata* or *fistulosa*. Whereas the latter contain a fair amount of volatile oil, fifty percent of which consists of phenols, the former contains but a trace of oil, none of which is phenolic in character.

The behavior of cattle toward wormwood is quite parallel. In some of the wormwood fields, cattle are used, up to a certain stage in the development of the plant, for weeding. They will keep down the grass without eating the wormwood. However, after the oil has been removed by distillation, the exhausted herb is eaten by the animals. Hence, wormwood culture and cattle raising have developed hand in hand.

No doubt, there are a number of medicinal plants that might be cultivated advantageously. However, we must not play with the standards, as we have done in the case of stramonium. Moreover, we must learn much more about the cultural conditions, as illustrated by the monardas, plants so well known in the wild condition, but which we have not yet mastered for economical purposes in garden and field.

ACTION OF PEPSIN AND TRYPSIN ON ONE ANOTHER.

Excess of trypsin inhibits the digestive action of pepsin in acid solutions, and excess of pepsin hinders the digestive action of trypsin in alkaline media. In both cases the inhibition is directly proportional to the amounts of the enzymes present.—E. S. Edie (Biochem. J., Chem. Abstr. Amer. Chem. Soc., 1914, 8, 2399).

A SIMPLE FORM OF NITROMETER FOR THE ASSAY OF SPIRIT OF NITROUS ETHER.

THEODORE J. BRADLEY.

The nitrometers on the market have been designed for general use and not particularly for the assay of Spirit of Nitrous Ether, and they are, generally, expensive and complicated and more or less troublesome to use. During the past year the writer has had occasion to make a number of assays of this preparation and a special form of instrument was devised for this work.



The following features are found in this new form of nitrometer: it agrees in all essentials with the official general description, given on page 576 of the *Pharmacopæia*; it is simple and compact and of good appearance; it is complete, so that when one is ordered it is received ready for use; and its cost is moderate.

The instrument, as shown, consists of a glass tube about 16 inches long and graduated, from the top downward, to 50-cc. in fifths. At the top this graduated tube is contracted and has a stopcock connecting it with a cylindrical funnel which is also graduated at 5 cc. and 10 cc. The graduated tube, below the graduation, is expanded to form a bulb of about 75 cc. capacity, and below this there is a side tube with an open end to be connected with a leveling bulb. The bottom of the instrument is closed and it stands on a removable base, preferably of iron. The leveling bulb is connected with the side tube by about two feet of flexible rubber tubing and is supported by a clamp which is attached to the graduated tube and easily adjusted at any height.

This piece of apparatus has the same general appearance as Schiff's nitrometer and is a modification of that instrument. No great originality is claimed for it but it has proven to be well adapted for its special use. The instrument shown was made to order for \$3.50 by a firm of apparatus manufacturers in New York City. I have no doubt but that this price will be lowered when it is catalogued and made in quantities for regular stock.

DISCUSSION.

DR. BRADLEY'S—This ends the paper, but I should like to demonstrate the nitrometer and have the members discuss it. (Dr. Bradley here demonstrated the use of the instrument.)

Every one understands, I hope, that I have no financial interest in the sale of this instrument. This goes without saying, but I have said it just the same. Not many pharmacists realize that the assay of nitrous ether is a very simple operation, if we have a nitrometer. The actual work can be done inside of ten minutes, followed by a necessary wait of about a half an hour for the complete generation of the gas, and its change to room-temperature.

To fill this nitrometer or any form of a similar general character, we fill the leveling bulb about half full. There is an immediate passage of the liquid to the expansion bulb. It is necessary to stop at this point and expel air bubbles from the rubber tube. This can be done by squeezing it tightly, several times. (Indicating.) Then, if the leveling bulb is raised, the salt solution will fill the nitrometer. When the graduated tube is exactly filled we close the stopcock and lower the leveling bulb.

The instrument is now ready for use. In the official process the first step is to shake the sample of spirit of nitrous ether with a small amount of potassium bicarbonate to neutralize any free acid. Then an ordinary 100 cc. measuring flask is weighed and about thirty grams of the sample are introduced and it is weighed again. Then we bring the volume of the liquid to 100 cc. with alcohol and mix. I have already done this part of the work and we can go right on with the assay. For ordinary store work you will find that the instrument is accurately graduated. We measure 10 cc. of the diluted sample in the funnel. This is then allowed to enter the graduated tube, being careful that no air follows. It may be safer to allow the last drop to remain in the funnel tube. It will be washed in by the first reagent. You thereby avoid the risk of air getting into it. 10 cc. of potassium iodid test solution are next measured in the funnel which is a large excess, and not a quantitative amount, and is allowed to enter the graduated tube. A slight reaction immediately ensues. And here again it is necessary to take care that no air gets in the nitrometer or we should have to start over again. The last reagent is 10 cc. of normal sulphuric acid introduced in the same manner as the preceding. I have always considered that it is unfortunate that *normal* sulphuric acid is specified as this is not found in many drug stores and it is troublesome to make. What is needed is but a weak sulphuric acid of about five per cent strength. The normal acid is of about this strength, but the same result is obtained more easily by using a mixture of equal parts of diluted sulphuric acid and water. The pharmacist who is not a well trained chemist might think that the normal strength of the acid is essential, but it is not. There is a large excess of the acid and as soon as it enters there is a violent reaction and our work is done.

It is necessary to allow the instrument to stand for from one-half to one hour. This is directed in the pharmacopœia to allow for the completion of the reaction, and for the gas to come to the room-temperature. Then it is necessary at the expiration of that time to bring the liquid in the bulb to the same level as the liquid within the graduated tube so that we obviate any difference of pressure between the gas inside of the tube and the air on the outside. Then we read the number of cubic centimeters of gas in the tube and calculate the percentage of ethyl nitrite from our first weighing, and this volume, by directions that are given in the pharmacopœia. It is necessary to observe the temperature, and if there is a considerable difference between the room-temperature, and 25° C, a correction must be made, and in this correction the Pharmacopœia says, change the percentage calculated by "one-third of one per cent," of itself for each degree of difference in temperature, and to a person not accustomed to using these figures, that one-third of one per cent of a percentage is very confusing. We calculate a percentage and then we find one-third per cent of that percentage. If the pharmacopœia were changed to read, one three-hundredth of the percentage first calculated, which is exactly the same thing, it would be much clearer.

A very slight correction needs to be made, sometimes, for variations in pressure but this is not necessary for ordinary work. Before I stop, I will call your attention to this expansion bulb. If it were not there some of the sample and reagents would pass over into the rubber tube and perhaps some of the gas would escape through the leveling bulb.

CHAIRMAN RUDDIMAN: I would perhaps make one suggestion. In that apparatus, when you put in your salt solution, you have to be careful not to allow any air in there. Would it not help to have a graduation in this contracted part and then have the five and ten cc. measured from that graduation? In that way you would not run quite so much of a risk.

MR. BRADLEY: I thought of that very thing, but left it out, as it was an additional expense, and because in making my own determinations, I measure the sample with a pipette and that drop is of no consequence. For ordinary work in manufacturing for which the pharmacist would use this instrument, that drop is so small, that it would not materially affect the result, and it can be reduced to a negligible quantity with a little practise.

A MEMBER: Just one little detail I would like to ask about, and that is whether or not it is necessary to shake the nitrometer after the solutions have been added; ordinarily is it considered necessary?

MR. BRADLEY: The pharmacopœia specifies that detail, and I have compared results obtained with and without shaking and find them to be the same.

We introduce the lightest liquid first and the heavier reagents on being added start to sink through it, but they mix on their way down and the shaking is unnecessary. It is very difficult to shake any nitrometer when making an assay and I have stopped doing it.

THE ANALYSIS OF EMULSIONS.*

CHARLES H. LAWALL AND LEROY FORMAN.

The analysis of emulsions by the drug analyst is a branch of work not generally welcomed, because of the lack of specific information on the subject, in books devoted to the analysis of pharmaceutical preparations. Even such recent books as "The Analysis of Drugs and Medicines" by Nelson, and "The Qualitative Analysis of Medicinal Preparations" by Fuller, contain little or no specific information on the subject.

The necessity for doing some practical work along this line, recently led us to experiment with the method known as the Gottlieb Roese Method, which has been used successfully for some time in the estimation of fat in dairy products, and the results were so surprisingly successful, when working upon known mixtures, that the method is suggested for routine work in this connection.

As officially described in the Proceedings of the A. O. A. C. for 1909, Bulletin 132 of the Bureau of Chemistry, U. S. Dept. of Agriculture, an extraction apparatus known as a Rohrig tube, which is now a standard piece of apparatus, is directed to be used. We have found, however, that excellent results can be obtained by the use of a glass graduated cylinder, and the evaporation of an aliquot part of the extraction liquid, although the method as described in full may be used if desired.

The modified method used by us is as follows:

Prepare a mixture of the emulsion in distilled water, so that each 100 cc. of the liquid contains 40 gm. of the emulsion. Take two 100 cc. graduated cylinders and in one, place 10 cc. of the diluted emulsion and in the other, place 5 cc. of the diluted emulsion and 5 cc. of water. To each cylinder then add the following reagents in the order named, agitating thoroughly after each addition:

- 1 cc. stronger ammonia water.
- 10 cc. alcohol U. S. P.
- 25 cc. ether U. S. P.
- 25 cc. petroleum benzin U. S. P.

After the addition of the petroleum benzin, the agitation should be continuous for 10 minutes, after which the cylinders should be allowed to stand until the liquids have separated into two layers with a sharp dividing line, (this requires from 15 minutes to 1 hour). Then having observed the exact volume of the upper layer, draw off exactly one-half and transfer to a flat-bottomed glass capsule and evaporate quickly on a water bath to constant weight. In one of the duplicates the resulting fat will be from 2 gm. of the emulsion, in the other from 1 gm., which gives a satisfactory check upon the thoroughness of the extraction.

* Read before Scientific Section at Detroit Meeting.

Working with emulsions prepared from various oils, the following results were obtained by this process:—

KIND OF OIL	PERCENT OF OIL IN EMULSION	PERCENT OF OIL OBTAINED
Neatsfoot	40	39.87
Corn	35	34.00
Almond	25	24.60
Olive	31.50	31.48
Cod Liver	50	49.72

The emulsifying agent in some cases was tragacanth, and in others was acacia. So much for the quantitative determination of the oil.

Now, in order to ascertain whether the separated oil varied in the more important physical and chemical constants, separate extractions were made, using larger amounts of material and paying no attention to the quantitative feature, the effort being simply to obtain about 5 or 10 grammes of the separated oil. Upon each of these separated portions of oil, the following factors were determined: saponification value, iodine value and refractive index. These values on the samples obtained by extraction, were compared with the same values as obtained from the original oils from which the emulsions had been prepared. No greater deviation in results was noticed than is commonly observed in making duplicate determinations on the same oil.

The results warrant the conclusion that the modified Gottlieb Roesse method may be successfully applied in the analysis of emulsions, both for the quantitative determination of the fat and for the separation of a sufficient amount of the fat for the determination of such constants as will lead to its identification.



CORNELIUS OSSEWARD
Chairman Scientific Section.



E. H. THIESING
Chairman Section on Commercial Interests.

Section on Commercial Interests

Papers Presented at the Sixty-Second Annual Convention

THE BUGABOO OF COMMERCIALISM.*

HARRY B. MASON.

As this brief address was being written, the week preceding the convention, certain reform measures were under discussion with reference to the internal organization of the A. Ph. A. Now, as I am reading the address, these reforms are doubtless about to be taken up for final action. I speak of this reform movement for the reason that one of the suggestions advanced during the preliminary discussion of the subject has been that the commercial section should be abolished. Several ultra-professional members of the organization have had the temerity to advance such a proposition.

This affords me a text upon which to base a short sermon. It has several times been proposed to discard this commercial section, but the sound sense of the association as a whole has always set down heavily upon the idea—and always will. The very fact, however, that such a suggestion could be made at all is significant of a condition of things in pharmacy that has always been most unfortunate. It harks back to the time-honored attitude that the pharmacist is a scientific and professional man who should scorn all commercial considerations.

This notion has been a serious handicap to druggists. It has permeated the whole calling. It has leavened the whole mass. It has been preached in season and out of season by our idealists. It has been deeply instilled into the minds of every new class of pharmacy students. Year after year the same old fallacy has been perpetuated, and it is with exceeding slowness that we are coming to see the light.

As a matter of fact, all this scorn of commercialism in the drug business is the worst kind of stupidity. The old school pharmacist speaks yet of the "ethical" pharmacist and the "ethical" pharmacy, as if what he would call a commercial druggist and a commercial drug store was *unethical*. But ethics has nothing to do with the question. The word ethical in such company is a rank misnomer. The ethical law is the moral law—the law of honor and honesty—the law of square dealing—the law of rectitude and decency and integrity.

There is every bit as much ethics in honest commercialism as in honest professionalism, and a druggist who runs a soda fountain, providing he dispenses pure soda water, and indulges in no deception to the public, is just as "ethical" as the pharmacist who spends all his time in putting up prescriptions or performing urinalyses.

* Address of the Chairman of the Commercial Section of the A. Ph. A., read at the Detroit Meeting in August.

The sad and distressing feature of this whole tendency to canonize professionalism in pharmacy, and to bemoan commercialism, is that it has caused the practical failure of thousands of druggists, and has prevented the entire body of them from being as successful as they should have been. In making this statement I am indulging in no wild exaggeration. I am confining closely myself to the facts. For upwards of ten years now I have been making a close and systematic study of the pharmacist as a business man. For the most part I have found him wanting. I have discovered, for instance, that he usually has no idea at all of what it costs him to sell his goods or what his gross and net profits on them are. He is doing his business largely in the dark, and this is chiefly for the reason that he has been taught traditionally to have a fine scorn for business as something beneath him.

This whole attitude is so cruelly wrong—so diametrically opposite to the truth. Commercial skill and commercial occupation are not things to scorn. On the contrary, commercial ability is a far rarer flower than professional ability. You can go up and down the country and hire professional training of all sorts at a very low wage, but you can't find business skill enough to serve your purposes. It isn't to be had. It doesn't exist. There isn't enough of it to go around. Consider, for a minute, the large chain of drug stores in the eastern part of this country that is now endeavoring to increase the number of its establishments as rapidly as possible. What is holding it back—a sufficient number of crack prescriptionists? No, the woods are full of them. The one obstacle is that of finding a sufficient number of men who are competent to manage the new branch stores that the company expects and desires to establish.

What distinguishes this nation from all other nations? Isn't it commercial genius—the genius of the business creator that builds up vast commercial enterprises? Why are all of our leading universities establishing courses in commercial science? Why is a student who wants to prepare himself properly for the conduct of American business now urged to spend just as many years in university work as he would if he desired to study engineering or medicine or law or what not? Business, indeed, is just as much of a science as any of these, and the sooner this fact is realized by American druggists, the better it will be for them.

There is no disgrace in handling side-lines in a drug store. The man who sells souvenir post-cards is not headed straight for perdition. The pharmacist who makes a specialty of photographic supplies or optical goods or stationery should not be read out of the society of decent people. These things are all honorable—just as honorable as the dispensing of prescriptions. There isn't prescription business enough in the United States to keep its 47,000 druggists out of the poorhouse. The only course for the druggist is to do what has already been done—round out his sales by carrying allied things for which there is a public demand, and then study the art of salesmanship and the science of commerce so that he will make a success of the enterprise. And he should do it with his head in the air. His course is every bit as "ethical" as that of the purely prescription druggist, and he is just as good a citizen and may be just as skilled a man.

If I were disposed to make a plea on this occasion it would be for more instead of less business. I would have the American pharmacist become so skilful a business man that he would know how to take care of himself under any and all conditions. I would have him more self-reliant. As some new form of competition arose, or a particularly aggressive form of price-cutting developed, I would have him so independent that he would look to himself for protection instead of to any local or state or national organization. I would have him able to protect his own interests instead of waiting until a Stevens bill or some other law came to his relief.

Competition in the drug business, as in all other lines of trade, and in every profession, is steadily growing keener. It will be worse in the future than it has been in the past. Statisticians tell us that expenses are going up while profits are coming down. What is the lesson? It is this—that the pharmacist must become more and more of a business man, more and more a student of commercial practice, more and more a man determined to make the most of every honorable opportunity presented to him in the conduct of his store. He must study expenses. He must study profits. He must know precisely where he stands. He must be able to reduce his costs. He must be able to increase his selling figures. He must become a skilled advertiser. While not turning his back upon pure pharmacy, and while respecting to the uttermost his occupation and training as an apothecary, he must nevertheless reach out and make himself successful by the use of every commercial art that he can decently call into service.

Some timid souls may fear I am preaching a doctrine of heresy—that I am urging a course which means the destruction of all professionalism in pharmacy. Far from it. The able business man in our calling is the man who develops the purely professional aspects of his occupation just as shrewdly as he grasps every other opportunity and makes the most of it. He respects pure pharmacy because it is after all the foundation of his calling. But as a practical man he respects it still more because it contributes to his success. To prove this point without superfluous argument let me ask a question or two: Where do you find the largest, the best organized, the best equipped prescription departments? Where do you find men who do nothing all day long but dispense prescriptions, and who become specialists at the work? Isn't it in the big city stores where commercialism is pushed to the limit, and where the establishments have become so large and so successful as to make it possible to organize separate prescription departments, and conduct them as they should be conducted? Is there any lack of sympathy here between pharmacy and business—between profession and trade? Do they not lie down together in perfect harmony and does not one help the other?

In conclusion, I want to make one prediction. I have remarked on several occasions that our colleges of pharmacy do not pay sufficient attention to the subject of commercial training. I want to go farther and prophesy that 50 years from now, if not before, the typical school of pharmacy will be an entirely different institution from that of to-day. It will no longer give students the notion that the business side of pharmacy is beneath their consideration. It will frankly

recognize the pharmacist as a business man. It will follow the lead of the universities, with their elaborate commercial courses, and will devote one-half or two-thirds of its curriculum to commercial subjects. It will necessarily abandon many of the superfluous studies that are now deemed essential. In short, it will grapple with conditions as they actually exist, and it will make an earnest, studious and systematic effort to prepare the druggist for the intelligent and successful conduct of his business.

To state the case still more succinctly: The college now teaches its students the science of pharmacy. It will then teach them to run a drug store.

HOW TO GAIN GREATER EFFICIENCY AND CO-OPERATION FROM CLERKS IN DRUG STORES (AND, INCIDENTALLY, DUE APPRECIATION ON THE PART OF THE EMPLOYER).

CHARLES R. SHERMAN.

It has always seemed to me that the employer and employe should easily find common ground of mutuality of interest.

It is true, one gives his service and the other gives a money consideration for same, but if either has any faith in the ultimate triumph of the equities, it will tend to make the employe tender a full measure of prime quality service; while exactly the same motive, only originating at a different view-point, will tell the employer (individual or corporate) that, for the service he receives, he must inevitably, sooner or later, give a fair return.

How to secure faithful and efficient service in drug stores, is a most perplexing question. There are several reasons why this is so, and why this condition will not change, materially, until an entirely new status is recognized and agreed upon, as the basis for employing drug store help.

This *Status* is most essential for it relates to the actual work to be performed in most retail drug stores at the present time.

As to "ye ancient apothecary," the condition is little changed. We will presume and grant, that this type of a pharmacist knew his stock, and gave intelligent and adequate service to his limited number of patrons. The *personnel* of his store underwent metamorphosis in due time, by the employment of an apprentice, who was taught the "3 Rs" of Pharmacy, and who, in turn, became a "clerk," and, in time, (D. V.) he took the place, in part, and finally, in whole, of the proprietor.

Not one word will be said here, belittling this type of store, its proprietor or his assistants, but this sort of a drug store is becoming extinct. If men and boys could be found now to conduct this kind of a drug store, I believe the returns would be better than ever, but the measure of service was too great for the returns; too much of sustained effort and deprivation, too little of recreation and recompense.

The new drug store establishment, large or small, still needs and must have, (if it would retain the confidence of the public), careful, intelligent men and women, well skilled in the "Art of Pharmacy," for, let it be noted that this art

has *grown, under modern conditions*, instead of under-going "dry rot," as some would have us believe.

But, in the modern store, there will be many duties which may be performed, acceptably to all concerned, by one who has not "grown gray in the service," or by one enlisted for life.

When visiting the high-priced specialist, the patient, in most instances, is met by a very moderately paid young lady, who arranges the interview, and finally receives and records the fee, or makes an entry of charge, and thus, in very fact, performs the work which might otherwise have consumed exactly the same amount of the time of a skilled professional.

The important business statement, from the "chartered accountant," railway office, or bank, is extended, footed, and written by some faithful minor employe, who is entirely unchartered.

The public has finally been taught that there are thousands of minor duties that may be entrusted to unskilled, but clear-headed specially fitted employes, leaving the important essentials to those specially fitted to perform them.

To make the modern drug store attractive for the employe, hours must be shortened as much as possible and wages increased as much as the traffic will bear. The traffic, however, in the average good drug store, will never allow men drawing salaries of from \$75.00 to \$125.00 per month, and who are trained pharmacists, to spend their time in selling soda water, stationery, candy or cigars, or doing cashier's or bookkeeper's work. Each one of these things has its relative importance, but need not, *and should not* be done by one wearing the label of "Pharmacist."

In any store that does over \$10,000 per year business an untrained woman may well be employed at, possibly a commencing salary of \$20.00 or \$25.00 or \$30.00 per month, with an increase of \$1.00 per month for a stated number of months, or as long as her efficiency is increasing, and it will be found that there will be plenty of duties to fully occupy her time.

There are the show-cases to be dusted in the morning, cash and change and stamp fund to be counted and balanced, either morning or evening, new goods to be marked and arranged in and on show-cases, possibly assisting as label writer at the prescription counter during busy hours; indeed, there really seems to be no duty about the drug store that cannot be as readily learned by an intelligent young woman, as by the young boy or young man apprentice.

If the store is a larger one, and doing more business, the opportunity is enlarged for employing apprentice help, either young men or women. All this, with a view of conserving skilled and high-priced labor for the important service, which must be performed in every drug store every day, and also for the further and important purpose of dividing up the time of service so that more time off may be given all drug store employes. The long and weary watches of Sundays and holidays may thus be shortened, and yet acceptable service be given to the public.

In the larger city establishment, it is well known how these things are arranged. In such stores, two cashiers are generally employed, one commencing with the opening of the store in the morning, and working a reasonable shift of hours,

and being relieved later in the day by another young woman, who stays until the closing of the store in the evening.

It is customary, in most stores, to have the cigar case placed in proximity to the cash desk, so that cashiers may assist in the sale of cigars. Some portion of the minor office duties can well be performed by cashiers, such as addressing of circulars and perhaps the keeping of accounts of "petty cash" and stamp fund.

Indeed, close managerial care should be given, to the end that work is distributed along the lines of least resistance, to the end that each employe is given occupation suitable to his talents and experience, and his work thus made, in the highest degree productive.

The writer, who stoutly avers that he is neither a "moss-back" or a nihilist, as to the art of pharmacy, still believes the old-fashioned bottle-washing experience for boys starting the business, is the most wholesome path to follow at the beginning, and that the boy who has been inducted into the business-cleansing mortars and graduates, washing bottles, etc., thus, in due and proper time, becomes the best possible material for junior assistants at the prescription counter, or in the store.

This period of service need not be a long one, and will be calculated to impress the future pharmacist with the importance of these particular tasks; the fitness for future usefulness being rightfully forecasted by the faithfulness of performance of these minor duties. The length of this paper will not allow pointing out the absolutely important information which may be gained by the "boy at the sink," but no one, who has had this experience, or has had an opportunity of observing such apprenticeship, will question it.

Lest someone would interpret some of the things thus far suggested, as pointing toward the employment of cheap help, let me suggest that the result is just the opposite. By conserving the time of the trained pharmacist for the work for which he is fitted, his labor becomes more productive, and, of course, a better salary can be paid. The same is true of the skilled accountant, stenographer, or, indeed, anyone who has attained high efficiency in a given vocation. To allow such a person to waste their time in doing the work which would be done quite as well by one with a few weeks experience, is nothing more or less than business waste. If there is any place, more than another, where large department stores have employed sounder business methods than the "single liner," it has been in this particular. The skilled silk salesman is never seen behind the ribbon counter, and the woman who sells a "\$20.00 French Model" hat for 98c on Thursday afternoon, at the bargain square, need not be, and is not, an artistic designer of feminine head-gear.

When all the foregoing suggestions have been complied with, there still remains the all important thing of "personal equation," which goes to make up the successful career of the employe of small or great degree, in either small shop or large business establishment.

No one has ever disputed the saying that "the boy is father of the man," and it is equally true that the minor employe of to-day, if conditions are at all as they should be, must be the head man or employer of the business tomorrow. It has always seemed amazing to me, that even though youth, like love, is blind,

and must see things for itself before it will believe them, that this cannot be clearly seen, and that the straight road to success should not always be followed. The sign-posts to this road of success are always in plain sight. "Honesty," "Work" and "Steadfastness" seem to be the inscriptions which, alike, may guide each traveler along the business highway, to his particular goal.

Much is said and written, these days, as to "Salesmanship" and the "Art of Selling Goods" and "Bringing the Customer to the Salesman's View-Point"; all these feats being considered attainments, greatly to be desired in drug store, as well as other employes. Schools of Salesmanship have expatiated on these points at length, but, in the experience of the writer, such accomplishments, on the part of employes, are not nearly so necessary, or important, as the following of some of the simpler and pristine rules, as laid down by some much earlier writers, and lecturers; things that were said before most of the modern appurtenances of business were ever thought of, for instance, from the clerk's viewpoint: "Be ye not weary in well doing, for in time, ye shall reap, if ye faint not"; or "Thou hast been faithful over a few things, I will make thee ruler over many things."

From the standpoint of the proprietor and clerk alike an inspiration might be gained by remembering the words: "Seest thou a man diligent in his business, he shall stand before kings. He shall not stand before mean men."

In the experience of the writer, a scarcity has not been found of "scientific" or "would-be scientific" salesmen, but of salesmen and saleswomen who *know the goods carried in the store where they are employed*; who know the prices of these articles and the uses for which they are intended, and can find the goods and make the simple array of facts, as suggested, when the customer arrives, who is interested.

Simple enough, one would say, and yet, to ye who are searching after "human interest" data, I would say, try to buy a bottle of olive oil, some solution of silicate of sodium, a truss, an abdominal supporter, some rhinitis tablets, in the average drug store, and find out what you *do not find out* and how long it takes you to get this information, and when you have learned this, you will know why so many clerks are "sick of their jobs," and why, about the same number of proprietors are dissatisfied with the drug business.

The clerk who is ambitious to earn a good salary, and enjoy, along with it, good hours, must *learn his duties*, be they simple or complex. The manner in which the simplest transaction is handled in a store, indicates to that particular customer, the plane of the whole establishment, and the employe who lowers the standard by the shuffling, sloppy handling of a customer, helps to tear down, instead of build the business structure; to ravel, instead of knit, the commercial fabric.

In the drug business, as perhaps in no other line, continuity of service by both proprietor and clerk, is all important. The new drug store in the community, seldom reaps the best there is to be had of business, so, the new employe, even though quite competent, cannot hope to reap the full reward of his service, until years enough have elapsed to thoroughly establish him in the confidence of his employer and his patrons.

Intensified efficiency with elimination of waste, is what brings success to the factory, the large business establishment, and the small one as well, and exactly the same thing will bring corresponding rewards for the employe, for after all, any given business establishment, small or large, is but the replica, in few or great multiples, of the efforts of single units of employes. These units may be, to use a figure of speech, "half horse, or one thousand horse power," but if the function of each is performed with regularity, each contributes his share to the success of the whole, and it must follow that each will receive the rewards gained by all in proportion to respective share and value of service performed.

This paper might be made twice as long by pointing out the detail of work which should be performed in a given store by a given employe, for one day or one week, but as this work would not be the same in any two stores, no such array should be necessary, as surely any employe, who has his heart in the work, will know which near-lying duties should be performed from moment to moment, hour to hour, and day to day, as the weeks, months and years roll around.

It is not reciting an altruism, but the history of actual fact and experience, when it is said that the greater the avidity with which everyday tasks are taken up, the greater will be the success attending same, as well as the rewards attaching thereto. Concrete examples could easily be pointed out here, there and everywhere, showing just how great these rewards are and it is amazing that such instances escape the eyes of the half-hearted worker and fail to spur him on to his best efforts.

Just now, I have in mind as employes of a single retail firm, one young man who started at a salary of \$35.00 per month, and is now receiving in the neighborhood of \$2000 per year; another, starting at a salary of \$50.00 per month, and now has an annual salary of \$2300. With the same firm, also, is found a colored porter who has just about doubled his commencing salary, and a few young ladies who have doubled and tripled their commencing wages.

Of course the satisfaction enjoyed by the employer who has succeeded in retaining faithful and efficient helpers for a period of years, constitutes one of the joys of business, and when these reciprocal gains for both employer and employe, computed in dollars, confidence and good-will, are considered, one is more than ever impressed by the loss which both sustain, by a condition which might easily be remedied.

SYNTHETIC SUGAR.—A London chemist, Mr. A. Voltaire Boyes, has discovered a process for the production of a synthetic sugar at a cost considerably below the normal prices. It could be sold at something like 1½d. per lb., with a handsome profit. This new sugar is white, weight for weight as sweet as ordinary sugar, quite as soluble, and quite as wholesome. It is stated to be suitable for table and kitchen purposes and for the manufacture of jams, confectionery, mineral waters, etc. A company called the Synthetic Sugar Syndicate, Limited, has taken up the process, and will at once afford employment to five thousand men. The initial output will be about 100 tons a day.—(*Phar. Jour. (London)*).

Editorial

ERNEST C. MARSHALL, Acting Editor.....63 Clinton Building, Columbus, Ohio

THE COMMERCIALIZATION OF PHARMACY.

THE address of the late Chairman of the Commercial Section, which appears in this issue, should be read with interest by all the members interested in the proper growth of the retail drug trade of this country, and this will include, it may be said, every member of the Association, for, upon the correct and fitting development of the profession depends the welfare, not only of our Association, but that of nearly every one of its members.

What Mr. Mason says of the gradual development of the profession into a general business is interesting, coming from the source it does, from one who has been closely identified with the study of the business for years, but it seems to us that he magnifies the importance of the commercial side of the profession.

The corner-stone and the whole foundation of the profession of Pharmacy is scientific education. It is that education which gives the pharmacist his position in the world. It is that which, while not making him superior to his fellowmen, such as "the butcher, the baker and the candle-stick maker," yet causes him to be more respected in the community, as a man of superior education is always esteemed above those men whose only knowledge is of common things.

Far from any thought that any one class is better than another, yet it must be allowed that the respect of the community is rendered more to the man of technical training than it is to those the practice of whose business involves no special education or training.

No one will deny that contention of Mr. Mason that to sell postcards is as "ethical" as to prepare prescriptions, providing that the former is done in an honorable way, but will any one deny that the latter requires more skill, more training, more education than the former? It may be just as ethical to shine shoes, providing that the shoe-shining is done well and faithfully, as it is to make a perfect pill or a good tincture, but will Mr. Mason suggest, because of that, that the druggist should put in a shoe-shining department? The man at the barber's chair can be just as "ethical" as the man trained to that which will save life, alleviate pain, and relieve suffering mankind, but Mr. Mason would probably not contend for that reason,—because it is as moral,—that druggists should open ton-sorial departments.

"Let every cobbler stick to his last," is an old saying and a true one. Let druggists and apothecaries stick to the business of drugs, and not enter upon other fields with which they are unfamiliar and in which they are untrained. They can sell coffee and tea to be sure, but if they give their time to the study of the coffee and tea business they are neglecting the study of the goods which properly belong

to their profession, and no man can become expert in the trades of druggist and of grocer at one and the same time.

Granted that there is not prescription-business for all the 47,000 druggists of the country, are there not other things properly belonging to his profession for the druggist to do? Do not such things lie within the proper development of the opportunities knocking at his door? There are many unsolved problems of chemistry which he can take up and work out, without investigating questions belonging to a business foreign to him. The time he would devote to ascertaining the best coffee to purchase, the best source of supply for postal cards, can be well devoted to the study of questions relating to his own legitimate business, to becoming a master of the profession of Pharmacy. The tendency of the present day is to make the drugstore a department store, and for it to sell anything which can be sold profitably, and Mr. Mason thinks that that is the best way for the profession to develop. But with all those who have higher aspirations for the business or the profession of Pharmacy, we believe that the time is coming, and that it is close at hand, when these things which many think degrading and inimical to the true advancement of the profession of Pharmacy, will pass away and like the Phoenix, rising with enriched and renewed plumage from its ashes, Pharmacy will have a *renaissance* in which Pharmacy and Pharmacists will be again held in esteem, and in which Pharmacists will bear an ethical and honorable part.

The pendulum has swung too far to the side of the degradation of Pharmacy, and the backward swing must be just as far. Let us all labor to lift Pharmacy. Let its followers leave the lunch-counter to restaurants; the other parasitic growths to the businesses to which they properly belong, and let us strive to be Pharmacists in fact as well as in name.

It is not a question of ethics, of morals, but it is a question of expediency. Is it advisable to lower the *morale* of a profession because there is "a dollar in it?" If you answer that question in the affirmative you take all the nobility out of life, and make it simply a question of, How much lucre can I win? *Facilis est descensus Averni*, and from one step to another we may descend, justifying each lowering of the standards, because we justify our way as we proceed along the downward path.

Pharmacy has been led astray. Like the Jews of old, some of its people have set up a Golden Calf to worship and a Moses is needed to lead them back again to better, higher, if not more ethical practices.

E. C. MARSHALL.

THE JOURNAL OF THE
THE DETROIT COMMITTEE.

ITS ORGANIZATION, PLANS AND WORK.

IN order that a precedent may be established by which the efforts of the Local Committee may be recorded and made available to the succeeding committee, and in order moreover that the Association may be made familiar with the aims and purposes of the Local Committee, which has just finished its work, it has been deemed advisable to recapitulate what those aims and purposes were.

Aside from the ordinary routine of the Local Committee, the work of the outgoing committee was especially directed along two lines: First, that of conserving the time of the members present, and second, that of bringing promising material to the meeting with the end in view of familiarizing it with the workings and purposes of the A. Ph. A. and to secure such material for membership in our Association. To accomplish the first of these ends, it was *necessary* to use the whole morning and afternoon for work and *desirable* to leave the evenings all open for social intercourse. In order to have the morning and afternoon hours utilized, it was necessary to begin promptly at as early an hour as possible, which hour was decided to be 9:30, and to accomplish this, several things were necessary. First, the program must furnish no obstacles, second, the chairmen must be in their places at the appointed time, and third, the members must be assured that the meetings would be called and that they would not be kept in their seats waiting long after the appointed time. One of the greatest obstacles to the first of these propositions, was the custom of morning council meetings. The Council never did begin on time and always continued through half of the forenoon, and, including as it does, the chairmen of the sections, it was impossible under the old rule to utilize the morning hours. By holding the council meetings in the evenings this difficulty was obviated. To further expedite matters all the usual formalities of the opening session such as addresses of welcome and responses were eliminated. The second proposition was accomplished by enlisting the enthusiasm of the chairmen with the ideas of the committee, for which purpose, a special meeting of the chairmen was called the first day, at which they were made acquainted with plans of the committee and each individual chairman promised to call his meeting on time, authorizing his vice-chairman to do so if he should not be present. This meeting of the chairmen was a new departure and was a valuable aid to the committee in accomplishing what it desired toward the saving of time. The Local Committee recommends to the future committees the consideration of these meetings as a means of obtaining the co-operation of the chairmen. To accomplish the third end was not so very difficult. By paging the corridors of the hotel twice before every meeting, the members were made aware of what was going on. How the membership took to these plans might be illustrated by two occurrences. The Commercial Section on the first day was announced throughout the corridors according to the plan. According to his promise the chairman began his address with no audience save his secretary. The seats were soon filled, however, when the members saw the section to be in session. By Thursday, when the river excursion took place the departure of the boat was also announced through the corridors of the hotel.

By this time the membership had caught the spirit of the meeting and when the boat had left the dock exactly on schedule, the members of the Local Committee, who remained at the dock to direct any late comers, had nothing to do. Everybody was on the boat. The inconvenience which might attend the holding of simultaneous sessions rendered necessary if the evenings were to be open for recreation, was to a large degree obviated by bulletins announcing what was going on in every section that was in session. The bulletin scheme, which was somewhat of an experiment, may be made much more successful at the next meeting if profit is made by this year's experience. If a collective program is published as directed by the council so that each member will have in his possession a complete program and if in printing the program, the Local Committee provides that all the items on the *program are numbered* so that the numbers can be announced on the bulletins by a large figure instead of by title, there will be little or no confusion in the bulletin scheme.

When so many sessions are being held at the same time in different rooms, as is the case in the A. Ph. A. Conventions, some confusion is apt to occur. The Local Committee endeavored to minimize the confusion which would naturally follow by having the different sessions of any particular section, conference, association, or council meeting meet in the same room. A large card was placed at the entrance of each room designating it as A, B, C, etc. Smaller cards were provided with the words "Council," "General Session," and names of the various sections, etc. The appropriate card was then attached to the larger cards, thus indicating what meetings were going on in the various rooms at any time.

To bring about the second main result, that of bringing available material for membership to the meeting so that the object and workings of the Association could be demonstrated, the following means were employed. First, the usual publicity in national Journals, second, the holding of joint meetings of the State Association with our Association, and third, the assistance of Travelling men throughout the state.

The first of these need not be commented upon for although the national campaign was conducted with unusual skill and vigor, it was a means that is usually employed.

The second one was undertaken with a less degree of confidence or sanction by custom, but we believe our reasons for trying it sound, and results were profitable. It cannot be denied that there is almost a universal misunderstanding by druggists of the character and work of the A. Ph. A. The impression is general that it is an organization of "high brows" and that there is no place in it for the retailer.

A second proposition is also a fact, namely that the material to which our Association must look for recruits is to be found among the individuals who make up the State Association, that is, a man who is likely to be appealed to by an association, is likely to be in his State Association.

For these two reasons: that of getting the people who are in sympathy with our work and that of correcting the wrong impression of our Association in their minds, we decided to hold our State Meeting jointly with the A. Ph. A. We believe the action was wise. The writer took pains to make many inquiries among state members and in almost every instance, they not only enjoyed the meeting immensely, but were impressed with the democratic spirit of our Asso-

ciation, and whether they joined at once or not, they will at any rate not be kept from joining through their former misconception which we all know to be a general one.

The program was so arranged that the state meetings did not interfere with the A. Ph. A. at all. Two short general sessions of the State Association were sufficient for the transaction of its business. Besides this, there was one joint session with the section of Practical Pharmacy and Dispensing, at which was demonstrated the educational side of our work, and one joint session with the Commercial Section which emphasizes the interest of our Association in the commercial efforts of the retail druggists. This constituted the official program of the State Association, although of course, the state members mingled with the association members at other sessions.

In the work of publicity throughout the state, the Commercial Travellers Organization of our state were of material assistance throughout the nine months preceding the meeting.

Concerning the organization of the committee something might be said. The same general plan was employed as was utilized at the Nashville Convention. That is the committee was divided into suitable sub-committees whose chairmen constituted the Executive Committee.

Members of the General Committee were selected either on account of their prominence in local pharmaceutical circles or on account of their special fitness for the work in hand. For obvious reasons the chairmen of the various sub-committees and the resulting executive committee were selected altogether from the latter class. By this arrangement it was necessary to call the General Committee on only two or three occasions to receive reports of progress from the Executive Committee, which met every week for the last two or three months prior to the convention.

It is with full realization of many short comings in the conduct of the past meeting that the Committee makes this report, but it is in the hope that progress may result; that meetings may become more efficient, and that the work of the future Local Committees may constantly approach nearer perfection by the making of such a report by this and succeeding committees for the benefit of their successors.

L. A. SELTZER.

CHRYSAROBIN IN PSORIASIS.

In an article entitled "Summary of Research Studies in Psoriasis" the authors state that "Chrysarobin, the most powerful and efficacious drug known in psoriasis, has practically no germicidal power; calomel, on the other hand, which we have found to be highly germicidal and capable of destroying the cocci in the skin, has but a feeble effect on the patches of psoriasis."—J. F. Schamberg, A. J. Renger, G. W. Raiziss, and J. A. Kolmer (*Jour. Amer. Med. Assoc.*, August 29, 1914).

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GEORGE HENRY SCHAFER

Honorary President, American Pharmaceutical Association, 1914-1915.



Mr. Schafer was born at Ft. Madison, Iowa, July 15, 1847. He was educated in the public schools and academy of his native city, and rounded out that education at the Western Union College and Military Academy at Fulton, Illinois. He entered the profession of Pharmacy in 1862, at Ft. Madison, under the tutelage of the firm of McFarland & Eckhart.

In 1868, Mr. Schafer became a member of the firm with which he had formerly been employed, and in 1872 he became the head of the present firm of George H. Schafer & Co., his son, Mr. Robert Schafer, being the other member of the firm.

Mr. Schafer became a member of the A. Ph. A. in 1871. In 1880 he was elected First Vice-President, and at the request of the President, Mr. James T. Shinn, who was unable to be present, he acted as President at the meeting in Kansas City, in 1881.

In connection with this meeting, it is interesting to note that it was probably the cause of the extension of the Atchison, Topeka and Santa Fe Railroad from Kansas City to Chicago by way of Ft. Madison, and the consequent great development of this Section of the West.

The first suggestion in regard to this extension occurred in August, 1881. Mr. Schafer, upon arriving at Kansas City a few days before the annual meeting of the American Pharmaceutical Association, at which he presided, found that three railroads to the Rocky Mountains had united on a rate twenty times that of an excursion rate which the western delegation of pharmacists had promised the preceding

annual meeting at Saratoga, N. Y., as an inducement to hold their succeeding annual meeting in Kansas City. Mr. Schafer at once wired the Santa Fe officials at Topeka to get the presidents of the several roads to redeem their promises to incoming delegates from all parts of the U. S. and Canada, keeping the wires hot for several days. It resulted in Mr. Strong, General Manager Wheeler and Traffic Manager White meeting Mr. Schafer at Kansas City and consenting to redeem the pledges made to western delegates at Saratoga by making the special rate of \$1.00 to the Rocky Mountains for all delegates attending the Kansas City meeting. This happy conclusion and Mr. Strong's good heartedness encouraged Mr. Schafer to then ask Mr. Strong and the officials present why the great A. T. & S. F. Ry. did not extend their lines from Kansas City to Chicago. While no direct answer was made, Mr. Strong began propounding such interesting questions to Mr. Schafer and the attending officials, that upon Mr. Schafer's return to Ft. Madison he took the matter up with some of the leading citizens and a public meeting was called. The result of this agitation was that the extension of the road was decided upon. He served also as a member of the Committee on National Formulary from 1888-1894, and a member U. S. Pharmacopoeial Convention of 1890.

A brief sketch of his activities in Iowa Pharmaceutical affairs may be summarized as follows: Author of the Iowa Pharmacy Law of 1880, first drafted and submitted to the Legislature of 1878, which was considered of such force and state-wide effect as to be taken as a precedent for modern pharmacy legislation, since enacted in 32 states of the Union, especially so as the draft for this law received the enthusiastic support of the Iowa State Pharmaceutical Association organized at Des Moines, February 10-11, 1880, with Mr. Schafer as its first President. Upon the enactment of this law March 22, 1880, he was appointed one of the Commissioners of Pharmacy for the State of Iowa, serving from 1880 to 1888, during which crucial period his original draft, initiative administrative regulations, amendments, etc., were subjected to many contests in the State, Legislature and Courts by which the fundamental principles of modern pharmacy laws were fully sustained, notwithstanding the important innovations on statutory laws they were and are held as constitutional and for the public welfare.

He was elected Honorary President of the American Pharmaceutical Association, and Honorary Member of the National Boards of Pharmacy at Detroit, August, 1914.

Contributed and Selected

COLORIMETRIC METHODS.*

FREDERIC E. NIECE, NEW YORK CITY.

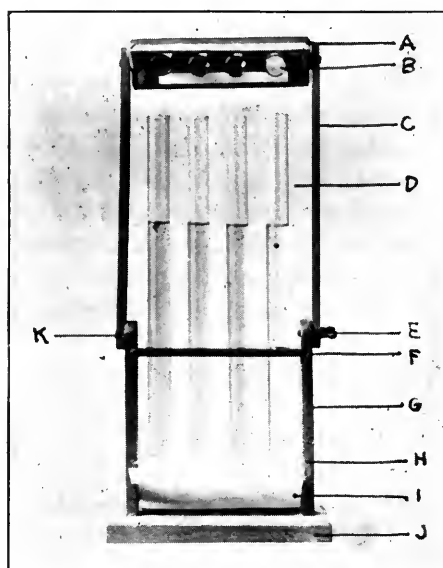
In bringing this subject before you at this time, I do so with one object in view and that is, to give the work the prominence it deserves, and mention the study it will require before it will reach a point of perfection, necessary to make it of general usefulness to our laboratory workers, especially our pharmaceutical chemists. No attempt will be made to explain in detail the various methods that have been found to possess reliable means of a determinative nature, but briefly to call your attention to a few, and incidentally mention their virtues over older methods, with such references as will give leading information should anyone desire to consult more fully the methods in question. The actual work that has been performed involving the principle of color measuring is meager, considering what has been accomplished in the interest of other methods of an analytical nature. That the principle here involved is not a new one needs no comment, but like most all things of simplicity, it is too common-place to be considered of much value. In contradiction to this mis-conception however, we will find in the question of a water analysis, an argument strongly in favor of a more careful study of this line of technic, for as a matter of fact, a water examination to be of any value will depend, for its completion, upon the principles concerned in colorimetric determinations, for if this were not true, or impossible, water examinations as a possibility would a long time ago cease to be a factor in matters pertaining to the chemist.

In viewing the literature on this subject, from a most varied and scattered field, I find mentioned here and there certain methods which when slightly modified from the original, reach closely a mark nigh unto perfection, for the purposes they have been offered. I find in particular, no limit to the uses to which color measuring has been applied in pharmaceutical practice, and there seems to be no limit to its applicability in general chemical analyses as well. As an innovation to our busy pharmacists and chemists, a set of reliable standard colorimetric methods would fill a well deserved place in the analytical laboratory, by reason of their use in preference to the more tedious, elaborate and time consuming methods of volumetric, gravimetric and electrolytic operations. A selected set of standard methods would be of the greatest value, if so arranged as to be easy of application without the sacrifice of accuracy. In reviewing the work thus far done, I did not locate any book in English, exclusively devoted to this subject, but I did encounter some few references to a German work, and some as to a French book, but this was all. The only treatise I know of as being of American

* Paper submitted to the Saratoga meeting of the New York State Pharmaceutical Association, June, 1914.

origin and dealing principally with this line of analytical procedure, is bulletin No. 31 issued from the Bureau of Soils, of the Department of Agriculture. This was published in 1906. The methods mentioned in this work, are intended solely for soil work or analysis, but I have succeeded in using the same methods with slight modifications, in many other directions, and they have given very reliable results.

What a revelation would greet pharmacists, if much of this delicate weighing could be done away with by measuring depth of color in its stead, and thus determine the quantity of substances present. I venture to state, that the time is not far hence when much of this will be disposed of especially in our pharmacal laboratories, by virtue of the establishment of a number of reliable colorimetric methods. Not that all things will be possible by this means, but many things now



A—Movable mirror. B—Reflection of colors in tubes. C—Upper frame work-movable. D—Fifty cc. Nesler tubes. E—Thumb screw for adjusting upper movable frame work. F—Tube support with holes. G—Upright supports (rigid). H—Glass shelf tube rest. I—White opaque glass light reflector. J—Base for stand. K—Screw hinge.

analysable by no other way than by older methods, may yet be determined by color, either preformed or created.

Color analysis is more simple and in many instances more reliable than either weighing or measuring direct. There are times; and many things do exist, whereby no other method is applicable other than that of color comparison.

In order that we may better realize the scope of this line of analytical procedure, I am going to briefly mention a few methods selected at random that have peculiar virtues all their own for determining substances, colorimetrically, and some others not so readily estimated by other means than this, with results

exceedingly accurate, considering care in technic. To go into greater length in describing these methods, would be unwise at this time since the discussion of one method alone would be sufficient material to form the basis of a paper in itself.

My sole intentions at this time are to bring the subject matter to you in such a manner, that you will become acquainted with the importance of its study, and thereby better realize the neglect it apparently has suffered.

I also desire to present to your notice a simple piece of apparatus, which I call for want of a better name "A Colorimeter." This instrument can be readily constructed, and such as it is serves every requirement, for it is inexpensive and less complicated than the more costly ones. [See p. 1461.]

In my laboratory it has left nothing to be desired, simple as it may appear, and setting aside faulty technic, it will by no means interfere with any attempt at accuracy, for there is nothing to get out of order, as to mislead vision.

A word as to technic. We must realize in this work as well as in all analytic operations, accurate results depend entirely on care and precision, hence each little mis-step multiplies itself to the end, for in this work we are dealing with minute quantities. In defining colorimetric analyses, we would consider it as a quantitative procedure, by estimating the color depths of two solutions, containing colored compounds in solution or colloidal suspension, which is usually performed by comparing columns of tinted fluids in suitable apparatuses. The comparison being made after striking a similar tint with the known or standard solution to that of the unknown solution. By a series of dilutions with water or other fluids indicated, the colors are then matched and from this the amount of substance (according to its color) is ascertained in the unknown solution and finally the sample itself.

The manner by which the color matching can be accomplished is by diluting with appropriate diluents, standard color solutions until the color so made compares exactly with the color of fluid under investigation, or by diluting the sample color itself until it reaches the color of the standard, or by varying the depth of the volume of the standard solution in a suitable graduated tube until it agrees with the color of the material under testing. Or in a like manner both volumes can be so adjusted, as to compare by the addition or removal of measured amounts until the colors agree when a simple calculation gives the data sought. In either case the work is simple.

In order that we may better comprehend the wide range of usefulness this principle can be applied to, the following will give a few representative examples covering as you will observe almost every domain of analytical manipulation. A few are as follows:

The determination of citral in lemon oil and lemon extracts by the use of meta-phenylene-diamin hydrochloride.

The estimation of the amount of albumose in anthrax cultures by precipitating the same with absolute alcohol.

The valuation of vanilla extracts, by determining the amount of vanillin, by using iron sulphate.

The estimation of salicylic acid in food products by the use of ammonio-ferric-alum.

The well known method of determining the amount of carbon in Bessemer steel, using Bessemer steel standards in acid solution.

The valuation of cudbear and caramel in solution are procedures well known to pharmacists.

The estimation of free lactic acid in stomach contents by using ferric chloride in hydrochloric acid to form the lactate of iron.

The estimation of hemoglobin in blood by the Gower method as modified by Sahli, using as a standard picrate of carmin in glycerine.

The determination of adrenalin in supra-renal glands, by using as a comparative standard, pyrocatechin and ferric chloride.

The sanitary examination of contaminated water supplies for the presence of lead, using a saturated solution of hydrogen sulphide.

The determination of very small amounts of strychnin in human viscera, for medico-legal purposes, using as a reagent to produce a characteristic color; sulphuric acid and sodium iodate.

The very reliable method of the Bureau of Standards for the precise determination of iron in solution by using sulphocyanic acid.

The well established method of Schreiner and Brown for the exact estimation of phosphates in soil by using magnesium mixture and ammonium molybdate.

In conclusion, I may state, that I have but only scratched the surface of the vast possibilities that remain open for research in this old, but disregarded field of analytic work. I make no claim for superiority over those of the older and well defined methods extant to-day, but I do feel, that there will be occasions when the older methods will be inadmissible, and therefore in such an event, we should have recourse to other means for an accurate determination of the substance under investigation. In view of that, a number of methods known to be of value by reason of their more general use, would be acceptable. In that direction colorimetric determinations would then fill a very important part in our daily routine.

A STUDY OF THE WORK DONE BY THE COMMITTEE ON PHARMACY AND QUERIES OF THE VARIOUS STATE PHARMACEUTICAL ASSOCIATIONS.*

BY FREDERIC E. NIECE, NEW YORK CITY.

In the beginning of this study I was amazed, on investigating, to find a condition of apathy, much beyond my expectation. I was quite aware that conditions were not as they should be, for the conspicuous laxity or otherwise dis-interest in the welfare of this most important committee, as was manifested to me through the different channels I pursued, proved to be more serious in the end, than what I had any reason to anticipate at the beginning.

In this study as taken from various sources, three salient factors presented themselves to me as being the cause for this much neglected department of our state pharmaceutical associations.

First. The evident disregard by the majority of the members for this part of the annual proceedings.

Second. A seeming dis-interest towards the work or results of this particular committee.

* Read at the Saratoga Meeting of the N. Y. State Pharmaceutical Association, June 23-26, 1914.

Third. The poor attendance at the committee's session—if they have one—and the extreme dearth of papers.

A committee of this nature certainly has some function to perform, and by reason of this fact, has some prescribed duties to exact.

Now, if this be true, and there seems to be no reason for questioning the statement, let us determine just what are the duties of such a constituted committee. For the sake of argument, let us take our own case and turn to a copy of our proceedings and read the By-Laws, under the caption of "Appointment of Committees," Art. VII, Section 3:—

"The Committee on Pharmacy and Queries shall during the interval between its appointment and the next ensuing meeting prepare a list of queries and suggestions on scientific and commercial topics and shall at least two months before the date of said meeting send a copy of this list to each of a selected number of members and the committee shall report its endeavors at the said annual meeting."

From this we are to understand therefor, that such a committee has much laid out for it to do, and the terms of its labors are given in precise wording. But with all this, the committee becomes a nonentity by reason of the failure of the membership at large to coöperate with it.

The intent of this report is by no means a complaint, but rather a request for better work in the future, not so much by the committee itself, but by that vast number which constitutes the committee of the whole—and that is the entire membership. I have no reason for admonishing past or present committees, either directly or by inference, but I am endeavoring to awaken more interest in the welfare of this committee, than what has been manifested at previous meetings of recent years. The members comprising this committee, of each year, to my knowledge have made every effort to succeed with their work, but the weak support they have received from the members in general has been decidedly discouraging.

What is seriously needed, is some plan of activity that will create more enthusiasm and greater interest in the welfare of future committees if their appointment is going to be justified. How this may be accomplished, will perhaps depend on the manner in which the committee—from year to year—bring it to the notice of the membership. Two cardinal points suggest themselves however—which have proven successful with other associations less pretentious than our own. One way is by setting aside an entire session in the morning or evening for reading and discussing papers only. The other is the awarding of suitable prizes under certain conditions, for meritorious papers. The details of this being left within the jurisdiction of said committee. Certain rules should be set down however, so as to insure the program being carried out in order. These rules should be strictly adhered to. I find the usual complaint (and it is prevalent) of authors is by statement—"that you get no time to read a paper, and then if you do read it, there is hardly any body present to listen or discuss it." Rather a poor stimulus for our members to write papers isn't it? That every workman is worthy of some reward, goes without saying, hence no writer, ever so humble wants disappointment in the reading of his or her creation, especially after they have taken the pains and suffered the same in burning the mid-night oil in arranging their thoughts in a tangible form.

The arguments here submitted are in consequence of reliable data which I have collected from various sources. It is offered at this time, and in this manner, with the hope that this committee will be more readily recognized as a factor in our state associations, and a virtue of no small value at our stated meetings.

The prime objects of our annual meetings, as you well know, are to disseminate knowledge and good cheer. A careful examination will reveal however, that things are very much one sided, for as a matter of fact, the latter will be found to be 90% to the good, while a bare 10% can be figured out to the credit of the former.

The annual gathering is the one occasion of the year that we all look forward to for recreation and freedom of all commercial cares and scientific pursuit.

To meet with it, means the coming in contact with those elements conducive to a more congenial sphere by reason of new scenes, strange faces and happier environments. This is the one thing uppermost in our minds, and well it is reasoned, but where will one find a more opportune time for education and elevation, than at a meeting of this kind, where many minds from as many different places congregate to delineate upon the topics of the day. On all occasions there is a time and place for everything, but so sad to state, the fate of this committee of late, has been such, that it has had no place to lay its weary head, much less to even speak its own name.

How true this is, may be better understood, by the reading of the minutes of our various state associations, when an amazing condition of affairs will present themselves.

You will observe that there is no attempt to over-burden the attendants with an abundance of knowledge, good, bad or indifferent as the case may be, and yet the purport is in that direction; while there is no lack of other things. Now let us see if this is a fact, or only idle conjecture. The following list of questions was submitted to the secretaries of all the state pharmaceutical associations throughout the United States. The following replies taken at random and placed in their numerical position as to membership furnished this interesting information:

	Membership 1913	Members present last meeting	Papers presented	Special ses- sion for read- ing papers	Percent of pa- pers to mem- bers present	Percent of pa- pers to entire membership.
Pennsylvania	1415	96	38	yes	40	2.6
New York	1160	150	3	no	2	0.2
New Jersey	900	110	16	yes	15	1.7
Wisconsin	451	85	20	no	23	4.4
Tennessee	450	175	10	—	6	2.2
West Virginia	415	130	3	no	2.5	0.7
Virginia	410	105	3	yes	3	2.0
Alabama	400	75	4	yes	3	1.0
Washington	320	100	6	no	6	2.0

An examination of the above figures shows the following results:

Out of the nine associations selected, with a total membership of nearly 6000,

a total of 926 members in attendance is found according to the records of the last year. This gives 15% of the total. Out of this number something like 108 papers were obtained, giving a percentage of 1.8% out of the entire membership. This adds to our fund of information one paper to about every 55 members or about one paper to every nine members in attendance, or an average of 12 papers to each association recorded. The percentage of individual papers presented per association as compared to the members present at the meeting of their respective association, show a great variation. Pennsylvania is the highest; with 40%, and New York the lowest; with 2%.

It is quite evident, that these facts prove the contention, for one can see that there is a sorrowful lack of interest all along the line.

In support of the statement, that the dissemination of knowledge is one, if not the all important feature of our state meetings, I should, in passing, refer you to our national association, or that of the American Medical. It seems the only matter of importance that comes before these bodies other than that of legislation, is that of education, be it scientific or commercial. So I say, our various pharmaceutical associations should be adjudged in neglect. This much talked of "Professional Pharmacy" can be no better fostered than by reason of the production of a fair quantity, and a good quality of original material for reading and discussion. In view of this, and it should not be difficult, the annual meetings could not avoid becoming of interest to every one and thereby truly scientific. That scientific touch, that so many of us desire that our meetings should possess, will no longer obtain, unless we show a greater interest in the welfare of this particular committee, for by no other channel can it become possible other than this one; at least not so readily.

If we are to expect a continuation of such a committee, if we are to advance the interest of our profession, if we are to gain in strength, knowledge and prestige, we must show more willingness to coöperate and assist this committee in its work. By reason of the success of this committee's work, many, if not all of us, will doubtless return home much richer in the world's knowledge of our chosen profession, than when we came.

AMYL NITRITE; ITS PREPARATION, PURITY AND TESTS.

FRANK O. TAYLOR, PH. C.

(Continued from September Number.)

The B. P. says: "A mixture of 5 volumes with sufficient alcohol (90%) to form 100 volumes affords a liquid of which a portion tested in a nitrometer, as described under "Spiritus Aetheris Nitrosi," should yield not less than six times its bulk of nitric oxide gas." This is equivalent to about 66 percent. by weight of pure amyl nitrite. This also is a standard easy of attainment, in fact it is decidedly too low. A sample which will meet the distillation test will more than respond to this assay.

Again, the U. S. P. imposes an assay requiring about 80% of pure amyl nitrite. This is not at all too high but of itself would readily pass a sample as of standard quality which might be far from such. If amyl nitrite has been imperfectly made from an impure alcohol, it might easily contain lower alkyl nitrites and un-

changed amyl alcohol. These lower nitrites have a specific gravity differing little or not at all from that of amyl nitrite and for equal weights or volumes containing much more of the nitrite radicle. For example 0.179 grammes of nitrite gives 30 cc. of nitric oxide gas at normal temperature and pressure. If this is assumed to be amyl nitrite it is equivalent to 87.2 percent. by weight of the pure ester. If instead it be propyl nitrite the percentage is 66.3, a difference of nearly 21 percent. It is not our intention to enter into any discussion of the various assay methods proposed for amyl nitrite, as this has been very thoroughly discussed. So we shall simply refer to some of the more important articles on the subject, viz.: Allen, Pharm. Jour. (3) 16, 442; Curtman, Proc. A. Ph. A., 1892, 159; Smith, Am. Jour. Pharm., 1898, 273; and Fisher and Anderson, Pharm. Arch., 1898, 189.

Practically all the published examinations of commercial amyl nitrite have consisted simply of determinations of specific gravity, boiling point and the use of a fractional distillation or assay alone; seldom both together. It is perfectly true that these are the only methods we can apply for quantitative valuation of amyl nitrite but it is equally true that neither one alone is capable of always giving reliable results. While fractionation and nitrite assay have been used together, the proper relationship which should exist between them in medicinally acceptable amyl nitrite has not been carefully considered. From using both fractional and gasometric assay in commercial work we find that an excellent idea of the value and purity of amyl nitrite can be obtained by the use of both together where either one alone may lead to erroneous conclusions.

The writer's experimental work was not in any way an investigation in pure chemistry for this aspect of the subject has been dealt with at length and carefully by others, but is to be considered wholly from the standpoint of commercial and pharmaceutical work and hence no special refinements of assay or distillation methods have been used.

The customary form of nitrometer was used and, as the general application of the assay is always the same, details are omitted, being given at length in many other places. Correction of the gas volume was made for temperature only. This correction is necessary because as compared to the total volume it is at ordinary temperature, large, and may easily be applied. The correction for barometric pressure is by no means so large at low altitudes and average conditions of weather and is hardly necessary for all essential purposes of the assay and, though the U. S. P. specifies such correction, it will usually be omitted by pharmacists from lack of reliable means of determining the pressure, except in the higher altitudes where the correction is important. The application of a correction for vapor-tension of the liquid in the nitrometer is not to be thought of for ordinary pharmaceutical work, especially as it is more or less completely compensated by the solubility of the nitric oxide in the saline solution of the nitrometer. For calculation of such details see Brandel: Pharm. Review, 1904, 273 and 445, and Lyon: *ibid.* 440.

Distillations, almost without exception, were carried on in ordinary side-neck distilling flasks of 250 cc. to 300 cc. capacity, having a neck of 20 mm. internal diameter and about 70 mm. long up to the side-neck. The mercury column of the thermometer used was wholly immersed in the vapor when possible; other-

wise proper correction was made for exposed mercury column. Delicate still-heads or fractionating columns were intentionally avoided in the effort to have conditions such as might be expected in ordinary pharmaceutical testing. In some cases a small Würtz-tube with two bulbs and side neck was used in connection with a round-bottomed flask without side neck and of the same capacity as the side-neck flasks.

EXPERIMENTAL WORK.

To begin with, samples from six different manufacturers were examined with results which are recorded at length in table I and in more condensed form in table II.

TABLE I.

	1	2	3	4	5	6
Assay	87.5%	86.6%	96.1%	65.3%	91.9%	1.1%

DISTILLATION.

The amount opposite any temperature is that which distilled between that temperature and the temperature of the next preceding entry in the same column.

Temperature.						
Below 70°				6.0%		
80°				5.5		
85°				7.5		
Below 85°			21.0%			
90°			17.5	12.5		
Below 90°	1.0%	33.0%				2.5%
92°		13.5	12.0	5.5	2.0%	7.0
94°		12.0	9.5	4.0	8.0	
96°	7.0	11.0	10.0	6.0	39.0	9.0
97°					30.5	
98°					9.0	
99°	12.5	13.5	13.5	7.0	3.0	
100°	8.0	2.5	2.0	3.0	2.0	2.0
101°	7.5	2.0	2.0	2.0		
102°	4.5	1.0				
104°	9.5	1.0		7.5		
106°	6.5	1.0		2.0		
108°	6.0	1.0		3.0		
110°	2.5	1.0	5.0	2.0		1.0
120°	9.5			5.5		3.5
130°	5.0			7.0		35.0
135°	7.5					22.0
Residue	13.0	5.5	6.0	12.5	5.0	17.0
Water						2.0

TABLE II.

	1	2	3	4	5	6
Below 90°	1.0%	33.0%	38.5%	31.5%	0.0%	2.5%
90°-100°	27.5	52.5	47.0	25.5	95.0	18.0
Above 100°	70.5	12.5	13.0	41.0	5.0	78.5

NOTE:—In all distillations in this paper there is a certain amount of loss not taken into account so the distillate and residue will not total 100%.

The table scarcely requires comment. No better evidence of the tremendous difference in quality of commercial amyl nitrite could be desired than a comparison of 5 and 6; one the best, the other the worst found on the market; both from

reputable manufacturers and, while 6 is 40 cents per pound cheaper it is in reality worth absolutely nothing. The futility of such a compound in the severe paroxysms of angina pectoris renders its use a danger instead of a source of safety. Number 5 is, on the other hand, an excellent example of what a first-class amyl nitrite should be. Nothing better need be asked for all therapeutic work.

With 91.9 per cent. of amyl nitrite by assay, nearly 12 per cent. in excess of the U. S. P. requirements, 95 per cent. distilling between 90° and 100° or 25 per cent. better than the B. P. standard, and 78.5 per cent. between 94° and 98° , we have proof of the quality that can be offered for sale at a price by no means excessive. That 18 per cent. of 6 distills between 90° and 100° where only 1.1 per cent. is shown by assay is accounted for by the fact shown by Young and Fortey (*Jour. Chem. Soc.*, 1902, 734) that a binary mixture of amyl alcohol and water distills constantly at 95.15° . The influence of the small amount of amyl nitrite present, together with the water, so lowers the distilling temperature that this unexpectedly large quantity of distillate is collected at 90° - 100° . This is a good instance of the impossibility of judging amyl nitrite by the fractional distillation alone, for knowing the assay and fractionation of 1 and 4 we would say that 6 ought to contain about 40 per cent. amyl nitrite. It consists chiefly of unchanged amyl alcohol and it is hard to conceive by what crude process it was made or how it was permitted to go on the market.

The remarkably large quantity distilling below 90° in 2, 3 and 4 is good evidence of the presence of lower homologous nitrites. The distillate above 100° in 2 and 3 shows that the most of the alcohol was converted to nitrite, but the large low boiling portion shows the impurity of that alcohol. An assay of 96.1 per cent. would lead us to think we had obtained a most excellent product, even better than 5, but it is really far inferior. Next to 6, 4 is the worst of this lot as it was evidently made from a poorly rectified alcohol and much of the true amyl alcohol remained unacted upon. The assay figures further confirm this conclusion. The fallacy of the assay alone is well shown by table I. Four of the six samples are well above U. S. P. standard of assay, but only one of these is worthy of recognition as a first-class product.

The quality of 6 was so poor that it seemed surely to be through some mistake that it was found on the market and so four months later six samples were obtained in order to again test them to see if the product of these same houses was fairly constant in its quality. The intervening time would probably be sufficient to change the market so that new lots of goods would be tested.

The fractional distillations were made very carefully especially below 90° , where table I was deficient. Also examinations were made for acidity, aldehyde and nitrites.

Acidity is expressed as cc. of N/1 alkali to neutralize 5 cc. of amyl nitrite, the U. S. P. limit being 1 cc.

Aldehyde was tested for by the U. S. P. test.

Nitrates were tested for by the destruction of nitrites by urea and dilute sulphuric acid and their subsequent detection by zinc and iodo-starch paste.

The results are appended in tables III and IV.

TABLE III.

	7	8	9	10	11	12
Assay	25.5%	80.0%	59.9%	83.9%	78.2%	90.7%

DISTILLATION.

Temperature.	Percentage.					
Below 60° .....	....	0.5	....	....	....	....
70° .....	....	3.5	....	....	....	....
Below 70° .....	....	....	2.5	....	1.5	....
75° .....	....	1.5	4.0	....	....	....
80°	7.0	6.5	2.5	....	3.0	....
Below 80° .....	....	....	....	0.5	....	....
85°	11.5	12.0	11.0	....	4.0	....
90°	10.0	11.0	3.0	1.0	10.0	....
92°	1.0	8.0	7.0	3.5	3.0	....
94°	0.5	6.0	5.0	8.0	8.5	1.0
96°	0.5	10.0	6.0	13.0	10.0	6.0
97° .....	....	3.0	....	9.0	3.0	13.0
98° .....	....	3.5	....	12.0	4.0	45.0
99°	1.0	2.5	6.0	10.0	6.0	13.0
100°	Trace	2.0	1.5	6.0	4.0	7.0
101° .....	....	....	....	5.0	4.0	4.0
102° .....	....	....	....	6.0	3.0	3.0
105°	1.0	12.0	10.5	6.0	9.0	....
110°	0.5	3.0	10.0	5.0	7.0	....
120°	6.0	3.0	7.0	4.0	6.0	....
125°	6.0	1.0	....	....	3.0	....
130°	17.5	....	5.0	1.0	....	....
135°	24.0	2.0	4.0	....	1.0	....
140° .....	....	....	4.0	....	....	....
Residue	12.0	5.0	9.0	7.0	8.0	7.5
Water	2.5	None	0.5	Trace	Trace	Trace
Acidity (A)*	0.7	0.85	1.1	0.4	0.6	0.2
(B)	0.5	0.4	0.9	0.3	0.4	0.05
Aldehyde	None	Strong	Marked	Faint	Marked	None
Nitrate	Trace	None	Slight	None	Trace	None

*(A)=before distillation and (B)=after distillation; the distillate and residue being mixed before again taking the acidity.

TABLE IV.

	7	8	9	10	11	12
Temperature.	Percentage.					
Below 90°	28.5	35.0	23.0	1.5	18.5	0.0
90°-100°	3.0	35.0	25.5	61.5	38.5	85.0
Above 100°	67.0	26.0	49.5	34.0	41.0	14.5
Water	2.5	None	0.5	Trace	Trace	Trace

Of the six sources here represented number 11 was not included in Table I and 1 of Table I is not in Table III, while of the remainder 2 and 8, 3 and 10, 4 and 9, 5 and 12, and 6 and 7 are of the same manufacture.

Number 7 shows improvement over 6, but is still so bad that it is practically worthless. The assay shows much better and the extremely small quantity distilling between 90° and 100° is due to the low boiling point of an amyl nitrite-water mixture. As before, this sample is crudely made and neither distilled nor dried.

Number 12 is not so good as number 5 but is still of a high standard and well beyond any pharmacopœial requirements.

Next to 12 may be classed 10 which is of by no means bad quality, tho not meeting the B. P. distillation test. It had evidently been made with some care from good alcohol and been purified by washing and drying tho not by distillation.

The distillate below 70° in number 11 shows the use of an alcohol not sufficiently rectified to remove all lower boiling homologues. This is still more the case with 8, which gives 4 per cent. of distillate below 70° and 0.5 per cent. below 60°. The exact point at which this distillation began is not known as the thermometer used did not register lower than 57° and several drops of distillate were collected before that temperature was reached. This sample contained no perceptible quantity of water so the low boiling portion is evidently due to small amounts of propyl and butyl alcohol present in the amyl alcohol used.

Number 9 showed 0.5 per cent. of water present but that will not account for the amount boiling below 90°; so here also lower nitrites are present, as well as unchanged amyl alcohol. Its acidity is also beyond the U. S. P. limit.

In the cases of 7, 8, 9 and 11 the portion which does not distil below 135° proves the presence of high boiling compounds produced from amyl alcohol or its impurities and may be due to nitropentane (boiling between 150° and 160°); but, as will be seen later, it contains other substances of still higher boiling points.

The first few drops of distillate in 8 and 9 gave an odor suggestive of hydrocyanic acid but the Prussian Blue test did not prove its presence.

Number 8 is also an example of the necessity of a distillation test. By assay it shows 80 per cent. amyl nitrite or just the U. S. P. limit, but the fractionation proves that it is far from being as good as this would make it seem.

An interesting and unexpected fact is found in the lowering of the acidity in every case after distillation. It was expected that the acidity would increase after distillation through decomposition, this very thing being given by D. B. Dott (Pharm. Jour. (3) 10, 231) as proof that amyl nitrite decomposes during distillation, but the reverse occurred by the expulsion of a volatile acid, presumably dissolved nitrous anhydride. Taking the twelve samples into consideration, representing seven manufacturers, 5 and 12 are excellent; 10 is fairly good; 1, 2, 3, 8 and 11 are only fair; 4 and 9 are poor; 7 is very poor and 6 cannot be classed as amyl nitrite. What is the cause of this very poor exhibit? Is it so difficult to make an amyl nitrite of first quality or is it due to careless methods? To obtain some definite information on this point small quantities of amyl nitrite were made (by the nitrous acid process) from different grades of alcohol with various changes in the details of production, using always methods and apparatus which have been used on a manufacturing scale.

The first care was to obtain an alcohol of suitable quality. Three lots were obtained and tested for specific gravity, boiling point and optical rotation, with results as shown in the following Table V. Number 1 was said to be an alcohol distilling between 125° and 132°. Number 2 purported to be a very pure, reagent amyl alcohol. Its specific gravity of 0.814 confirmed this but two perfectly agreeing distillations gave condemning results. Number 3 marked "Pure" and said to distil between 128° and 130° proved to be of excellent quality.

TABLE V.

	1	2	3
Specific Gravity	0.816	0.814	0.818
Optical Rotation (100 mm. tube)	1° 00'	0° 40'	1° 12'
Distillation—Below 125.8°* .....	....	4%	....
125.8°–127.8° .....	....	3%	....
Below 127.8°	7%	....	....
127.8°–128.8°	8	3	4%
128.8°–129.8°	23	6	64%
129.8°–130.8°	60	36	28%
130.8°–131.8° .....	....	35	....
131.8°–132.8° .....	....	4	....
132.8°–135.8° .....	....	5	....
Residue	2	4	4.

*In all the distillations here recorded the thermometer was read to even degrees and fractional readings are due to corrections for exposed mercury column.

The specific gravity of each successive 25% of distillate or distillate and residue from No. 2 was also taken.

First	25%.....	Sp. Gr.....	0.818
Second	25%.....	Sp. Gr.....	0.813
Third	25%.....	Sp. Gr.....	0.811
Fourth	25%.....	Sp. Gr.....	0.809

In the first 25% of distillate a distinct trace of water settled to the bottom. This sample, therefore, supposed to be of exceptionally good quality was not as good as Number 1.

Later, for the purpose of comparison, a sample of Kahlbaum's Amyl Alcohol, boiling point 130°–132°, was purchased, which distilled as follows:

130°–131°	15 percent
131°–131.5°	82 "
Residue	3 "

Rotation in 100 mm. tube, -1° 20'.

Alcohol Number 1 was of proper quality for making amyl nitrite and not too expensive for that purpose. What manner of nitrite could be made from it?

(1) To answer this first question 150 cc. (122 gm.) of the alcohol was placed in a 250 cc. side-neck distilling flask which was connected with a Liebig condenser and nitrous gas generated in another flask from nitric acid (sp. gr. 1.35) and arsenous acid, was passed through it. During this saturation no attempt was made to keep the alcohol cool but it was permitted to heat up and hence the arrangement for condensing any volatilized nitrite and collecting it in a flask placed below the condenser. The stream of gas was continued until the crude amyl nitrite changed from a green color to brownish color and the colored vapors began to pass through without absorption. The process was now stopped, the small amount of distillate and the contents of the flask transferred to a separatory funnel and the lower layer of acid-water run off. The crude nitrite was now washed, first with water, then with sodium carbonate solution (about 5%) until the washings were no longer colored yellow, then with water, and finally

dried over calcium chloride. After the purification 163 cc. (142 gms.) of amyl nitrite was obtained and this was fractionally distilled:

90°- 92°	3.7 percent
92°- 94°	3.7 "
94°- 96°	30.0 "
96°- 97°	20.9 "
97°- 98°	15.3 "
98°- 99°	7.0 "
99°-100°	3.7 "
100°-105°	6.1 "
105°-110°	3.7 "
Residue	4.5 "

Of the entire product, 84 percent. distilled between 90° and 100° and 73 percent. between 94° and 99°. The fraction distilling between 90° and 100° showed no test for aldehyde, showed an acidity of 0.5 cc.* and assayed 99 percent. An assay of the original nitrite as obtained before distillation was not made, but it is evident that without this additional rectification this product is superior to nearly all the commercial samples previously examined, and after rectification is equal to any of them.

Having found that it is easily possible to make an amyl nitrite better than most on the market and decidedly superior to U. S. P. requirements, the next question arising is naturally regarding the effects of modifications of this process and use of different materials.

(2) Alcohol No. 3 was used for this experiment and 150 cc. were treated as in experiment 1, except that the amyl alcohol was kept cool with ice while passing the nitrous gas into it. A longer time was required before the apparent end of the process. The crude product after washing and drying amounted to 161 cc., which distilled in the following manner:

Below 90°	1.2%	99°-100°	8.4%
90°-92°	1.8%	100°-101°	4.2%
92°-94°	6.0%	101°-105°	9.6%
94°-96°	12.1%	105°-110°	6.6%
96°-97°	11.4%	110°-120°	4.8%
97°-98°	16.9%	120°-130°	1.8%
98°-99°	8.4%	Residue above 130°	3.6%
	90°-100°	65.0%	
	94°- 99°	48.8%	

The fraction between 90° and 100° assayed 96.7 percent., and had an acidity of 0.8 cc. and a mixture of the fractions above 100° and below 90° assayed 73 percent. with an acidity of 1.0 cc. While the fraction 90°-100° was good, yet it is evident that the amyl alcohol had not been thoroughly saturated with nitrous acid. Further, it is shown that a comparatively large quantity of amyl nitrite remains in the portions distilling outside the standard temperature-range if nothing more than the ordinary distilling flask be used for this purpose. In this case the alcohol used was somewhat better than in (1) but from incomplete saturation the resulting product was not so good.

(To be concluded)

*All statements of acidity are expressed as the number of cc. of N/1 alkali required to neutralize the acid in 5 cc. of amyl nitrite, the test being applied as for the U. S. P. test and then the excess alkali titrated with N/1 sulphuric acid.

THE N. A. R. D. CONVENTION.

The Convention of the National Association of Retail Druggists was a most successful gathering, notwithstanding the extremely hot weather which attended the meeting.

From the opening of the convention to its end, the business of the Convention was done with a snap and that attention to objective which always attends the meetings of our sister association. The address of the President was admirable in its treatment of the various



evils which affect the trade, and in its suggestion of remedies for them.

President Finneran, in his address, forcibly advocated the entrusting of the enforcement of drug laws to the Boards of Pharmacy of the several States, uniformity of drug-legislation, and a Federal law to standardize prices.

The report of Secretary Potts showed a depreciation of \$8,000.00 in revenue during the past year, which had been more than compensated for by economies in administration, which showed a net gain to the Association of \$7,000.00.

The Committee on Propaganda reported progress made during the year, and that section of the report dealing with the enforcement of higher standards of purity and freshness in remedies met with the approval of all the delegates. In the discussion that followed, demand was made that physicians use prescriptions which would enable the druggist to

compound the remedies according to the national standards adopted in this country.

The report of the Committee on National Legislation presented a comprehensive outline of the progress made during the past year along these lines.

The Committee on Public Relations in its report insisted on the value of publicity, especially in the newspapers, of matters which would bring about more cordial relations and better understanding between druggist and public. It suggested that each State employ an expert publicity agent for this purpose. This suggestion met with great applause and promise of prompt support.

The Committee on Pharmacy Laws praised the Massachusetts anti-narcotic laws, as models of justice, especially those provisions which restrict the sale of all narcotics in deadly doses, except upon the written prescription of an authorized physician, dentist, or veterinary surgeon. This law provides that all prescriptions shall be kept on file by the druggist, and that the physician shall keep a record in a suitable book of the name and address of all such patients who receive narcotics.

In a vigorously-worded resolution, the Association proffered its services to city, State and Federal officials for the conservation of the drug and medicinal supply. A copy of the resolutions were ordered forwarded to the United States Attorney-General, James C. McReynolds.

RESOLUTIONS.

"WHEREAS, There exists, because of the European war, a scarcity of drugs and chemicals and sick-room necessities, employed in the conservation of the health of the people of this country; and,

"WHEREAS, The welfare of the nation demands that every effort should be made to conserve the existing supply of these articles; and,

"WHEREAS, It is a common knowledge that many wholesale dealers and manufacturers of drugs, chemicals and medicinal products employed in relieving the condition of the sick, are displaying lack of humanitarianism and patriotism by taking advantage of the grave conditions that confront the American people to advance unnecessarily the price of the essential commodities, therefore, be it

"Resolved, That the National Association of Retail Druggists, through its committees and organization forces, and the efforts of its individual members, will extend every assistance to local, State and Federal Governments in conserving the supply of drugs and medicines, and preventing forestalling; and, be it

"Resolved, That the National Association

of Retail Druggists hereby condemns most vigorously the practice of those wholesale dealers and manufacturers in the drug field who have needlessly advanced the price of many of the products they supply."

The officers elected for the ensuing year were:—

President—Samuel C. Henry.

First Vice-President—A. S. Ludwig.

Second Vice-President—W. L. Humphrey.

Third Vice-President—T. C. Coltman.

Treasurer—Grant W. Stevens.

Secretary—Thomas H. Potts.

Executive Committee:—C. H. Huhn, J. F. Finneran, R. J. Frick, T. S. Armstrong, M. A. Stout, J. P. Crowley.

The Women's Organization of the Association was welcomed by Mrs. William E. Lee, President of the local chapter, and a response was made by Mrs. Jessie F. Waterhouse, President of the Women's Organization. Then, following an address by the President, and the receiving of committee reports, it was announced that a scholarship had been founded for the study of pharmacy. The recipient of the free tuition will be chosen by the organization's executive committee from a list of candidates presented to the committee by the various chapters. The committee is also empowered to choose the college to which the scholarship will apply.

The Women's Organization elected the following officers:—

President—Mrs. F. E. McBride.

Vice-Presidents—Mrs. B. A. C. Hoelzer, Miss Clara Hulskamp, Mrs. A. W. Panly, Miss Nora V. Brendle, Mrs. R. G. Rutherford.

Secretary—Mrs. Nellie F. Lee.

Treasurer—Mrs. Otto C. Greenland.

Board of Directors:—Mrs. Jessie F. Waterhouse, Mrs. L. O. Wallace, Mrs. S. A. Eckstein, Mrs. Louis Emanuel, Mrs. John T. Roe, Mrs. W. E. Warn, Mrs. Charles Brunstrom, Mrs. H. A. Pierce.

College and Society

THE COLLEGE OF PHARMACY OF THE UNIVERSITY OF IOWA.

The College was represented at the annual convention of the A. Ph. A. at Detroit by Dean W. J. Teeters; Prof. R. A. Kuever,

Prof. Zada M. Cooper. Dean Teeters was re-elected secretary of the Conference of Pharmaceutical Faculties, and was also nominated a candidate for the presidency of the Association for the year 1914-1915, which vote will be taken by mail.

Prof. Cooper was elected an Associate in the Section on Education and Legislation, and Prof. Kuever was elected secretary of the same section for the ensuing year.

Dean Teeters visited with relatives at Alliance, Ohio, for a few days following the A. Ph. A. meeting at Detroit.

Prof. Zada M. Cooper visited at Cleveland and Wooster, Ohio, for a short time after the convention at Detroit.

The third annual home-coming will be October 22, 23, 24, at the time of the Iowa-Minnesota football game.



A NEW DEPARTMENT OF PHARMACY.

In response to the request of the West Virginia State Pharmaceutical Association the Board of Regents of West Virginia University has established a department of pharmacy.

A two, three, and four year course is offered. The two year course leading to the certificate of Graduate in Pharmacy, provides the foundation in Pharmacognosy and Pharmacy, and the ground work in Analytical Chemistry as applied in the drug business and required for various manufacturing purposes. The third year is especially designed to enable the Pharmacist to practice Urinary, Bacteriological, and Toxicological analysis for the physician and to act as Food and Drugs Chemist either for the U. S. Government or for private corporations. It will be arranged to award the degree of Bachelor of Science (in Pharmacy) to those completing the course of four years, including studies in mathematics, physics, language and science, as well as the entire pharmaceutical work of the two year course. All subjects are taught by men who are specialists in their respective branches.

Professor Charles H. Rogers has been called to establish and also be the head of the department. Previous to his election to his present position he was a member of the faculty of the College of Pharmacy of the University of Minnesota.

The Pharmacist and the Law

INTERSTATE COMMERCE IN SALE OF MEDICINES.

A Minnesota corporation entered into a contract with a resident of Missouri whereby the former agreed to sell and deliver in Minnesota or any of its regular places of shipment, certain medicines and extracts, to be paid for at the usual wholesale prices, and to be delivered when required by the purchaser. The contract also required the purchaser to make regular canvasses in a specified county for the sale of such medicines and extracts, and forbade him to sell to any others. All deliveries of medicines and extracts were made without the State of Missouri. In an action to recover the price of medicines and extracts delivered under the contract it was held that, as the plaintiff reserved no title to the property sold, and merely gave the defendant the option of returning it, the contract constituted "interstate commerce," and hence was not governed by the Missouri anti-trust laws. The plaintiff's right to sue could not therefore be defeated because, though a foreign corporation, it had not procured license to do business in Missouri, as required by Missouri Rev. St. 1909, §3040.

J. R. Watkins Medical Co. v. Holloway,
(Mo.) 168 S. W. 290.

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SHIPMENT OF INTOXICATING LIQUORS.

The Delaware Hazel Law (27 Del. Laws, C. 130) provides by section 5 that it shall not apply to the shipment or delivery to physicians or druggists of such liquors in unbroken packages not exceeding five gallons at any one time. Section 6 prohibits any person from bringing into local option territory any quantity of liquor greater than one gallon within 24 hours. The Delaware Constitution, art. 13, §1, provides for an election to determine whether the sale of liquors in certain districts shall be licensed or prohibited, and that, after a vote against license, no person shall thereafter manufacture or sell liquors except for medicinal or sacramental purposes. The Prescription Act (26 Del. Laws, c. 147) requires all prescriptions for intoxicating liquors for

medicinal purposes to be written by practicing physicians. It is held that, in view of the recognized necessity of liquor as a drug, and therefore readily to be obtained by those authorized to prescribe or sell it, the discrimination in favor of physicians and druggists was reasonable, and that the Hazel Law did not deny the equal protection of the law.

The Webb-Kenyon Act (Act March 1, 1913, c. 90, 37, Stat. 699), by its title purporting to divest liquor of its interstate character only "in certain cases," and prohibiting transportation of intoxicating liquors from one state into another, to be received, possessed, sold, or used in violation of any law of such state, does not divest liquor of its interstate character in all cases, but removes the protection of the commerce clause only when the liquor is to be used in violation of any law of the state. Therefore the Hazel Law is held to be invalid as to a shipment and delivery of liquor from another state into a prohibition district of the State of Delaware for the receiver's personal consumption, a purpose recognized by the act itself to be lawful. But, though invalid as to such a shipment, the act is a valid enactment in so far as it regulates, limits, or prohibits the shipment of liquor from one part of the state into a prohibition district in another part of the state.

Van Winkle v. State, Delaware Supreme Court, 91 Atl. 385.

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SALE OF INTOXICATING LIQUORS BY DRUGGISTS.

It is held that, under Louisiana Act No. 66 of 1902, a druggist who, in a prohibition district, sold alcohol for medicinal purposes, without prescription, was properly convicted. Under this statute it suffices to charge the offense in the words of the statute, and it is not necessary to state that the offense was committed in a prohibition district.

State v. Tullos, Louisiana Supreme Court,
65 So. 870.

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SELLING COCAINE, ETC., WITHOUT PRESCRIPTION.

Texas Penal Code, 1911, art. 747, makes it unlawful to sell, furnish, or give away cocaine or morphine, except upon the pre-

scription of a physician. It excepts preparations recommended in good faith for cholera, etc., sales at wholesale to retail druggists, and to manufacturers or regular practitioners of medicine. It is held that an indictment for unlawfully selling, furnishing, and giving cocaine and morphine to one not having a written prescription of a physician was sufficient, without negating the exceptions as to sales in good faith for cholera, etc.

Brown v. State, Texas Criminal Appeals,
168 S. W. 861.

Of General Interest

MEETING OF THE EXECUTIVE BOARD OF THE AMERICAN DRUGGISTS' FIRE INSURANCE CO.

The Executive Board of the American Druggists' Fire Insurance Company met in Cincinnati, on August 7-8, all of the members of the Board being in attendance.

The business of the Company was found to be growing splendidly. During the first 6 months of the year, it wrote insurance amounting to \$7,685,869.70, at a premium of \$78,925.95, which is an increase over the corresponding period of the preceding year amounting to \$1,191,254.37, at a premium increase of \$12,305.07. On July 1st, the Company had in force business amounting to \$13,581,653.70, at a premium of \$139,778.07. During the first half of the year it had fire losses amounting to \$26,914.27. The expense of conducting business for the first half of the year amounted to \$23,033.44. Its re-insured business at a premium of \$10,762.82. Its Re-Insurance Reserve was increased to \$61,976.47. Its total assets on July 1st, were \$359,018.78, and its total liabilities not including the Reserve for Re-Insurance were \$7,946.24. During the first half of the year the Company saved its policyholders in their premium cost the substantial sum of \$26,308.65, said savings being retained by the policyholders.



SUBSTITUTE FOR ICHTHYOL. . .

The American importation of ichthyol, a peculiar asphaltic material found in Austria, which finds application after appropriate chemical treatment as a very important

medicament, has been, along with many other products, cut off by the war. The raw material (44,347 pounds, valued at \$61,796 in 1913) comes from a fossiliferous deposit near Seefeld, in the Austrian Tyrol. It is carefully selected and subjected to dry distillation. The distillate thus obtained is then sulphonated and subsequently neutralized with ammonia. The use of this material has greatly increased in the last few years, and it has proved very beneficial. Almost immediately following the beginning of the war its price doubled, going to over 60 cents an ounce. Already, however, a firm in St. Louis has a material on the market that has been favorably recommended as an efficient substitute, closely resembling ichthyol itself, says Bulletin 599, United States Geological Survey.



SAN FRANCISCO EXPOSITION NOTES

Work has been started by the \$1,500,000 company on The Inside Inn, to be built just inside the horticultural boundary wall of the Panama-Pacific International Exposition.

France continues to give assurance of unimpaired participation at the Panama-Pacific International Exposition. Following the first cable after the outbreak of the present war came notification, on August 18, that France will send its team of athletes to have a part in the 1915 games.

A special committee of United States customs experts has been appointed to prepare for handling the great volume of business that will be created by the arrival of exhibits at the Panama-Pacific Exposition, and announces that a force of 200 inspectors will be needed at the Exposition freight slips.

Argentina has raised its appropriation for the Panama-Pacific International Exposition from \$1,300,000 to \$1,700,000. Commissioner General Horacio Vincenti has arrived in San Francisco, and work was begun on the Argentine pavilion on August 1. The pavilion with fittings and garden will cost \$300,000.

Two more nations are to participate in the Panama-Pacific International Exposition. Monaco and Roumania have cabled their acceptance. Monaco has requested 3,000 square feet of land for its pavilion—a reproduction of a hunting lodge of Albert I, Prince of Monaco. Roumania has requested 20,000 square feet for its pavilion.

A strip of ribbon two inches wide and

three miles in length will be used by the department of live stock of the Panama-Pacific International Exposition in badges for winners in the various classes. These are in addition to \$450,000 already set aside for live-stock prizes, and not including \$227,000 in purses for the two racing meets for harness horses.

Japan has asked for increased exhibit space at the Panama-Pacific International Exposition, San Francisco. The communication was from Acting Consul General Y. Numano, who had authority from the Government and Commissioner General Yamawaki. Application was made for 10,700 square feet additional in the Palace of Manufactures, which has been granted, and 1,700 square feet additional in the Palace of Food Products.

J. Heyerdahl, Commissioner to Norway representing the Norwegian-American organization of the United States, has returned from Scandinavia and announces that Norway's plans for participation in the Panama-Pacific International Exposition at San Francisco are well advanced. Norway has appropriated \$26,800 for a pavilion and \$13,400 for a battleship to join the international fleet to pass through the Panama Canal to the exposition grounds. In addition, \$30,000 has been raised by Norwegian-American societies.

More than \$20,000 worth of ostriches have arrived for exhibit at the Panama-Pacific International Exposition. The first shipment was 100 birds.

Haiti and Santo Domingo will rush their pavilions at the Panama-Pacific International Exposition. The superintendent of the two pavilions arrived in San Francisco on September 25 to begin work.



UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service.

Board of medical officers convened to meet at Cincinnati, Ohio, at the call of the chairman for the examination of Pharmacist C. G. Carlton to determine his fitness for promotion to the grade of Pharmacist of the first class.

Detail of the board:

Passed Assistant Surgeon W. H. Frost, chairman;

Assistant Surgeon M. H. Neill, recorder.

Board of medical officers convened to meet at the Marine Hospital, Savannah, Ga., at

the call of the chairman, to make a physical examination of Pharmacist R. E. Knouse, and to present questions for the mental examination, to determine his fitness for promotion to the grade of Pharmacist of the second class.

Detail of the board:

Passed Assistant Surgeon J. R. Ridlon, chairman;

Acting Assistant Surgeon A. B. Cleborne, recorder.

Pharmacist C. G. Carlton. Directed to proceed to Cincinnati, Ohio, and report to Passed Assistant Surgeon W. H. Frost for examination to determine his fitness for promotion to Pharmacist of the first class.

Pharmacist Ralph E. Knouse. Directed to proceed to the Marine Hospital, Savannah, Ga., and report to Passed Assistant Surgeon J. R. Ridlon for examination to determine his fitness for promotion to Pharmacist of the second class.

Technical Assistant D. G. Willetts. Directed to proceed to Atlanta, Ga., for the purpose of inquiring into the case of a former employee of the Georgia State Sanitarium, now suffering from pellagra, and thus secure epidemiologic data having a bearing on present studies of pellagra.

Professor E. B. Phelps. Directed, at the request of the International Joint Commission, to attend the hearings to be held by the Commission at points on the Niagara and Detroit rivers Sept. 25-30, 1914, for the purpose of advising on questions affecting the pollution of international waters.

Detailed to visit the experimental works at Luray, Va., during the week of September 7th, to inspect the plant which is now completed and to outline the necessary analytical and experimental procedure.

Pharmacist F. L. Brown. Directed to proceed to Providence, R. I., and report to Passed Assistant Surgeon E. R. Marshall for the purpose of superintending the cleaning up and alterations upon the quarantine vessel "Newark".

Sanitary Engineer H. R. Crohurst. Directed to proceed to Noblesville, Ind., and take charge of the experimental plant being installed for the investigation of strawboard waste.

Sanitary Chemist H. B. Hommon. Directed to proceed to Farnham, N. Y., for the purpose of making preliminary studies of the wastes of the canning industry.

APPOINTMENT.

Raymond D. Kinsey appointed a Pharmacist of the third class in the United States Public Health Service.

BOARD CONVENED.

Board of commissioned medical officers convened to meet at the Bureau for the examination of Pharmacist C. C. Cannon to determine his fitness for promotion to the grade of Pharmacist of the second class.

Detail of the board:

Assistant Surgeon-General W. G. Stimpson, Chairman;

Surgeon C. C. Pierce, Recorder.

Granted 2 days' leave of absence enroute.

Pharmacist G. I. van Ness, Jr. Relieved from duty at the Marine Hospital, St. Louis, Mo., upon the arrival of Pharmacist C. H. Parker, and directed to proceed to Honolulu, Hawaii, and report to the Chief Quarantine Officer for duty and assignment to quarters.

Pharmacist C. H. Parker. Relieved from duty at the Marine Hospital, Chelsea, Mass., upon the arrival of Pharmacist F. A. Stump, and directed to proceed to St. Louis, Mo., and report to the medical officer in charge, for duty and assignment to quarters.

Biochemist Andrew Hunter. Granted 2 days' leave of absence from September 14, 1914.

Technical Assistant H. A. Taylor. Granted 5 days' leave of absence enroute to stations.



PHILIPPINE GOVERNMENT MEASURE.

Ruling on Stocks of Patent Medicines.

The Secretary of the Interior has approved a ruling in the regulations governing the new patent medicine act providing that goods ordered from foreign countries from June 1, 1914, shall not be entitled to the exemption heretofore declared in favor of medicines now in stock or on board ships bound for Manila before July 1. This ruling is said to be to counteract the placing of large orders by certain local houses in order to have big stocks covered by the exemption. Exempted stocks must be disposed of by 1917.

Council Business

COUNCIL LETTER No. 1.

Philadelphia, September 10, 1914.

To the Members of the Council:—

At the meeting of the Council on Saturday, August 29, 1914, the Chairman and Secretary of Council were appointed as the Committee on Nominations of Council Committees for 1914-15, the nominations to be submitted to the Council.

The Committee on Nominations submit the following nominations:

Committee on Unofficial Standards.

(For terms expiring.)

George M. Beringer, Chairman, 501 Federal St., Camden, N. J. Term expires 1918.

H. H. Rusby, 776 DeGraw Ave., Newark, N. J. Term expires 1918.

F. R. Eldred, 3325 Kenwood Ave., Indianapolis, Ind. Term expires 1918.

John M. Francis, 240 Sayburn Ave., Detroit, Mich. Term expires 1918.

Committee on Transportation.

Thos. F. Main, Chairman, New York, N. Y.

W. Bodemann, Chicago, Ill.

Lewis C. Hopp, Cleveland, Ohio.

H. M. Whelpley, St. Louis, Mo.

Chas. G. Merrell, Cincinnati, Ohio.

Chas. Caspari, Jr., Baltimore, Md.

Fred I. Lackenbach, San Francisco, Cal.

E. Floyd Allen, Minneapolis, Minn.

F. C. Godbold, New Orleans, La.

W. S. Elkins, Jr., Atlanta, Ga.

C. Herbert Packard, East Boston, Mass.

F. W. Nitardy, Denver, Colo.

The General Secretary and Local Secretary, ex-officio.

Auditing Committee.

Otto F. Claus, Chairman, St. Louis, Mo.

F. W. Sultan, St. Louis, Mo.

F. O. Pauley, St. Louis, Mo.

Committee on Invested and Trust Funds.

Wm. B. Day, Chairman, Chicago, Ill.

E. G. Eberle, Dallas, Texas.

Charles Holzhauser, Newark, N. J.

H. M. Whelpley, ex-officio, St. Louis, Mo.

Committee on Finance.

J. A. Koch, Chairman, Pittsburgh, Pa.

Otto F. Claus, St. Louis, Mo.

E. H. LaPierre, Cambridge, Mass.

Centennial Fund.

John G. Godding, Chairman, Boston, Mass.

Wm. B. Day, Chicago, Ill.

J. A. Koch, Pittsburgh, Pa.

Committee on Publication.

J. W. England, Chairman, Philadelphia, Pa.

Geo. M. Beringer, Camden, N. J.

E. Fullerton Cook, Philadelphia, Pa.

E. G. Eberle, Dallas, Texas.

F. J. Wulling, Minneapolis, Minn.

Ex-officio Members: The Editor-in-chief of the Journal, General Secretary, Reporter on the Progress of Pharmacy, and Treasurer.

Do you approve of the nominations as made and vote affirmatively for the nominees? This will be known as *Motion No. 1 (Election of Council Committees for 1914-15).*

Motion No. 2 (Election of Members). You are requested to vote on the following applications for membership:

No. 1. James Edward Brewer, 1705 Cherry

Street, Philadelphia, Pa., rec. by J. W. England and W. A. Pearson.

No. 2. Robert C. Wilson, University of Georgia, Athens, Ga., rec. by Wm. A. Hall and W. L. Scoville.

The following applications for membership were favorably acted upon at the Detroit (1914) meeting of the Association, August 24 to 29, inclusive:

No. 346. Alfred DeLang, Fourth Ave. and Broadway, Cincinnati, Ohio, rec. by Frank H. Freericks and E. H. Thiesing.

No. 347. Hans Martin Johnson, 1110 Payne Ave., St. Paul, Minn., rec. by Richard J. Messing and F. A. Upsher Smith.

No. 348. J. P. Tousfeldt, White Salmon, Wash., rec. by C. Osseward and A. W. Linton.

No. 349. Harrison Sidney Groat, Pullman, Wash., rec. by C. Osseward and A. W. Linton.

No. 350. Emily C. McRae, E 1928 Sprague Ave., Spokane, Wash., rec. by C. W. Johnson and Forest J. Goodrich.

No. 351. Ray C. Start, 2555 Cherry St., Toledo, Ohio, rec. by Waldo M. Bowman and C. H. Packard.

No. 352. Paul A. Loesser, Monroe and Lawrence Ave., Toledo, Ohio, rec. by Waldo M. Bowman and C. H. Packard.

No. 353. Elsie Day, 2030 Sumner St., Lincoln, Neb., rec. by Rufus A. Lyman and A. V. Pease.

No. 354. Anton Vorisek, 115 West 68th St., New York, N. Y., rec. by H. V. Arny and Jeannot Hostmann.

No. 355. P. DeLille Borja, S. Stanton 405, El Paso, Texas, rec. by R. H. Needham and C. H. Packard.

No. 356. Herbert Harry DeAlemberte, 121 S. Palafox St., Pensacola, Fla., rec. by W. D. Jones and H. W. Whelpley.

No. 357. Lewis Frankel, 219 New Brunswick Ave., Perth Amboy, N. J., rec. by George M. Beringer, Jr.

No. 358. Louis P. Langhein, 857 Elizabeth, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 359. Charles Drake, 67 Main St., Woodbridge, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 360. John Henry Blake, 597 Valley Road, Upper Montclair, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 361. Meyer David Olshin, 114 Congress St., Newark, N. J., cor. by George M. Beringer and George M. Beringer, Jr.

No. 362. Herbert F. Doden, Iowa City, Iowa, rec. by Wilber J. Teeters and R. A. Kuever.

No. 363. Frederick Hunsche, 4415 N. Winchester Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 364. Harold Stone Currier, Plymouth, New Hampshire, rec. by Theodore J. Bradley and J. G. Godding.

No. 356. E. O. Bertram, 614 Helen Ave.,

Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 366. George Hubert Grommet, 2001 Jefferson Ave., E., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 367. Mark D. Mithskun, 576 Hastings St., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 368. Walter Henry Liome, 426 Baldwin Ave., Detroit, Mich., rec. by H. M. Averyt and Wm. A. Hall.

No. 369. Harry Wilford Crooks, 169 Elwood Ave., Newark, N. J., rec. by Edward A. Sayre and Charles Holzhauser.

No. 370. Henry J. Schnaidt, Parkston, S. Dakota, rec. by Edward C. Bent and H. M. Whelpley.

No. 371. John Bromwell Wheeler, Huron, S. D., rec. by E. C. Bent and H. M. Whelpley.

No. 372. Wm. Kuehn, 2059 Seminary Ave., Chicago, Ill., rec. by Clyde M. Snow and Wm. B. Day.

No. 373. Albert Schreiner, 8 Wilson St., Batavia, Ill., rec. by A. Schreiner, Jr., and Wm. B. Day (membership *without* publications).

No. 374. Charles P. Kaetzel, 608 Lawrence Ave., Ellwood City, Pa., rec. by J. A. Koch and L. K. Darbaker.

No. 375. Charles Dixon Drach, 410 Walnut St., Latrobe, Pa., rec. by J. A. Koch and A. F. Judd.

No. 376. Harold Marsh, 812 Braddock Ave., Braddock, Pa., rec. by J. A. Koch and Louis Saalbach.

No. 377. Robert Shields Ramsey Wittmer, 22 Broadway, Pittsburgh, Pa., rec. by J. A. Koch and Louis Saalbach.

No. 378. Karl Shaw Burkett, 1620 Antrim St., Pittsburgh, Pa., rec. by J. A. Koch and Louis Saalbach.

No. 379. Charles H. Howard, Market Square, South Paris, Maine, rec. by John G. Godding and A. C. Wagner.

No. 380. Jesse Dibrell Hodges, 207½ Main St., Little Rock, Ark., rec. by H. M. Whelpley and J. W. Mackelden.

No. 381. W. Boyd McGehee, 25 Dexter Ave., Montgomery, Ala., rec. by E. R. Miller and C. H. Packard.

No. 382. Chas. M. Butcher, 5th and Pine Sts., Camden, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 383. Jemison Mims Moseley, Brewton, Ala., rec. by E. R. Miller and C. H. Packard.

No. 384. Miss B. Arete Johnson, 245 Main St., Penns Grove, N. J., rec. by Edgar R. Sparks and George M. Beringer.

No. 385. Madison Willard Washburn, 457 Washington St., Buffalo, N. Y., rec. by Millis McGregory and Frank E. Lock.

No. 386. Helen Perle Annis, 132 LaSalle Ave., Kenmore, N. Y., rec. by Millis McGregory and Frank E. Lock.

No. 387. Hugo F. Staack, Maquoketa, Iowa, rec. by Wm. B. Day and E. N. Gathercoal.

No. 388. Joseph S. Ryer, 1575 Genesee St., Buffalo, N. Y., rec. by Millis McGregory and Frank E. Lock.

No. 389. Frank Kirby Lucas, Avon, N. Y., rec. by Millis McGregory and Frank E. Lock.

No. 390. Ralph Rupp, Johnston, 522 S. East St., Bucyrus, Ohio, rec. by E. Fullerton Cook and Joseph P. Remington.

No. 391. Louis F. Seith, Sgt. 1st Class, Hospital Corps, U. S. A., Military Hospital, Zamboanga, Mindanao, P. I., rec. by Geo. F. Payne and W. B. Day.

No. 392. Charles Edwin Foote, 222 W. Certland St., Jackson, Mich., rec. by Ernest C. Marshall and J. W. England.

No. 393. George Adrian Burkhardt, 4159 Magnolia St., St. Louis, Mo., rec. by J. A. Wilkerson and J. W. Mackelden.

No. 394. J. A. Stewart, 720 Jefferson Ave., E., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 395. J. T. Delzell, Hersey, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 396. Charles Sumner Koon, 35 W. Western Ave., Muskegon, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 397. Albert G. Riestein, Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 398. Frank P. Lehr, 5400 Franklin Ave., Cleveland, Ohio, rec. by Lewis C. Hopp and W. C. Alpers.

No. 399. Andrew Edward Walleck, 8341 Woodland Ave., Cleveland, Ohio, rec. by L. C. Hopp and W. C. Alpers.

No. 400. Morris E. Curtis, 3625 Detroit Ave., Cleveland, Ohio, rec. by L. C. Hopp and W. C. Alpers.

No. 401. Claude H. Parker, U. S. Marine Hospital, Boston, Mass., rec. by M. E. Berkowitz and Albert M. Roehrig.

No. 402. Wm. Daniel Hall, 35th and Queen Lane, Falls of Schuylkill, Philadelphia, Pa., rec. by Robert P. Fischelis and H. V. Arny.

No. 403. Theodore Charles Hageman, 1500 Chouteau Ave., St. Louis, Mo., rec. by G. A. Bukart and J. W. Mackelden.

No. 404. John D. Hyde, Sulphur Springs, Tex., rec. by R. H. Needham and H. M. Whelpley.

No. 405. Mrs. Alice Aldridge, 1816 N. 4th St., Columbus, Ohio, rec. by Anna G. Bagley and Geo. B. Kauffman.

No. 406. Wm. S. Semones, 14 Market Square, Knoxville, Tenn., rec. by F. W. Ward and Ira B. Clark.

No. 407. John Gill Wafer, Homer, La., rec. by J. H. Beal and J. W. England.

No. 408. Edward Sewall Everett, 5 Bramhall St., Portland, Maine, rec. by Chas. H. Davis and Alfred Page Cook.

No. 409. M. Van Vleet, 506 Gratiot Ave., Detroit, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

No. 411. Helen Ritz Burns, 22 E. Market St., Lewiston, Pa., rec. by Franklin M. Apple and Thos. F. Main.

No. 412. Harold Glendening, 1 Main St., Norwalk, Conn., rec. by Thos. F. Main and J. W. England.

No. 413. Stanley Herbert Collins, Lily, S. Dakota, rec. by Edward C. Bent and J. W. England.

No. 414. Hugh Stinson, 4th and Douglas St., Des Moines, Iowa, rec. by E. O. Kagy and J. W. England.

No. 415. Ernest W. Westpfahl, Delmar Jct., Iowa, rec. by E. O. Kagy and J. W. England.

No. 416. Muzelle Powell, Klemme, Iowa, rec. by R. L. Parker and E. O. Kagy.

No. 417. Octavio Garcia, Mannabo, Porto Rico, rec. by R. L. Parker and E. O. Kagy.

No. 418. Arthur Lee Suter, 1295 Bardstown Road, Louisville, Ky., rec. by C. D. Porter and George Eisele.

No. 419. Edward O. Rauchfleisch, 13419 Euclid Ave., Cleveland, Ohio, rec. by L. C. Hopp and H. V. Arny.

No. 420. Peter Vellema, 5 Leonard St., N. W., Grand Rapids, Mich., rec. by W. C. Kirchgessner and W. A. Hall.

No. 421. Benjamin F. Nudd, Sgt. 1st Class, Hospital Corps Field Hospital No. 5, Texas City, Texas, rec. by H. W. Riess and John Dingnam.

No. 422. Sinclair Sartorius Jacobs, care Jacob's Pharmacy Co., Atlanta, Ga., rec. by G. M. Beringer and J. W. England.

No. 423. Charles A. Rapelye, Hartford, Conn., rec. by T. F. Main and J. W. England.

No. 424. Frederick T. Bradt, 171 Blaine Ave., Detroit, Mich., rec. by W. A. Hall and Leonard A. Seltzer.

No. 425. Hamilton C. Ulm, 224 Jackson St., Toledo, Ohio, rec. by Waldo M. Bowman and Azor Thurston.

No. 426. Paul H. Hirth, 271 Lincoln St., Detroit, Mich., rec. by L. A. Seltzer and W. A. Hall.

No. 427. Joe L. Horn, 601 St. Louis Ave., Fort Worth, Texas, rec. by R. H. Needham and W. B. Day.

No. 428. Howard T. Graber, 636 Trumbell Ave., Detroit, Mich., rec. by H. M. Whelpley and J. W. England.

No. 429. Jean Gordon, West Suburban Hospital, Oak Park, Ill., rec. by H. M. Whelpley and F. M. Apple.

No. 430. Chas. O. Lee, Med. Col., Va. School of Pharmacy, Richmond, Va., rec. by A. Bolenbaugh and F. E. Sayre.

No. 431. Albert Schreiner, Batavia, Ill., rec. by H. M. Whelpley and J. W. England (membership with publications).

No. 432. Geo. E. Doyle, 1190 West Fort St., Detroit, Mich., rec. by Wm. A. Hall and J. W. England.

No. 433. Adelbert P. French, 2782 Woodward Ave., Highland Park, Mich., rec. by Wm. A. Hall and Leonard A. Seltzer.

The following is a list of the members of the Council for 1914-15. Please notify the Secretary of the Council of any errors or omissions.

COUNCIL LETTER No. 2.

Philadelphia, October 2, 1914.

To the Members of the Council:—

Motion No. 1 (Election of Council Committees for 1914-15), and No. 2 (Election of Members: Applications Nos. 1 and 2) have each received a majority of affirmative votes.

At the Detroit (1914) meeting, a resolution was passed that a committee be appointed to consider the question of the American Pharmaceutical Association having an exhibit at the Panama Pacific Exposition in 1915; and Albert Schneider, Chairman, F. J. Wulling and E. Fullerton Cook were named as the committee.

The following letter has been received:—

Philadelphia, September 23, 1914.

Mr. Joseph W. England, Philadelphia, Pa.:—

Dear Mr. England:—Your letter of the 19th was received, and I am compelled to ask that some other name be placed on the Committee for the exhibit at the Panama Exposition. I will not be able to be at San Francisco and will not have the time during the coming year to satisfactorily do my part on this Committee. Please submit to the Council this letter and ask that I be relieved from the appointment. Yours very truly,

E. FULLERTON COOK.

Albert Schneider, Chairman of Committee on proposed A. Ph. A. Exhibit at the Panama-Pacific Exposition, writes to the Secretary of the Council that he has secured tentative space reservation for the proposed A. Ph. A. Exhibit to be held until October 15, "by which time we must decide whether or not we want it." He writes as follows:—

To the Members of the Council.—

Gentlemen:—The following is submitted:—Preliminary Suggestions on a Working Exhibit for the American Pharmaceutical Association to be Placed in the Liberal Arts Building of the Panama-Pacific International Exposition at San Francisco, California, 1915.

After giving the matter a brief but careful consideration I feel satisfied that the most interesting exhibit and the one which would attract the most attention and do the most good is a working exhibit illustrating the methods for testing and standardizing the drugs of the U. S. P. I have secured tentative space reservation in the Liberal Arts Building, 30 by 21 feet floor space. This space will be held for the A. Ph. A. until October 15th. In my opinion this space is entirely adequate for a working exhibit, and also a still exhibit for which the wall space would serve very nicely. I take the liberty of submitting the following suggestions on a combined still and working exhibit.

STILL EXHIBIT.

1. Samples of U. S. P. drugs and preparations.
2. Striking examples of drug adulteration.
3. Complete set of U. S. Pharmacopœias, etc., etc.

WORKING EXHIBIT.

1. Equipment for making chemical tests and assays of U. S. P. drugs and preparations.
2. Equipment for making microscopical analyses of drugs and pharmaceutical preparations.
3. Equipment for bacteriological work. Sterilization, etc.
4. Equipment for making physiological assays of drugs and pharmaceutical preparations.

I am of opinion that the apparatus can be secured at comparatively small cost, perhaps as loans from the equipments of Colleges of Pharmacy and from manufacturing houses that hold membership in the A. Ph. A. The cost of installing will be comparatively slight. The big item of expense will be the cost of operation during the time that the Exposition is open, from February 14, 1915, to December, 1915. I believe that the entire cost of installation and operation will not exceed five thousand (\$5,000.00) dollars for the time of the Exposition year. I have no doubt that much of this sum could be secured through private subscription, should the A. Ph. A. not be able to subscribe the entire amount.

A copy of this preliminary report is submitted to my associates on the committee, Dr. F. J. Wulling of the University of Minnesota, and Prof. E. Fullerton Cook of Philadelphia. In the meantime I am waiting to hear from my associates. In order that no time may be lost I would suggest that this report be submitted to the Council for consideration. Very truly yours,

ALBERT SCHNEIDER,

Chairman of A. Ph. A. Exposition Exhibit Committee.

It will be recalled, also, that at the Detroit (1914) meeting the Committee on President's Address reported concerning the suggestion that the Committee on Publication be given enlarged powers, etc., as follows:—

12. "The Committee on Publication, in view of the Publication of the Journal and other duties, require some addition to their clerical force and the recommendation of the President is approved that the appropriation of the Committee be paid in quarterly sums in advance. It is further recommended that the Council takes steps to give the Committee on Publication more extended power."

At the General Session held on Saturday, August 29th, this recommendation was referred to the Council.

In this connection, the following letter has been received by the Chairman of the Com-

mittee on Publication from Ex-President Beringer and is referred to the Council for action:—

Camden, N. J., September 23, 1914.

Mr. Joseph W. England, Chairman of Committee on Publication, Philadelphia, Pa.:—

My Dear Mr. England:—I realize that as Chairman of the Committee on Publication, you are desirous of fully understanding the recommendations relating to the Committee on Publication and its increased powers contained in the President's address, and your wish to comply with same and have these changes put in operation as soon as they meet with the approval of the Council and the Committee on Finance have acted thereon.

My sole purpose is to have the work of the Committee on Publication carried on in the most efficient, business-like way. The Editor and the Chairman of the Committee should be in close touch and frequent communication so that the work of the office can be promptly expedited, and, at the same time, no question as to the authority of the Editor, such as the selecting and paying clerical assistance, etc., could arise. I know that during the past year, the Acting Secretary and Editor and likewise prior the Editor had advanced the pay for the office force and had carried these accounts for six or eight weeks or even more before being reimbursed. The same thing has occurred regarding other expenses, such as postage and expressage.

With the increased business of this Committee through its publication of the National Formulary and other activities, which we hope will be successful, the work of the Committee is going to materially increase and its financial management should be simplified. We certainly should not expect the Secretary or any other member of the Association to carry the finances and responsibilities of the Committee. My recommendation was that the Committee should be given broader powers, namely, the right to organize a proper clerical and editorial staff so as to efficiently conduct the business of the Committee. That to avoid the delay incident to our present method of paying bills of the Association, that the Committee's appropriation be paid to them quarterly and that they elect a treasurer who should honor drafts made by the Editor and counter-signed by the Chairman and keep correct accounts of all receipts and expenditures on behalf of the Committee subject to the approval of the Council and the Auditing Committee thereof. My understanding of the action of the meeting on Saturday was the approval of the recommendation in the president's address, which had likewise received the approval of the Committee on President's Address, and that the reference to the Council was to have same put into force by the body charged with the business of the Association.

If an additional motion is considered necessary for the Council to carry out the intent of the recommendation approved by the meeting, then I will move that the Council author-

ize the Committee on Publication to effect a re-organization and to systematize its work, as recommended.

Yours very truly,

GEORGE M. BERINGER.

The motion is seconded by Dr. F. E. Stewart.

Motion No. 3 (Authorization of Committee on Publication to Effect a Reorganization and to Systematize its Work). Do you approve of the motion as above presented?

Motion No. 4 (Election of Members). You are requested to vote on the following applications for membership:—

No. 3. Victor Charles Muehlberg, 1800 Race street, Cincinnati, Ohio, rec. by Edw. Voss, Jr., and Frank H. Freericks.

No. 4. Sister Mary Wilfred, Mt. Carmel Hospital, West State street, Columbus, Ohio, rec. by Anna G. Bagley and E. C. Marshall.

No. 5. Henry Corbin Fuller, Institute of Industrial Research, 19th and B street, N. W., Washington, D. C., rec. by C. E. Caspari and H. M. Whelpley.

No. 6. William T. Hanlon, Sergeant, Hospital Corps, U. S. A., Ambulance Company Number Five, Texas City, Texas, rec. by H. W. Riess and John Duignan.

No. 7. Frank Trainer, Regimental Hospital, 22nd Infantry, Texas City, Texas, rec. by H. W. Riess and John Duignan.

No. 8. J. Luther Bradley, Sergeant Hospital Corps, U. S. A., Regt. Hospital, 26th Infantry, Texas City, Texas, rec. by H. W. Riess and John Duignan.

No. 9. Thomas E. Bussey, Sergeant Hospital Corps, U. S. A., 27th Infantry, Regt. Hospital, Texas City, Texas, rec. by H. W. Riess and John Duignan.

No. 10. John Sidney Miller, Rugby, N. D., rec. by W. P. Porter and J. W. England.

No. 11. Charles Isaac Clough, Tillamook, Oregon, rec. by Louis G. Clarke and C. H. Packard.

No. 12. Frank Leslie Downes, 3 Cherry street, Binghamton, N. Y., rec. by Louis Berger and J. Leon Lascoff.

No. 13. Nicholas Drugoncin, 32 Adams avenue, W., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 14. R. E. Hugill, 32 Adams avenue, W., Detroit, Mich., rec. by Leonard A. Seltzer and Wm. A. Hall.

No. 15. Albert Roberts Pruett, Leary, Ga., rec. by Max Morris and W. S. Elkins, Jr.

No. 16. Ernest Ray Jones, 489 Bewick avenue, Detroit, Mich., rec. by Wilbur L. Scoville and Leonard A. Seltzer.

No. 17. Robert Liston Gaddy, 5 West Main street, Dillon, South Carolina, rec. by J. W. England and J. H. Beal.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.

MEMBERS OF THE COUNCIL, 1914-15.

- Alpers, Wm. C., Central Ave. and E. 14th St.,
Cleveland, Ohio.
- Asher, Philip, 1606 St. Charles Ave., New
Orleans, La.
- Beringer, George M., 5th and Federal Sts.,
Camden, N. J.
- Caspari, Charles, Jr., University of Mary-
land, Baltimore, Md.
- Caspari, Charles E., 4060 Westminster Place,
St. Louis, Mo.
- Clark, Albert H., 74 E. 12th St., Chicago, Ill.
- Claus, Otto F., 3513 Hebert St., St. Louis, Mo.
- Day, Wm. B., Michigan Blvd. and 12th St.,
Chicago, Ill.
- Diehl, C. Lewis, 932 Cherokee Road, Louis-
ville, Ky.
- Eberle, Eugene G., 1804 Jackson St., Dallas,
Texas.
- Engelhardt, Herman, 2910 Garrison Ave.,
Baltimore, Md.
- England, Joseph W., 415 N. 33d St., Philadel-
phia, Pa.
- Fennel, C. T. P., 614 W. Court St., Cincinnati,
Ohio.
- Floyd, Henry B., 1840 U St., N. W., Wash-
ington, D. C.
- Freericks, Frank H., 1215 Mercantile Lib.
Bldg., Cincinnati, Ohio.
- Gietner, Chas., 2910 S. Grand Ave., St. Louis,
Mo.
- Godbold, Fabius C., 2734 Prytania St., New
Orleans, La.
- Godding, J. G., 278 Dartmouth St., Boston,
Mass.
- Gordon, Fred T., 2115 Medary Ave., Phila-
delphia, Pa.
- Havenhill, L. D., Lawrence, Kansas.
- Hopp, Lewis C., 1104 Euclid Ave., Cleveland,
Ohio.
- Ilkhardt, Wm. K., 4836 Delmar Blvd., St.
Louis, Mo.
- Koch, J. A., College of Pharmacy, Pittsburgh,
Pa.
- Kauffman, George B., 235 N. High St., Co-
lumbus, Ohio.
- LaPierre, E. H., 96 River St., Cambridge-
port, Mass.
- Martin, John A., 930 15th St., Denver, Colo.
- Mayo, Caswell A., 66 W. Broadway, New
York, N. Y.
- McElhenie, Thos. D., 259 Ryerson St., Brook-
lyn, N. Y.
- Osseward, Cornelius, Cobb Bldg., Seattle,
Wash.
- Packard, C. Herbert, 7 Central Square, East
Boston, Mass.
- Sayre, Lucius E., Lawrence, Kansas.
- Schafer, George H., 713 Front St., Ft. Madi-
son, Iowa.
- Schneider, Albert, 723 Pacific Bldg., San
Francisco, Cal.
- Stewart, Francis E., 11 W. Phil-Ellena St.,
Germantown, Phila.
- Thiesing, Edward H., Gilbert and Lincoln
Ave., Cincinnati, Ohio.
- Thomas, John B., Baltimore and Light Sts.,
Baltimore, Md.
- Whelpley, Henry M., 2342 Albion Place, St.
Louis, Mo.
- White, Wm. R., 314 Hancock St., Nashville,
Tenn.
- Wilbert, M. I., 1621 35th St., N. W., Wash-
ington, D. C.
- Wulling, F. J., University of Minnesota, Min-
neapolis, Minn.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33d St., Phila.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Acting Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

<>

COLUMBUS.

The September meeting of this Branch was held on Friday evening, September 25, at the Y. M. C. A. Building, with Pres. Geo. B. Topping in the chair. The records of the last meeting were read by Secretary Spease and were approved.

The Committee on Constitution and By-Laws submitted a report, and on motion the report was accepted and the Constitution and By-Laws adopted for the government of the

Branch. These provide an election of officers at an annual meeting in May, and dues of twenty-five cents yearly for each member.

Professor Kauffman reported for the Committee on A. Ph. A. building, that the Chamber of Commerce had formally offered a site for the building of the A. Ph. A. office headquarters and laboratories, said site to be a gift from the City of Columbus to the Association.

President Topping spoke of the great influence which the Branch could exert in bringing the members together socially, and suggested that its meetings should be devoted to the solution of problems of store-work, prescription difficulties, helpful suggestions for the preparations of the Pharmacopœia and N. F., and to addresses by persons eminent in the various fields of pharmaceutical work. He thought in this way that the meetings would be most profitable and would be looked forward to by all the members as most entertaining and instructive. He appointed as Committee on Program, Professor Dye and Messrs. Young and Marshall.

Mr. Spease spoke of the Year Book of the Association, called attention to the fact that the information therein contained was valuable, but it was of ancient date, and suggested that if the Year Book abstracts could be published in the Journal as they were made by the Editors, the information conveyed thereby, would be fresh and of the greatest value to all the members. Professor Kauffman spoke along the same lines.

Discussion was had upon the value of the work of the Public Health Federation, an association of all persons interested in legislation for the health of the community. It was described as being one representing about 35,000 members in Ohio, who would bring their united influence to bear on the Legislature in favor of or against legislation affecting public health measures. In this association the pharmacists, physicians, dentists and veterinarians were represented and it was thought that by their union of effort, many obnoxious measures might be successfully opposed and those really for the welfare of the public be urged to passage into law.

Mr. Funk suggested that a committee be appointed to confer with the State Association and ask for the appointment of a joint committee to request of the Ohio State University, the establishment of a Botanical Garden at that institution, of which a special

feature should be the cultivation of medicinal plants.

Professor Kauffman thought the idea an excellent one, and that the Department of Botany would favor such establishment. The President appointed Messrs. Young and Lehmann as such committee.

Professor Kauffman spoke of the scarcity of potash deposits in this country, and said that effort should be made generally by pharmacists to have physicians prescribe salts of sodium in place of those of potassium; the former being equally useful as a remedial agent, and in many cases superior to the potassium salt.

Mr. Marshall spoke of the importance of every member taking an interest in the affairs of the Association. These affairs affected every pharmacist in the country and he instanced the signing of a recent contract with Lippincott & Co., for printing the National Formulary, a contract involving a large amount of the Association's money. This was one of the most important assets of the Association, and all members should be interested in the proper working-out of all the problems connected with it, its printing and distribution, in order that the true interests of the Association should be conserved.

The meetings of the Branch were fixed for the last Friday in each month except for the months of June, July and August.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.



PORTER, G. ELLIS,

From 1068 Line St., Riverside, Cal.

To care Porter's Pharm., Cor. 8th and Orange St., Riverside, Cal.

- HARRINGTON, FRANK,
From Forsythe and 6th Ave., Columbus,
Ohio,
To 1330 Forsythe Ave., Columbus, Ohio.
- ZIEFLE, ADOLPH,
From 1132 College St., Fargo, N. D.,
To Ore. Agricultural College, Corvallis,
Ore.
- RABINOWITZ, WM. J.,
From 1043 S. Tinton Ave., Bronx, N. Y.,
To 333 State St., Brooklyn, N. Y.
- BROWER, THOMAS E.,
From Dodge, Ga.,
To Ft. Oglethorpe, Godge, Ga.
- DEFOREST, WM. P.,
From Springfield, Long Island, N. Y.,
To Springfield Gardens, N. Y.
- HAHN, GUSTAVE,
From Camp Stotsenburg, Pampanga Prov.,
P. I.
To Ft. Hancock, N. J.
- HEUISLER, PHILLIP I.,
From 308-310 W. Lombard St., Baltimore,
Md.,
To Emerson Drug Co., Bromo-Seltzer,
Tower Bldg., Baltimore, Md.
- BARNES, ARTHUR A., JR.,
From 32 Crown St., Meriden, Conn.,
To 239 W. Newton St., Boston, Mass.
- FLETCHER, DAVID M.,
From 507 Mission St., San Francisco, Cal.,
To 3993 Washington St., San Francisco,
Cal.
- ZAMORA, MANUEL,
From 917 Sebastian St., Manila, P. I.
To 913-915 So. Sebastian St., Manila, P. I.
- LEAVITT, C. A.,
From care Hamilton Drug Co., Colfax,
Wash.
To care W. J. Grody Drug Co., Colfax,
Wash.
- FLOYD, HENRY B.,
From 1840 U St., N. W., Washington,
D. C.,
To Box 321 Washington, D. C.
- FRANTZ, F. BERG,
From 2101a Chippewa St., St. Louis, Mo.,
To D. Y. Butcher Drug Co., Colorado
Springs, Colo.
- BEASLEY, R. S.,
From Majestic Pharm., Hot Springs, Ark.
To 364 Central Ave., Hot Springs, Ark.
- HOUCK, DAVID L.,
From Box 67, Indiana, Pa.,
To Elizabeth, Pa.
- WALLACE, JOHN C.,
From 61 E. Washington St., New Castle,
Pa.,
To 113 E. Washington St., New Castle, Pa.
- CANNON, T. F.,
From 319 W. Randolph St., Canal Station,
Chicago, Ill.
To 365 E. Illinois St., Chicago, Ill.
- DOWNES, FRED C.,
From Hayden, Colo.,
To Craig, Colo.
- GRIESEMER, L. P.,
From 135 N. 16th St., Philadelphia, Pa.,
To 911 Washington St., Reading, Pa.
- BACKUS, E. J.,
From 2403 W. North Ave., Chicago, Ill.,
To 3825 Montrose Blvd., Chicago, Ill.
- HOYE, D. J.,
From Woodriver, Neb.,
- HICKS, CLAUDE E.,
From 1822 S. Lane St., Wash.
To 602 S. K. St., Tacoma, Wash.
- BARTLETT, H. GRAY,
From 4837 Forrestville Ave., Chicago, Ill.,
To 2450 Calumet Ave., Chicago, Ill.
- GAHN, HENRY,
From Purveying Depot, Union Bldg.,
Washington, D. C.,
To U. S. Marine Hosp., New Orleans, La.
- NEWMAN, EMANUEL,
From P. I. Division, Manila, P. I.,
To Sergt. 1st Cl. Hosp. Corps (retired),
Lancaster, N. Y.

RESIGNED.

- CUQUEJO, ANTONIO G., Havana, Cuba.
- BERKOWITZ, ALEXANDER, San Francisco, Cal.
- ARMSTRONG, C. E., West Plains, Mo.
- COOK, ALBERT J., Terre Haute, Ind.
- REED, CURTIS D., Pomeroy, Ohio.
- JENSEN, C. H., Chicago, Ill.
- LUCKOESH, EDWARD, Maquoheta, Ia.
- NEIL, MATHEW, Presidio of Monterey, Cal.
- SIRES, EDWARD B., Savannah, Ga.

RESIGNED SINCE AUGUST 18, 1914.

- ELLINGSEN, EMIL, Ft. Meyer, Va.
- BARCLAY, JAS. M., Sgt. U. S. A. H. C., Camp
Downes, Manila, P. I.
- DIEDRICH, A. 6854, Union Hills, N. J.
- MARGLOUS, L. R., St. Louis, Mo.
- VOSE, GEO. E., Waterville, Me.
- DECEASED SINCE AUGUST 18, 1914.
- CLARKE, CHAS. J., Paris, Ky.
- REYNOLDS, GEO., Washington, D. C.
- GOODWIN, WM. W., Newburyport, Mass.
- KEIM, C. A., Madison, Wis.

LIFE MEMBER FOR PAYING 37 YEARS.

- KLIE, GEO. H. CHAS., St. Louis, Mo.
- MINER, M. A., Chicago, Ill.

JOSEPH PRICE REMINGTON, PHAR. M.,* PHAR. D.,†
F. C. S., F. R. M. S., F. L. S.

President American Pharmaceutical Association, 1892-3.

HONORARY MEMBER

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN,

THE BRITISH PHARMACEUTICAL CONFERENCE,

PHARMACEUTISCHE GESELLSCHAFT ZU ST. PETERSBURG,

INSTITUT MEDICO NACIONAL, MEXICO,

SOCIETE ROYALE DE PHARMACIE DE BRUXELLES,

COLLEGE OF PHARMACY, CITY OF NEW YORK,

AND THE STATE PHARMACEUTICAL ASSOCIATIONS OF

Colorado	Ohio
Georgia	South Dakota
Nebraska	Vermont
New Hampshire	Virginia
New Jersey	West Virginia
New York	

* Philadelphia College of Pharmacy.

† Northwestern University of Chicago. University of New Jersey.



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Volume III

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The Sixty-Second Annual Convention

Held at Detroit, Michigan, August 24-29, 1914

FOURTH GENERAL SESSION.

President Beringer called the fourth general session to order Saturday, August 29, at 11 o'clock a. m. in room B of the Convention Hall of the Hotel Pontchartrain, Detroit.

The first order of business was the reading of the minutes of the third general session.

On motion, the minutes were approved.

Secretary England of the Council read the minutes of the Council sessions to date. Mr. Hynson moved that the minutes be approved.

Mr. Harry B. Mason, of Detroit, asked if the approval of the minutes of the Council carried with it the approval of the resolutions submitted by the House of Delegates. President Beringer replied that the approval of the minutes meant that this Association likewise approved the action of the Council in regard to those resolutions.

Mr. Mason said he would like to say just a word before a vote was taken. He said, in regard to the publishing of news in the local papers, and providing for the appointment of a reporter to the local press at future conventions whose duty it should be to see to it that the news is O. K'd, corrected and verified before it is published in the newspapers, he had no objection to the resolution, but he thought it unwise to adopt it as it would be impracticable. As Chairman of the Committee on Publicity, he, more than anyone else, of the officers of the Association, was responsible for the printing of news at Detroit. It had been his experience that it was absolutely impossible to correct or do anything with newspaper men; you

could ask the reporters to submit the news before it was printed, and they will be perfectly willing to do so, but the next day another set of reporters would come in so that the matter was absolutely outside of the control of the Association. The report printed on Tuesday morning, and which caused the introduction of this resolution, was the result of misinterpretation of a portion of the address of President Beringer, and he was righteously indignant about it. The Committee on Publicity did not see the particular reporter of that session. Mr. Mason said he saw this reporter later and asked him to correct the mis-statement and it was corrected in small eight-point down at the bottom of the page where nobody would notice it. The Association had no control over this matter and it might as well attempt to drive a team of six oxen in six different directions as to attempt its regulation. He moved that this resolution be stricken from the report of the Council, but that otherwise the minutes be approved.

Mr. Raubenheimer said, if Mr. Mason had been present at the Council meeting and heard the discussion on this question, he would understand that it was simply for the purpose of preventing any such future misrepresentation in the newspapers.

This committee which was proposed to be appointed, was to consist of an associate reporter and the chairmen of the several sections of the Association. This was advocated for the express reason of preventing one section from getting the entire glory and some other section not getting any publicity. This plan would place the responsibility on the reporter and the chairmen of the different sections.

Prof. F. J. Wulling thought the recommendation as originally made should stand. The Association could afford to try a new experiment. The old way had failed in many instances and if the new way failed, they would not be any worse off than they were before. The method suggested had been tried out elsewhere successfully. The purpose was to correlate all the authentic news from authentic sources, and it was proposed to communicate the authentic information immediately to this reporter, by whom the news would be given to the press. Such committees had been established by other associations and the scheme had worked out very well, both to the satisfaction of the press and the Association. The press had met the reporters of this kind very gladly and said, "If you will give us the news we will print it," and they did print the news in the way in which it was given them, with, of course, certain additions of headlines and the giving of prominence to things which they thought had more human interest than others.

Mr. Mayo stated that everyone was perfectly well aware of the fact that human interest was the thing that counts with the press. The press wants sensational things to happen, and the Association cannot prevent them from printing such news. It is absolutely impossible to prevent it in any way, and the only thing the Association could hope to do in the appointment of this committee would be simply, to give the newspapers prompt, authentic, interesting news, which may bring to the Association a desirable publicity, and, possibly, tend to diminish the tendency toward sensationalism. But the prominence given the news depended upon the newspaper and not upon the local committee. He did not want Mr. Mason to get the idea there was any reflection intended by the resolution upon the work of the local publicity committee.

Mr. William A. Hall, as a member of the local press committee, said that the

local committee in each place is in much more intimate touch with the press in their community, than any committee that might be appointed from the Association, unless such committee happened to reside in the place of meeting. As a matter of fact, Mr. Mason and he were *persona grata* to some of the papers in Detroit, and they had secured the promise of the press to print a good write-up for the convention and the reporters were specifically requested to come to Mr. Mason for the news. The reporters came and arrangements were made with them, but these reporters did not cover all the sessions.

Mr. Mason said that, after what had been said, he did not think the subject was one of sufficient importance to take up the time of the Association, and for that reason withdrew his motion.

Mr. Hynson's motion was then adopted.

The Chair then stated the next order of business to be taken up would be the report of the Special Committee on Rules and By-Laws. (Printed on P. 1280—September issue.)

The report of the committee was read and its recommendations approved without debate, in so far as embraced in Sections 1 and 2 of their report as to amendments to the General Rules, and the amendments to the By-Laws embraced in their report in recommendations three to ten, both inclusive.

Section 11 of the committee's report was read as to reports of committees requiring those reports to be sent to the General Secretary in advance of the first general session. Prof. F. J. Wulling asked if the recommendation applied to all committees or only to standing committees. Mr. Mayo said that he thought it should apply to all committees which were appointed at the meeting preceding. It was an important amendment and he moved its adoption. Mr. Nitardy seconded. The motion was adopted. Recommendations 12 and 13 were adopted without debate.

The amendments proposed at Nashville were then acted upon, and Mr. England read the report of the Committee on Revision of the Constitution and By-Laws, as follows:

American Pharmaceutical Association:—

GENTLEMEN:—It will be recalled that at the Denver (1912) annual meeting of the Association your committee presented a full and comprehensive report, proposing certain changes in the constitution and by-laws, which was received, ordered printed in the Journal, and its further consideration postponed until the following annual meeting; and reprints were directed to be made of the report and of the existing Constitution and By-Laws, so as to facilitate comparison and consideration of the changes proposed; this was done, but at the Nashville (1913) meeting no action was taken on the report of the committee as a whole, by reason of lack of time, although some of the proposed changes in by-laws were made.

An important question is as to the status of the changes in the Constitution and By-Laws proposed by the committee in its report. They are apparently still before the Association as the report has been received, and the committee has not been discharged.

If recent discussions in the journals count for anything, there will be a number of changes in by-laws proposed at this meeting, covering the business procedure of the annual meetings, and your committee urges that the whole subject of the work of the Association be discussed, and that the by-laws be amended, not piecemeal, but by comprehensive, well-balanced changes.

Action should be taken at this meeting upon the amendments to Article IV and Article V of the Constitution presented at the 1913 annual meeting, as under the present Constitution, the proposed changes were postponed until this annual meeting.

The proposed Article IV reads: "All money received from life membership, together with such funds as may be bequeathed, or otherwise donated to the Association, shall be invested by the Treasurer in United States Government, State, Municipal, County or other securities acceptable as security for postal savings deposits, the interest of which for any current year only may be used by the Association for its expenses."

The proposed Article V reads: "Every proposition to alter or amend this Constitution shall be printed in the Journal at least thirty days prior to the annual meeting; shall be read at the first General Session of the annual meeting, and shall be balloted upon at a subsequent General Session, when, upon receiving the affirmative votes of two-thirds of the members present, it shall become a part of the Constitution. Any proposition to amend the Constitution for the purpose of permitting the expenditure of the permanent invested funds of the Association shall require a majority of seven-eighths for its passage."

SUPPLEMENTARY REPORT.

We recommend that action be taken.

To amend Chapter IX, By-Laws, Article XII, by striking therefrom the word Section and the numerals following, wherever same appears therein.

By striking out the line now reading: "Section 3—The Report of the Committee on Nomination shall be read."

To amend Chapter IX of the By-Laws, Article XV, to read:—

Article XV—At the last General Session of the Association the report of the Committee on Nomination shall be presented; all unfinished business disposed of and the officers for the Association for the ensuing year shall be installed.

To amend Chapter 1 of By-Laws by adding a new section to read as follows:

Section VI—Any vacancy in the officers elected by the Association or by any of the Sections occurring in the interim between meetings shall be filled by appointment by the President.

Respectfully submitted, J. W. ENGLAND.
Chairman of Committee on Revision of Constitution and By-Laws.

The first amendment, that to Article IV, came up for action.

Dr. H. M. Whelpley said he did not believe the wording of the proposed amendment carried out the exact idea that was intended. As read, it was made obligatory for the Treasurer to make the investment. It was not intended, as the money accumulated, to have it put into bonds, as such procedure was not practical for the reason that bonds of small denomination cannot be purchased. It was his recollection that the intent of the mover was to so amend the present by-law that it would be possible to invest in a class of securities which was not provided for under the present by-law. The present by-law restricted the investment of funds to United States and State securities, and the intention of the proposed amendment was to give greater flexibility in the nature of the securities.

The ground of Mr. Whelpley's objection was the use of the word "shall" in the proposed amendment, which, if carried, would make it obligatory.

President Beringer stated that was the present wording of the proposed by-law. Mr. Whelpley said then the present wording was wrong and that such a course had not been lived up to; that, for example, part of the funds of the Association

were in the Boston Penny Savings Bank, where it had been for years, and had been turned over to him as Treasurer, in that shape.

President Beringer inquired if it had not been the idea of Dr. Beal that this money should be invested in some permanent investment rather than lie there in a savings fund. Mr. Whelpley replied that the proposed amendment conflicted with the rule of finance, which provided that investments shall be made only through the coöperation of the Finance Committee and the Committee on Invested Funds.

Mr. Whelpley then moved that the word "may" be substituted for the word "shall," the wording otherwise to remain the same. The original motion, as amended, was then adopted.

Mr. England then read the proposed Article V.

Mr. Nitardy moved the adoption of the above article; motion seconded by Mr. Hostmann, and carried.

The proposal to amend Chapter IX, Article 12, in reference to the report of the Committee on Nominations was, on motion of Mr. Anderson, seconded by Prof. Hynson, laid upon the table.

Mr. Harry B. Mason took the floor and said that as Chairman of the Commercial Section he desired to report upon a resolution which had been introduced in the Commercial Section and referred to the General Session, which had been offered by Mr. George H. Schafer, which resolution read as follows:

"Resolved, That a special committee of the American Pharmaceutical Association, consisting of five or more members, be appointed to consider by correspondence and otherwise, a feasible plan to submit to the National Board of Fire Underwriters whereby the onerous and practically impossible requirements of an annual inventory of drug stores be waived or modified to such an extent as to conform with common sense and honesty, thus furnishing full protection for both insured as well as the insurance company."

Mr. Carter moved the adoption of the resolution as read.

Mr. Albert O. Zwick, of Cincinnati, said he thought they were acting a little hasty on the above resolution and asked to have it re-read.

The Secretary read the resolution, after which Mr. Zwick asked if it was the purpose of the resolution that the subject be investigated by the committee and that they then make a report to the Association on the question of the feasibility of dispensing with an annual inventory. Mr. Zwick said his presence at the convention was accidental, but he was very glad to be there. He further said he was a member of the Association and spoke also as a member of the Executive Committee of the American Druggists' Fire Insurance Company; that this question had been up for debate many times in Executive Committee meetings, and he assured the audience that it was a very serious matter indeed because a drug store without an inventory, is, in case of fire, like a ship without an anchor in a storm, and it was very difficult to adjust a loss if an inventory was dispensed with, and he thought there should be some plan proposed whereby they could secure reliable data as to the amount of stock the druggist may have had before his fire. As he understood the resolution, it asked the National Board of Underwriters to consider whether it would be possible to dispense with the inventory. Mr. Carter replied that the wording was "annual inventory." Mr. Zwick asked why they laid stress on the "annual." Mr. Carter replied they didn't all take annual inventories. Mr. Zwick said he

knew that. Mr. Carter said many druggists took inventories once only every two, three or five years and consider that that is a fair basis. Mr. Zwick replied that he thought it dangerous to base anything on such an inventory.

Mr. George F. Payne said he thought the other members understood it as he did, that many hardships were imposed upon pharmacists in insurance company matters, on account of the insurance companies really not understanding the situation.

Mr. Zwick said everybody knew the importance and desirability of an annual inventory and the resolution, it seemed to him, should take up the matter as to how a man could make the showing that he should under the conditions that surround him. He said he had been an insurance adjuster for a number of insurance companies at different times in drug fires, and while acting under the directions of the insurance company, he had had the druggist come to him after the matter was over and shake him by the hand and say he had done more for him than his own representative had. He further said it was a good idea to take these matters up because there were many points which the insurance companies were perfectly willing to act upon in a way that was favorable to the pharmacist which the pharmacist did not really understand himself.

Mr. George H. Schafer, of Fort Madison, Iowa, said if the fire insurance company representatives could have been present at the meeting in which this matter had been discussed and had seen the interest taken in the discussion, they would have appreciated the difficulties in the way of taking an annual inventory. He had no doubt they did appreciate them in their practical experience and they would remedy them if there was any body of men capable of taking the initiative in this matter, and seeing what can be done. It was proposed by the resolution to appoint a committee that would confer with this National Insurance body in order to bring about a modification or a waiver of the insurance clause to such an extent that the difficulties would be surmounted. Mr. Schafer said following the adoption of the pending resolution he had a brief motion to make which he thought would supplement it in such a way as to make it perfectly satisfactory to the insurance underwriters.

Mr. Hynson said the proposition was bad practice and the adoption of this resolution would virtually mean that the American Pharmaceutical Association endorsed the worst commercial practice he knew of, and he certainly hoped for the sake of the Association it would not endorse the resolution.

The motion was then voted upon and lost.

The President then called for the report of the Committee on President's Address, and stated as he was vitally concerned in the report, he would ask the Vice-President to take the chair. (Report printed in October issue.)

The Secretary then read the first recommendation of the report of the Committee on President's Address, which is as follows:

"The endorsement of the objects of the International Pharmaceutical Federation be approved, and it is recommended that the Council be authorized to make application for active membership of the American Pharmaceutical Association."

Upon motion of W. C. Anderson, and seconded by A. M. Roehrig, the above recommendation was adopted.

The Secretary then read the second recommendation, which is as follows:

"The recommendation of the President to reduce the number of members necessary for the organization of a local branch be reduced from twenty-five to fifteen, and that the Chairman of the Committee on Local Branches should provide for a bulletin to be issued to the local branches suggesting topics of importance for discussion."

Upon motion of Mr. Whelpley, duly seconded, the above recommendation was adopted.

The Secretary then read the third recommendation, which is as follows:

"The recommendation of the President that a Special Committee should be created on *Pre-requisite Laws* to take such action as will encourage the Pharmacists of each state where such a law does not exist to have passed an amendment to the pharmacy law which will secure the passage of such a pre-requisite law. It is suggested by your committee that the election of this special committee be referred to the Council for action."

Upon motion of Mr. Otto Raubenheimer, seconded by Mr. Nitardy, the above recommendation was adopted.

The Secretary then read the fourth recommendation, which is as follows:

"The suggestion of the President that the Council shall take into careful consideration the subject of the preparation of a *Pharmaceutical Syllabus*, expressive of the views of pharmaceutical educators is approved."

Mr. Deaton moved the adoption of the above resolution; motion seconded.

Mr. Anderson said he believed they had provided by a previous resolution for the appointment of seven members on the Syllabus Committee, and asked if this meant that they were to have another Committee on Pharmaceutical Syllabus appointed? One of the members replied he did not think so; it simply meant the adoption of the syllabus.

Mr. Anderson said he did not so understand it; that he understood this to be a resolution that would in reality have the Association go on record as repudiating the work of the seven members of the Syllabus Committee that had been working for several years on this proposition, and appoint another committee to take up syllabus work, and if that was the case, he very decidedly disapproved of the recommendation and hoped the Association would do the same.

Mr. Deaton said he thought the recommendation meant the adoption of the syllabus, and in view of his misunderstanding, withdrew his motion.

Mr. Anderson then moved that the Association disapprove the recommendation; motion seconded.

Mr. S. L. Hilton, of Washington, said he thought the recommendation was a very good one. He thought the time had arrived when the American Pharmaceutical Association should take over the compilation of the publication of the *Pharmaceutical Syllabus*; the last edition of the *Pharmaceutical Syllabus* with its errors, with the subject matter that it contains and its recommendation that it shall be carried out in a two years' course, is a matter that is impractical and is a disgrace on American Pharmacy, and a disgrace upon the American Pharmaceutical Association. He said if one would look over the last pages of the book giving the works of reference, some of which were almost impossible to decipher, he would see the titles were mis-spelled, they were incorrect, so that that part of the book might just as well be torn out and thrown away, and yet, with all these errors, they wanted to have the book as a standard for the schools of pharmacy

in this country; that he for one, connected with a school of pharmacy, was frank to admit they could not use the book in the way of giving a three-year course.

Dr. William Mansfield, of New York, in answer to the gentleman just speaking, said that he believed he had not paid the proper attention to the book; that the gentleman had not read the preface to the book, and if a college of pharmacy did not give that minimum course of instruction, he would not have much of an opinion of the men who graduated from such an institution. He further wanted to say that the work of that Syllabus Committee represented the work of some of the best minds in the pharmaceutical profession, and it was a mere proof of ignorance on the part of the previous speaker not to appreciate the extent of the good work that had been done by that committee, and he sincerely hoped that the remarks of the gentleman who preceded him would be stricken from the minutes of these proceedings.

Prof. William B. Day said, as a member of the Syllabus Committee, he merely wished to say that the work represented the labors of the seven men appointed by the Association, and whatever the errors or mistakes which may have crept into the syllabus are, the work represented the efforts of their committee over a considerable term of years, and he hoped the efforts of the committee would not be repudiated by the Association. He said he did not claim that the syllabus was by any means perfect, and it was not offered as anything perfect, and that they expected to revise it, and he thought to take such action and move the appointment of another committee to prepare an entirely new syllabus would be a grave mistake; that they had already presented the syllabus to the schools throughout the country and the Boards of Pharmacy, and it had been adopted by quite a number of boards and schools, and he thought the work could not now be thrown overboard and go for naught.

Mr. Apple asked that the members carefully consider the phrase "expressive of the views of pharmaceutical educators is approved," contained in the recommendation.

President Beringer said he desired to speak on this subject; that he did not think there was any subject more important to pharmaceutical education than outlining the proper course of instruction, and when the Association became a party to the outlining of a course of instruction it should present what can be done and what ought to be done. He said he had looked very critically into the subject and had been a member of the committee and gone through the trials and tribulations they had had in that committee for three or four years, and he knew what was meant by the honorable discharge of duty, and stated the Association could not afford to endorse something which on its face was not correct; that there was not an honest, capable school of pharmacy which could give that amount of instruction as a minimum amount in a two-years' course of instruction; that it was conceded by everybody who was honest in their conviction that it could not be done. Mr. Beringer called attention to the preface of the book in which it was stated that educators and examiners could select what they wanted to teach. He thought it was very unfortunate to have such a statement as that in the preface; that the Association could not afford to place themselves in a position that was morally wrong, and they should not be asked to endorse a thing which could not be carried out. He also said he did not care to indulge in per-

sonalities and he hoped none of the gentlemen present would do so, but he thought the members of the committee would bear him out in his statement that a sane revision of the syllabus by the committee as at present constituted was impossible. He said he had attempted to contribute, and he thought he had contributed as much original and constructive criticism as any other two members, and in saying this he did not intend it as egotism; that some of the ideas which should have been incorporated in the syllabus were adopted, while others were thrown overboard.

The trouble with the committee, Mr. Beringer said, and he was going to speak plainly, was that outside influences had prevented the men who had the education and knowledge in regard to pharmacy from inculcating and incorporating in the syllabus what is a true representation of pharmaceutical education; that if the syllabus did not serve that purpose it had absolutely failed.

Mr. Beringer said he had spent a great many hours in preparing a list of titles to go in the list of reference books. When the book came out in print he was surprised to find page after page with mis-spellings and errors that he would be ashamed to admit having had anything to do with. He exhibited a sample page on which he had indicated some corrections, and said such a work was not creditable to the American Pharmaceutical Association, with page after page of mis-spelled titles; that the syllabus as printed did not contain the proper titles of the books and the authors' names were mis-spelled. He asked if the Association thought they should stand sponsor for a book as imperfect as this; and said that the trouble with the book was it had not been prepared by pharmaceutical educators. He asked, if they did not have sufficient intelligence in the American Pharmaceutical Association to outline a course of instruction, having among its members all these teachers from the colleges, where they would get it. He said they certainly would not get it from men who were not educated in pharmacy, and that the trouble was influence had been brought to bear upon pharmaceutical education by men who were not pharmacists, which was a great mistake made in the preparation of the book. His proposition, he said, was that the Council should take very carefully into consideration the advisability of preparing a Pharmaceutical Syllabus which would be expressive of the views of pharmaceutical educators. He said there had been a meeting of the Syllabus Committee held in Pittsburg, and they had met there with the unanimous agreement that the American Pharmaceutical Association should be asked to take over and publish or edit the future revisions of the Syllabus; that they had gone home with the idea that that was settled by the officers of the American Pharmaceutical Association; but, he stated, the work had never been presented to the Association and they had never been asked in Council or in general session to consider the unanimous result of that vote taken at Pittsburg, which was an expression of view of men meeting face to face and talking over the proposition; that it had been recognized at Pittsburg when they were together, that the American Pharmaceutical Association was the proper body to prepare and publish such a book, but when they got away the outside influences changed the whole thing and it had never been presented to the Association, and his idea was that they get it back again where it belongs, to the American Pharmaceutical Association, and act on it.

Mr. Mason said the strength, it seemed to him, of the present Syllabus was in

the fact that it had been revised by three co-ordinating bodies, the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties, and the National Association of Boards of Pharmacy, and he looked upon this joint work wholly apart from what the book might be as one of the most hopeful augurs in the development and history of American pharmacy; that the mere fact that they had these three agencies at work together, coöperating with and assisting one another, was most hopeful for the future of the calling, whether they got out the present book or any other book, or what they did. Mr. Mason said they could go to work and get up a Syllabus of their own if they desired to, and if they did not care to play in somebody else's yard; that they could get up a book, but who would use the book if the American Pharmaceutical Association got it up; could they expect the faculties to use it, or the boards to use it? He thought it was far better to work in coöperation with those agencies as they were now doing and get what they want by a compromise. He said no one was satisfied with the Syllabus, and no one could be satisfied with it; no one ever would be satisfied with any Syllabus that was gotten out by any one individual because a Syllabus, like a law, is the result of compromise. He called attention to the fact that there were twenty-one men working together and the Association could not expect to get every proposition adopted they wanted adopted. He had himself submitted a great many things that were not accepted, but he had no grouch as a result of their action, but was satisfied with what he did get through. He thought that the majority of wisdom ruled in the end, and said that much of the criticism that had been hurled against the Syllabus was the criticism of one man. He said he would not, as President Beringer had hoped they would not, indulge in personalities, but he thought it was proper for him to say that the Secretary of the Syllabus Committee had been criticised a good deal; that he was not going to defend anybody, and he was not going to defend the Secretary, but he simply stated the fact that he had been criticised for his autocratic methods and for perhaps having his ear to the ground. Mr. Mason said the old Secretary was no longer Secretary; that a new Secretary and Treasurer had been appointed that week, and they were sure to find in him as an officer of the Syllabus Committee everything they ought to expect.

Mr. Mason said in regard to the errors that Mr. Hilton and Mr. Beringer referred to, that there were errors found mostly in the back of the book, in a bibliography; that it was merely an appendix and possibly they ought to perform an operation and get rid of the appendix; that it was of no general consequence whether the names were spelled properly or not, and the book, as a whole, apart from the appendix, would stand a fair criticism.

Mr. Mason thereupon seconded Dr. Anderson's motion that they disapprove the recommendation of the committee; motion carried.

The Secretary then read the fifth recommendation of the Committee on President's Address:

"The recommendation of the President that a *special committee*, consisting of the President of the Association and the living former Presidents to report to the Association at its next meeting upon the subject of standardizing of pharmaceutical degrees, be approved."

Mr. Henry M. Gordin, of Chicago, moved that the recommendation just read also be disapproved; motion seconded.

Mr. Gordin said, in support of his motion, that they had already in the Conference of Pharmaceutical Faculties a body for standardizing or trying to standardize the pharmaceutical degrees; that they had not accomplished very much as yet, although they had been working for two years or more; that in this Conference all the schools were represented and that if they were to now throw over the work and leave it to a committee of the past presidents of the Association, with all due respect to that committee, he could not help but feel it would be at cross purposes and nothing would be accomplished. He impressed on them the fact that the matter of standardizing pharmaceutical degrees is a very difficult one, that each school had its own local conditions to meet, and that at present nearly every school is employing something different in the way of pharmaceutical degrees, and it was not easy for any body of men to standardize pharmaceutical degrees. Mr. Gordin suggested if it was not logical and reasonable that the thing could be done by a conference of pharmaceutical faculties where these schools are all represented better than by the American Pharmaceutical Association or a committee of the Association, in which the schools were not represented. Mr. Gordin strongly felt that the Conference of Pharmaceutical Faculties was the proper body to standardize pharmaceutical degrees instead of a committee of the American Pharmaceutical Association.

Motion carried.

The Secretary then read the sixth recommendation of the committee, which is as follows:

"Your committee regards favorably the proposition to create an Advisory Board consisting of the ex-Presidents of the Association to whom may be referred such subjects as the Council may direct for their report and decision."

It was moved by Mr. W. C. Anderson, seconded by Mr. William Mansfield, that the above recommendation be adopted; motion carried.

The Secretary then read the seventh recommendation of the committee, which is as follows:

"The recommendation is approved that this Association joins with other organizations in urging a modification of the postal regulations to permit the shipment of medicines by parcel post or through the mail, provided that such medicines are not of such a character as to damage the contents of the mail bag and of the class of habit-forming drugs."

It was moved by Mr. Jeannot Hostmann, of Hoboken, seconded by Mr. W. C. Anderson, that the above recommendation be adopted; motion carried.

The Secretary then read the eighth recommendation of the committee, which is as follows:

"We approve of the President's recommendation that a committee be appointed to prepare and introduce a new bill, at the next session of the Congress, improving the status of pharmacists in the army service of the United States."

Upon motion of Mr. Otto Raubenheimer, seconded by Mr. H. V. Army, the above recommendation was adopted.

The Secretary then read the ninth recommendation of the committee, which is as follows:

"Your committee approves of the recommendation of the President that some plans should be formulated for the protection of the public and for the prevention of accidents due to swallowing bichloride tablets or their solutions. Your committee is not united in the selection of a form and shape to be recommended, but

believe that this should be settled after a discussion in an open meeting of the Association."

Upon motion of Mr. Jeannot Hostmann, duly seconded, the above recommendation was tabled.

The Secretary then read the tenth recommendation of the committee, which is as follows:

"The recommendation of the President that the Year Book of the American Pharmaceutical Association be completed and published within a reasonable time after the expiration of the year which it represents, is approved by your committee."

Mr. H. V. Army then moved that the above recommendation be adopted; motion duly seconded by Dr. E. A. Ruddiman, and carried.

The Secretary then read the eleventh recommendation of the committee, which is as follows:

"The committee recommends that the suggestion of the President to continue the publication of the Code of Ethics in the Year Book be continued."

It was moved by Mr. H. V. Army, seconded by Mr. William Mansfield, that the above recommendation be adopted; motion carried.

The Secretary then read the twelfth recommendation of the committee, which is as follows:

"The Committee on Publication, in view of the publication of the Journal and other duties, require some addition to their clerical force, and the recommendation of the President is approved that the appropriation for the use of the committee be paid in quarterly sums in advance. It is further recommended that the Council take steps to give the Committee on Publication more extended power."

Mr. M. I. Wilbert moved that the recommendation be referred to Council for consideration as it involved the disposition of funds and he did not think it fair to Council to take action on the recommendation at that time. Motion seconded and carried.

The Secretary then read the thirteenth recommendation of the committee, which was as follows:

"The committee approves of the publication of an Epitome of the N. F. with the objects stated in the address, and that there be established a Committee on Propaganda with the object of increasing the use and extending the influence of the N. F. preparations."

Mr. M. I. Wilbert moved that the above recommendation be referred to Council with power to act. Mr. W. C. Anderson seconded the motion and asked Mr. Wilbert to add to his motion that it be referred to Council with power to act on favorable recommendation from the general session. Mr. Wilbert accepted the addition to his motion, and it was carried.

The Secretary then read the fourteenth recommendation of the committee, which is as follows:

"Your committee approves of the suggestion of the President that committees recommended by the various sections should be approved by the Council before assuming their duties."

Mr. W. C. Anderson said it seemed to him that the above recommendation would result in unnecessary work of the sections; that if the Chairman of a Section offers a report or delivers an address in which he makes certain recommendations which the Section chooses to refer to a committee, the Section could not under such circumstances choose its own committee; in other words, the

members of the committee would have to be O. K'd by the Council, and he thought the proposition was ridiculous and was a reflection on the members of the Section; that they had been trying to cut their business down during the present meeting and this proposition if carried, would result in hindering the despatch of business in the sections. For the above reason, Mr. Anderson moved that the recommendation be disapproved. Motion seconded and carried.

The Secretary then read the fifteenth recommendation of the committee, which is as follows:

"The recommendation of the President that a filling of vacancies in the offices of sections should be filled by the President when occurring *ad interim* is approved."

It was moved by Mr. W. C. Anderson, duly seconded, that the above recommendation be adopted; motion carried.

The Secretary then read the sixteenth recommendation of the committee, which is as follows:

"Your committee heartily approves of the recommendation of the President that more time should be given by the Nominating Committee when selecting candidates for the office of the Association."

It was thereupon duly moved, seconded and carried that the above recommendation be adopted.

The Secretary then read the seventeenth recommendation of the committee, which is as follows:

"We approve of the recommendation of the President that local branches of the American Pharmaceutical Association should nominate a member for the Council and that the Council itself elects or declines as in its judgment seems best."

Mr. England said he wished to call attention to the fact that Chapter 12 on local branches, Article 4, says: "Each local branch having twenty-five actual voting members shall be entitled to elect a member every three years who shall become and continue a member of Council of this Association for that time." He said they could not adopt the recommendation of the committee without changing the above by-law.

Mr. Anderson said the recommendation was out of order; that it conflicted with the by-laws of the Association, and he therefore moved that it be laid on the table; motion seconded and carried.

The Secretary then read the eighteenth recommendation of the committee, which is as follows:

"The recommendation of the President that the functions of the House of Delegates be restricted to the consideration of topics of general interest, is approved, but the committee believes that a special committee should be appointed to take into consideration the whole subject of the function of the House of Delegates."

Mr. England moved that the above recommendation be referred to Council; motion seconded and carried.

The Secretary then read the nineteenth recommendation of the committee, which is as follows:

"The recommendation that the Association should have its own committee on resolutions and that this committee should hold open sessions for their discussion is approved."

It was moved by Mr. H. V. Army, and duly seconded, that the above recommendation be referred to Council.

Mr. Nitardy then called attention to the fact that the above recommendation conflicted with a by-law.

President Beringer said he objected to the above motion; that it was not a farcical matter and was not a matter that should go to Council at all; that the committee had approved it and they had already adopted the suggestion.

Mr. Anderson contended it was a farcical matter, and they were taking up things that had already been decided upon and that these things ought not to be before them at all at that time.

A vote was then taken and the motion referring it to Council carried.

The Secretary then read the twentieth recommendation of the committee, which is as follows:

"Your committee approves the recommendation of the President to provide for auxiliary of women members who shall be eligible."

Mr. W. C. Anderson moved that the above matter be referred to Council; motion seconded by Mr. Jeannot Hostmann, and carried.

The Secretary then read the twenty-first recommendation of the committee, which is as follows:

"The plan recommended by the President for consolidating some of the sections as proposed in his address with a view of facilitating the business of the convention was also approved."

Mr. W. C. Anderson moved that the above recommendation be referred to Council; motion seconded and carried.

President Beringer then resumed the Chair and announced that the next order of business was the report of the Committee on the Recommendations of the Retiring General Secretary and Editor, and asked the Secretary to read the report.

The Secretary then proceeded to read the report of the Committee on the Recommendations of the Retiring General Secretary and Editor:

After due consideration, your committee begs to report as follows:

1. The recommendation of Secretary Beal with regard to the *publication of papers* belonging to the A. Ph. A., that *no* permission be given to allow the previous use of the papers by other journals, is approved. If a paper is presented to the A. Ph. A. and is accepted, then it is its property and the granting of permission to print such paper in advance would result in a loss of *property* to the A. Ph. A., and would diminish the value of this asset in proportion to the extent of the use of this privilege. This rule should *not* be modified except by a majority vote of the Council, in special cases.

2. The recommendation of Secretary Beal to the effect that members of the Association attending Council Sessions shall be permitted to speak at such meetings on invitation of the Chairman of the Council, be approved. This would, of course, require a change in the By-Laws.

3. The proposition to amend the By-Laws, Section 3, Article 8, of Chapter VII, be changed by striking out the requirement, that the names of candidates for membership be read at the General Sessions. There seems to be no necessity for this since the list of new members is printed and vised by the Council.

4. With regard to changing the By-Laws so that it shall not be necessary hereafter to read the minutes of the Council to the Association, your committee believes that it would *not* be wise to make such a change. Many members of the Association would feel that they were being deprived of information which they have a right to possess. In addition to this it must be a satisfaction and a safety check for the Council itself to know that all of its acts have been ratified by the parent body.

5. Here we believe that any member of the A. Ph. A. has the right to *call for a report from the Council on any matter* and the introduction of a new By-Law to Chapter VII is unnecessary. Notwithstanding the fact that time is required to read the minutes of the Council, the members of the Association should feel that nothing is held back by the Council which any member of the Association has a right to know.

6. With regard to the proposition which has been made to abolish the House of Delegates, your committee believes that there has not been sufficient time to prove its usefulness, and we recommend that a *Special Committee* of the Council be appointed by the Chairman to consider what changes are desirable in the constitution and function of the House of Delegates which may make it an important aid to the Association.

7. The proposition to have the House of Delegates composed only of Delegates of State Pharmaceutical Associations, is, in our opinion, a good one.

8. With regard to the continuation of the Section on Pharmacopœias and Formularies, your committee believes that by making this Section a sub-Section of another Section, this would still enable the Association to hear and discuss all matters relating to the subjects, and will carry out the idea of the late Prof. Oldberg. The multiplying of Sections, in our opinion, is undesirable for the reason that many of our best members find difficulty when meetings are held simultaneously of attending two or three Sections.

9. Your committee, in conclusion, recommends that in testimony of the unusually valuable services of the former Secretary and Editor, James H. Beal, that an honorarium of \$1000.00 be presented to him with the grateful thanks of the Association and with the expression of the hope that many years of usefulness be vouchsafed to him.

Respectfully submitted,

(Signed) R. H. WALKER.

J. S. L. LEMBERGER.

OTTO RAUBENHEIMER.

JOSEPH P. REMINGTON,

Chairman.

Mr. M. I. Wilbert said that several of the recommendations contained in the above report had already been adopted; that the concluding one involved the expenditure of money, and he thereupon moved that the report of the committee be accepted and referred to the Council for their consideration; motion seconded and carried.

Mr. Carter said along that line he thought it would be very unwise for the organization to adjourn without going on record with some definite resolutions in regard to the retiring Secretary, and he therefore offered the following resolutions which he would ask the Secretary to read.

The Secretary then read the resolutions above referred to, which are as follows:

WHEREAS, The conservation of his health has compelled our esteemed General Secretary and Editor, Dr. James H. Beal, to resign these offices that he has so acceptably filled, and,

WHEREAS, This Association is greatly indebted for his indefatigable efforts, zeal and energy along many lines of service to Pharmacy, and,

WHEREAS, His devotion, ability and integrity have endeared him to every member of the Association. Therefore, be it

Resolved, That the American Pharmaceutical Association accepts the resignation of Dr. James H. Beal as its General Secretary and Editor of the Journal of the American Pharmaceutical Association with sincere regret, and, be it

Resolved, That it extends to him the earnest hope, entertained by the entire membership, that the relinquishment of the arduous duties of these offices, will

result in a speedy improvement of his physical condition and that many years of active usefulness and happiness may remain as his portion in life, and, be it

Resolved, That to attest our appreciation of his services in behalf of the Association and of a progressive, ethical Pharmacy, it directs that these resolutions be entered upon the minutes of this meeting, published in the Journal of the American Pharmaceutical Association, and that the Secretary transmits a copy thereof to our beloved retiring officer.

Mr. Carter then moved the adoption of the resolutions by a rising vote; motion seconded by Mr. George H. Schafer, and unanimously carried.

President Beringer announced the next order of business was the consideration of matters coming from the Council. Mr. England announced there was nothing. The President called for matters originating from the different sections, and asked for the Scientific Section first.

Recommendation.—It is recommended by the Scientific Section that the American Pharmaceutical Association express to the Surgeon General of the Public Health Service, its appreciation of the publication of "Digest of Comments on the U. S. Pharmacopœia and National Formulary, and that it requests the continuance of this publication, if possible, more promptly.

It was moved by Mr. Nitardy and duly seconded that the above recommendation be adopted; motion carried.

President Beringer then called for the report of the Committee on the Formation of Local Branches. The report was then read by the Secretary. (Printed in September issue.)

President Beringer said if there was no objection the above report would take the usual course. He then requested the Secretary to read the resolution from the Committee on Pharmaceutical Faculties which had been referred to Council and by Council referred back to the general session. The Secretary then read the resolution as follows:

Resolved, That the American Pharmaceutical Association be requested to define a College of Pharmacy as an Institution, meeting the requirements of the Conference of Pharmaceutical Faculties.

It was thereupon moved that the above report be adopted.

Dr. Wulling said he thought if they adopted the report they would have a little trouble; that it was very difficult to define anything and they would be better off in the end if they did not define a college of pharmacy, and while the motion had been made to adopt the report, yet it had not been seconded, and if he was not out of order he would move that the report be disapproved.

Mr. Whelpley said the motion originated in the Conference following a discussion in which it became apparent that some legislatures looked to the American Pharmaceutical Association for a definition of a college; that the Conference defines a college, that is, defines those that are eligible for membership, and the adoption of this recommendation would be merely concurring in the action of the Conference of the American Pharmaceutical Faculties.

Mr. Arny thought, in view of the previous vote that had been taken, and which was not intended as any discourtesy to the Chair, but simply to bring out the fact that the technical educational subjects should be left to the Conference of Pharmaceutical Faculties, it would be inconsistent to now adopt this recommendation, and he therefore wished to express his disapproval of the matter, and seconded Dr. Wulling's motion.

Mr. Whelpley suggested that the motion of disapproval carry with it an explanation which should go to the Conference.

Dr. Wulling said he had been at one time on a University Committee to define certain terms, and they had found it was a very difficult thing to do, and he believed this Association at some of its previous sessions had been asked to go on record as defining a poison, which was a difficult thing to do; that they all had a general idea what a poison was and they all had an idea what a college was in a general way, but when it came down to specific legislation they were creating something that somebody else would surely find fault with some time or other. He had no objection to anyone going on record and stating that a college of pharmacy was so and so, but he believed there were too many difficulties in the way of formulating a definition and he hoped they would not now go on record as defining what a college is.

Mr. Army then moved as a substitute for Dr. Wulling's motion that the communication be returned to the Conference of Faculties with an expression of regret that the Association considers the matter not within the province of the American Pharmaceutical Association. The above substitute motion was seconded by Mr. Anderson. Mr. Wulling then withdrew his motion and the motion carried.

The Secretary then read the report of the Syllabus Committee, as follows:

To the American Pharmaceutical Association:—

The Syllabus Committee of your Association begs leave respectfully to present the following report of the year's activities:

At the meeting of the committee, held at Nashville, the final revision of the proof for the second edition of the Pharmaceutical Syllabus was completed and the Executive Committee instructed to proceed with the publication of the book. It was with profound satisfaction that the committee announced the completion of the revision on February 22, 1914, and mailed the first copies of the second edition April 13, 1914. A conference of the Indiana State Board of Pharmacy with the Indiana schools of pharmacy was then in session and Indiana has the honor of being the first State Board to approve and adopt the second edition. Indiana's example has been followed by Missouri, Florida, Massachusetts, New York, Ohio, District of Columbia, Tennessee, Delaware, Texas, Utah, Virginia, South Dakota and Oklahoma.

The action of the Indiana schools was soon followed by New York's Council. It answered the question, What may be involved by its adoption either by schools of pharmacy or by boards of pharmacy?—in the following quotations from the book itself:

Page 8, Line 9. "But a syllabus, like a living language, is necessarily in process of constant change. It must not be used to dam the flow of increasing knowledge either of fact or practice."

Page 16, line 1. "Definition. The pharmaceutical syllabus is prepared to indicate the general scope and character of the instruction to be given by the teacher and the work to be done by the student."

Page 16, line 10. "It is not designed, however, to interfere with such flexibility in courses of study and freedom in methods of instruction as ought to exist in pharmacy schools."

Page 17, line 36. "The syllabus is intended to allow the individual teacher or school the widest possible liberty as to order and grouping of these topics and methods of presentation. Its object is to specify what topics are to be taught by the schools, and expected by the boards without concerning itself with the manner in which this result is reached by any school, teacher or book."

Page 141, line 1. "The selection of the particular line of experiments to accompany a course of lectures upon pharmaceutical *technique* must necessarily be left largely to the judgment of the instructor, the choice of the latter naturally depending upon his opinion of the portions of the subject which need the emphasis of laboratory work."

Page 146, line 10. "Prepare the following official preparations and such additional U. S. P. or N. F. preparations as the time will permit, as far as possible selecting such additional preparations from those especially requiring skill and careful manipulation."

Page 149, line 4. "The time allotted for dispensing pharmacy should be arranged to give a liberal number of hours for actual work in the compounding of prescriptions."

A dean of one of the schools writes, "It is about time to stop the farce of legal qualification as pursued at the present time. A little knowledge may be better than none, but parrot answers will not elevate the professional standing of American pharmacy." That is, the time of the quiz has passed. Board members are now willing to relegate such to the dead past and to unite with the schools to place a prerequisite general and professional educational requirement on the statute books of all the states of the Union. When this is accomplished the way is open to a license valid for the practice of pharmacy throughout the United States. And the Pharmaceutical Syllabus is the leaven at work livening the whole mass of pharmaceutical education. The relations of boards and schools are more cordial. The opinions of earnest workers in both branches of the work are held in greater esteem. The fact that twenty-one men from Massachusetts to Washington, from Minnesota to Texas, could unite upon an outline and detail the same is sufficient evidence to warrant the opinion that the Syllabus is to become a great factor in pharmaceutical education in the United States.

First. It is the first Syllabus ever published of a national character. Its emblem typifies the fact. That 53 state boards and more than 75 schools of pharmacy could unite in the American Pharmaceutical Association in the organization of a National Committee, prosecute its studies through a period of years, and publish a book to be adopted by the schools of pharmacy, and by the boards of pharmacy, for the guidance of both in the preparation of students and their examinations, seems noteworthy.

Second. It is the first syllabus to stand the strain of revision under a reorganized committee. That the committee could agree upon courses of study, subjects to be found therein, detail outlines of time to be devoted to each in hours per week and weeks per year; could perfect a Syllabus of the treatment of the subjects, plan for their intelligent presentation, advise the adoption of modern methods with suitable equipment in laboratories and libraries, seems a work of no little magnitude and of far-reaching influence.

Third. It is the first Syllabus successfully published by a committee without the financial backing of a parent body. That this work could be issued without gift or bequest, without aid of advertisement, or personal contributions, and that the expenses of individuals were contributed without hope of return, seems the highest form of disinterested service.

Fourth. The copyright is owned by the committee. Every copy issued represents the disinterested effort and the personal funds of more than a score of workers from Massachusetts to Washington, from Canada to Cuba.

In the light of this report of progress your committee respectfully recommend:
First—The approval of the Syllabus by this Association.

Second—The annual appropriation of \$25 toward the expenses of the committee.

Respectfully submitted,

WILLIS G. GREGORY, Chairman.

JOHN CULLEY, Secretary *pro tem*.

Mr. W. C. Anderson moved the adoption of the above report; motion seconded by Mr. William Mansfield, and carried.

President Beringer said as a member of the Association he desired to have his vote recorded in the negative.

Mr. Anderson rose to a point of order, saying the President had no right to vote. The President stated he desired to have his vote recorded in the negative.

President Beringer called for the resolution from the Section on Pharmacopœias and Formularies.

The Secretary read as follows:

SECTION ON PHARMACOPŒIAS AND FORMULARIES.

This Section recommends that the general session appoint a committee of fifteen on the growth and collection of botanical drugs with a special view to making good the deficiencies in the supply due to the war in Europe.

Mr. William Mansfield moved that the above report be adopted; motion seconded by Mr. Hilton.

Mr. Mansfield said he thought the wording of the motion was a little ambiguous, but the intent probably was to study the kind of drugs which could be cultivated and report to the committee.

Mr. C. A. Mayo asked to be allowed to suggest that he wrote the motion and knew what he meant, and also assumed the responsibility for having written it, and there was an excuse for the Secretary's difficulty in reading it. That what they had meant particularly was the possibility of being able to collect from this year's crop of indigenous medicinal plants some drugs, even a partial supply of them, the supply of which had been cut off by the European war, and the recommendation involved also, the possibility of providing for future supplies in so far as they could do so; that there was great danger on the one hand that they would be cut off entirely from the supply of botanical drugs, and on the other hand, that the public who have an insufficient knowledge of the growing of medicinal plants may waste a great deal of time and energy in trying to grow plants which cannot be grown successfully. He stated further that the object of the resolution was to primarily collect any medicinal plants which were now growing and to provide against a deficiency caused by possible failure to collect the present crop in Europe.

Motion carried.

Mr. Day said he had been elected a member of Council for three years at the last general session and he saw no need of occupying two chairs in Council, and therefore desired to resign his position as Councilor-at-large, leaving a vacancy.

Mr. Clark moved that the resignation of Mr. Day be accepted, which motion was duly seconded and carried.

Mr. F. T. Gordon asked how the vacancy would be filled. Mr. Whelpley replied that it had been customary, under such circumstances, to elect someone at open session to fill the vacancies. He had in mind something that he had expressed previously more than once, that there should be some arrangement whereby the retiring president automatically became a member of the Council; that as things now were such was not the case; the retiring president is nominated for election, but it left a year's vacancy, which represented the most important year that he could serve. The retiring president, he said, had everything in hand and suddenly is dropped out of the Council, which procedure happened right along.

Mr. Whelpley said he would not take up the time discussing a remedy, but he would like to nominate Mr. Beringer to fill the vacancy.

Motion seconded by Mr. Roehrig.

Mr. W. C. Anderson moved that the nominations be closed and that the Secretary cast the affirmative ballot for Mr. Beringer. Motion seconded by Mr. Schafer, and carried.

The Secretary then announced that he had cast the ballot for Mr. George M. Beringer as member of the Council, to succeed Prof. Day, after which Acting President Apple declared Mr. Beringer elected to that office.

Mr. Whelpley then said he presumed that there was now a vacancy left in the list of nominees for the Council, and it would be in order to nominate some one for that vacancy. He thereupon nominated Mr. Mayo.

Mr. Day said it was perfectly right to take care of Mr. Mayo in the same way they were taking care of the retiring President.

Nomination seconded.

Mr. F. T. Gordon moved that the nominations be closed and that the name of Mr. Mayo be placed on the ticket of list of nominees.

Motion seconded and carried.

President Beringer announced they had very nearly completed the program, but there was one item that had been omitted from the first general session, namely, the reports of the delegates of the various bodies, and asked the pleasure of the convention as to the reports of the delegates of the National Association of Wholesale Druggists, National Retail Druggists' Association, National Association of Manufacturers of Medicinal Products, etc. He suggested that the delegates file with Council their written reports.

Mr. Gordon amended the suggestion by saying they be published if it was deemed desirable.

Mr. Mansfield incorporated these suggestions in a motion, which was seconded by Mr. Gordon, and carried.

Mr. Eugene G. Eberle, of Dallas, Tex., asked if there had been a committee appointed to extend a vote of thanks to the local committee and to the citizens of Detroit.

President Beringer replied there had not been but that the Chair would be pleased to entertain such a motion.

Mr. F. T. Gordon thereupon moved that the thanks of the American Pharmaceutical Association be extended to the local committee and to the firms which had aided so greatly in making their stay pleasant, particularly to Parke, Davis & Company, Frederick W. Stearns & Company, and to the Detroit druggists generally.

Mr. Eberle said he would like to offer as an amendment that they include the ladies in the motion. Mr. Gordon accepted the suggestion as a part of his motion.

Mr. Roehrig stated that as long as it did not involve the expenditure of money it was not necessary to refer it to the Council, and he would offer an amendment, that the hotel management be included in the vote of thanks for allowing the Association the privilege of using the Convention Hall. He said he did not think there was any extra charge for that.

President Beringer replied there was not so far as he knew.

Mr. Apple recommended that they include in the list of firms all the firms which had provided special entertainment, and include also a vote of thanks to the ladies.

One of the members then said they should also include in the motion a vote of thanks to the local press.

Mr. Gordon accepted the above amendments and suggestions as a part of his motion, and it was then seconded and unanimously carried.

Mr. Whelpley said they had elected a Permanent Secretary, but had not fixed his salary and, after consultation, he moved that the salary of the permanent Secretary for the ensuing year be fixed at \$750.00. He explained that the by-law provides that the salary shall not exceed \$1200.00 per year, so they were well within the provision of the by-law.

Motion seconded by Mr. Apple, and carried.

Mr. C. Lewis Diehl said he thought the success of the meeting was largely due to the very efficient services of the local Secretary, Mr. Seltzer, and he moved a vote of thanks be extended to that gentleman.

Mr. Wilbert, in seconding the motion, said he wished to bring to the attention of the Association that during the time he had been attending A. Ph. A. meetings this had been by far the most profitable meeting that he had attended. He said also he did not as a rule attend the meetings for the entertainment feature; but that from a scientific point of view they had been afforded better opportunities at the present meeting to attend to their business and profit by it than they had ever had at any previous meeting of the Association, and he therefore suggested that when the motion was put to a vote the members be requested to rise.

Th motion was then unanimously carried by a rising vote.

President Beringer then appointed as a committee to escort the newly-elected officers to the platform for installation, Mr. W. B. Day, of Chicago, H. M. Whelpley, of St. Louis, and John G. Godding, of Boston, and he requested that they conduct Mr. Caswell A. Mayo, of Brooklyn, to the Chair.

The committee then escorted Mr. Mayo to the Chair and introduced him to the President.

President Beringer said it afforded him unusual pleasure to greet Mr. Mayo as President of the American Pharmaceutical Association; that he was not new to them; that he had been tried and they knew his excellent worth. The retiring President said in honor of Mr. Mayo's election to the office of President, it became his duty to present to him the badge, which was the evidence of his office, and he believed that Mr. Mayo would maintain the office as pure as the gold of which the insignia was made, and that the office would be kept free and untarnished during his career as President.

Mr. Beringer said it now became his duty to extend to Mr. Mayo the emblem of authority, and said he hoped that he would have great pleasure during the year in enforcing that authority, and he could say that he also extended to him the hearty coöperation of every member of the Association.

Mr. Mayo, in responding, said he had the reputation of not being particularly modest, or easily abashed, but the contrary appeared on this occasion; that he had felt so nervous at the approach of the consummation of the highest honor that could be bestowed upon a pharmacist, that he had been constrained to write out

what he had to say lest his feelings should overpower him, and he should say too much. He said he had just been reminded by a very close friend immediately before being inducted into office not to emulate our distinguished Moose President by having an inaugural address of 28,000 words, and added that if he talked to the full extent of his heart, he believed he would talk to the extent of at least 28,000 words.

Mr. Mayo then delivered his address of installation.. (Printed in September issue.)

President Mayo then asked the committee to induct the Honorary President, Mr. George H. Schafer, of Fort Madison, Iowa, into office.

Mr. Schafer was escorted to the platform and Mr. Whelpley introduced him to the President, saying that while it was a great honor for Mr. Mayo to be President of the Association, he was not alone in the honor of the President's office, because he had associated with him an honorary President, and Mr. Whelpley said they had never before elected to office a person who had such a long record of work in the discharge of the duties of an office as Mr. Schafer; that in 1881 he became acting President and in 1914, consummated his work as honorary President, which was certainly a long term.

President Mayo, on behalf of the Association, welcomed Mr. Schafer, and said that he was quite sure that the members of the Association would profit by Mr. Schafer's long and arduous labors in behalf of the Association and of pharmacy.

Mr. Schafer said he was never more surprised in his life than when he was advised of the honor, and he was deeply moved, and appreciated it more than he could express.

President Mayo then asked the committee to induct the new First Vice-President into office, Mr. L. D. Havenhill, of Lawrence, Kansas.

The committee then escorted Mr. Havenhill to the platform and presented him to the Association, and to the President.

President Mayo said it gave him great pleasure to greet one of the most earnest workers of the Association as First Vice-President, and that it was a well-deserved honor which had been conferred upon him.

Prof. Havenhill said he was deeply moved by the honor which had been bestowed upon him, and he wished to assure the Association that he would endeavor to continue to serve the best interests of the Association, and to discharge his official duties to the very best of his ability.

Mr. Mayo said he wished to apologize for the absence of the Second Vice-President, Mr. C. Herbert Packard, of East Boston, Mass., and the Third Vice-President, Mr. Charles Gietner, of St. Louis, as they had been called away by the exigencies of the time-table.

President Mayo then asked the committee to conduct the newly-elected members of the Council to the platform. Mr. Beringer and Mr. M. I. Wilbert were escorted to the platform, and President Mayo said that the success of the American Pharmaceutical Association had been due to the conservative manner in which its affairs had been conducted, and that they had very wisely put the management of the affairs of the Association into the hands of the Council, and it was the excellent quality of the men composing the Council that had made the Association a success, and they were very fortunate in having Mr. Beringer and Mr. Wilbert,

who had taken such an active interest and done such excellent work in the Association, in the past, to serve them in the Council.

President Mayo then asked the committee to conduct the newly-elected General Secretary to his office, Mr. William B. Day, of Chicago. Mr. Day was escorted to the platform, and President Mayo said that the General Secretary needed no introduction as he was so well known and had served the Association so ably in the past.

Prof. Day said he was deeply grateful for the honor conferred upon him, and that he was not unaware of the duties the office carried with it; that he had had some little experience in Association work as Secretary of his state Association, although this was a much larger undertaking, and he would ask the Association for their assistance and forbearance in the conduct of his office.

Mr. C. Lewis Diehl, the re-elected Reporter on the Progress of Pharmacy, was then escorted to the platform, and presented to the Association, and President Mayo said it was unnecessary to introduce Mr. Diehl, as he was known wherever pharmacy was known, and he hoped Mr. Diehl would live for a long while and continue to occupy his office.

Mr. Diehl said he would make a very short address; that he would say to the Association that his work in the past would have to be the criterion of what he would do in the future; that at all times he endeavored to do his very best in the performance of the duties of his office.

President Mayo then announced that the newly-elected Treasurer would be installed. The committee escorted Mr. Whelpley to the platform, and Mr. Godding said it gave him great pleasure to introduce Mr. Henry M. Whelpley as their Treasurer.

President Mayo said he might be in error, but he was under the impression that he and Mr. Whelpley both were in attendance at the 1888 meeting; that he believed that was the first meeting for both of them. Mr. Whelpley replied that it was not his first meeting, and that he had attended his first meeting before that time. Mr. Mayo said he was an older man than he was then.

Mr. Whelpley said he would not at that late hour make a speech, but that he must say that from year to year he seemed to become more and more interested in the work of the office of Treasurer, and as he said to the Council when he was elected, he believed he really enjoyed the work. The only regret he had, Mr. Whelpley said, was that all of the members were practically paid up to date in their dues, and as they all answered his first communication, it deprived him of the mental exercise that was required during the first few years he held his office in devising a series of letters to send to delinquent members.

President Mayo said he was delighted to learn that the Treasurer had an interest in the funds of the Association; that of course interest is a very important part of the income of the organization, in regard to the invested funds.

President Mayo said it now became his duty to present a new officer to the Association, a man who had served them faithfully in emergency and done the work admirably, and he was very glad indeed to have an opportunity to voice the sentiment of the members of the Association of the sense of appreciation for the excellent service that had been done by Mr. E. C. Marshall, the Acting Editor,

who now assumed the post of Acting Editor of the Journal of the American Pharmaceutical Association.

Mr. Marshall said the announcement of his selection to fill this post came as a great surprise to him. He thanked the Association for the confidence they had shown in bestowing upon him this high office, and said as far as it was in his power, his entire thought and energy would be devoted to the service of the Association, and to the cause of pharmacy. The highest service of the Journal was to serve American Pharmacy, and as far as laid in his power his every effort would be devoted to the uplift and advancement of that end, and if he failed, he wished them to understand that it would not be because of any lack of effort, but it would be because the power to succeed had not been bestowed upon him. Mr. Marshall said he sincerely hoped that he would be able to fulfill all their expectations, and he asked, as he had asked in his first editorial, for the sympathetic consideration and help of every member of the Association.

Mr. Joseph W. England was then installed as Secretary of the Council. President Mayo said Mr. England needed no introduction, that he had served the Association long and well in the past and it was to be hoped that he would be able to continue to render such service for a long time in the future.

Mr. England thanked the Association for the honor conferred upon him and said he would endeavor to perform the work of his office to the best of his ability, as he had done in the past.

There being no further business before the Association, on motion duly made, seconded and carried, the General Session of the Association stood adjourned until the Annual Meeting of 1915.



MRS. FRANK H. CARTER,
Treasurer.



MRS. KITTIE H. GRAVER,
First Vice-President.

Minutes of Section Sessions

MINUTES OF THE SESSIONS OF THE WOMEN'S SECTION AT DETROIT.

The first session of the Women's Section was called to order on Tuesday at 9:30 a. m., by the President, Mrs. John G. Godding, in the parlor of the Hotel Pontchartrain.

The Divine blessing was invoked by the Reverend Dr. Pence of the Second Presbyterian Church of Detroit.

Mrs. Harry Kingsmill, of London, Ontario, furnished musical selections.

Greetings to the women of the convention from the Detroit hostesses were extended by Mrs. J. H. Webster, Chairman of the Ladies' Entertainment Committee. The response was given by Mrs. G. D. Timmons, of Indiana.

The Second Vice-President, Mrs. M. M. Gray, of Illinois, took the chair during the delivery of the President's address.

ADDRESS OF THE MADAM PRESIDENT.

MRS. JOHN G. GODDING.

With joy filling my heart I greet you to the meeting of the Women's Section.

Our appreciation of the privilege of coming to this fair city, "The Goddess of the Inland Seas," is more than I can fittingly express. We come to you bringing a warm clasp of friendship, not as strangers, but as kinsfolk, for some of us come from the ancestral homes of your forbears. From these pleasant surroundings to which you warmly welcome us, we shall be loth to depart, for I predict that at the close of this week we will be singing in unison, "Michigan, My Michigan."

We count it as an inestimable privilege to be known as members of a Section of this honored Association, the peer of any of its class in the world, a power for pharmaceutical development. We are grateful to it for their acceptance of us as a part of their organization.

The objects of this Section are to emphasize the right and capability of women to engage in pharmaceutical pursuits as a means of livelihood; to unite the women employed in Pharmacy for mutual encouragement and assistance; to labor for the improvement of legislation regulating the registration as pharmacists of women employed in the practice of Pharmacy in hospitals and other public institutions; to unite the women members of the A. Ph. A. and the women of the families of members of the A. Ph. A. in a section for social purposes and to coöperate in the promotion of the general progress of Pharmacy and of the American Pharmaceutical Association.

To all fair-minded persons the Women's Section has fully justified its being. The record of its work accomplished; the zeal and earnestness displayed by its members in effecting their permanent organization amid the torrid conditions of Nashville, and the creditable program which they arranged, all attest the wisdom of its establishment. To the present time it has secured twelve members as accessions to the Association and four of these were secured by a non-professional woman. The underlying purposes for the formation of this Section seem so vaguely understood that it seems well to quote from one high in authority in regard to this subject.

"It was believed that the creation of a Section of this kind would give more

formal recognition to the ladies who so regularly attend the convention and are so loyal to the A. Ph. A. principles. It is also the opinion that a Section of this kind can accomplish more for the women than the independent organizations, because the Section will have behind it all the influence of the A. Ph. A. and the prestige of its sixty years of history. It is also thought that such a Section would afford an opportunity for emphasizing the fact that women have a definite place in Pharmacy and are as much to be heard in pharmaceutical affairs as are the men, which has always been the attitude of the A. Ph. A."

The Women's Section desires to share in making the A. Ph. A. all that is possible in the way of an organization useful to Pharmacy. We know the A. Ph. A. is the only national organization in which all pharmaceutical interests meet. There is no distinction between clerk and proprietor, jobber or manufacturer, chemist or teacher, and even editors are given a hearing. As has been often said,



MRS. JOHN CULLEY,
Madam President.



MRS. H. M. WHELPLEY,
Second Vice President.

"The A. Ph. A. is the great clearing-house of Pharmacy." Into these opportunities and possibilities of this wide domain, the women have been counted worthy to enter. We realize that the best things can only be secured by united and concerted action. There is something wonderful in the power which organized effort can develop. The Women of this Section appreciate in the highest degree the distinction conferred by the Council in christening it "The Women's Section," and their greatest ambition is to make it a useful part of the parent Association, by directing the attention of women pharmacists to the quality and character of work this Association is accomplishing, and to use every avenue of influence open to them in extending its work. Our women can do important work that cannot be relegated to any other Section, a work so far-reaching in its influence that we may prove a mighty factor in the future of the Association. Carlyle said, "Give a thing time to grow. If it can succeed it is a good thing." Organization at large range is extremely difficult. We cannot accomplish everything in a day or a year, but we can do it if let alone. The present urges us to renewed zeal and the future beckons us to that success, which, though

" 'Tis not in mortals to command.

But we'll do more, Sempronius, we'll deserve it."

In Pharmacy women are succeeding, partly because of their genius for real hard work.

Statistics of influence can never be compiled. Each year brings promising information of young women who are entering the various colleges of Pharmacy, and of their being eagerly sought for responsible positions. The trend of the time is toward an active demand for women as pharmacists in Hospitals, State Food and Drug Laboratories, by Boards of Health as analysts, as well as for teachers in Colleges and in the retail drug business.

The Women's Pharmaceutical Associations on the Pacific Coast, New York, Chicago and Louisiana, each one "a live wire" in promoting the interest of Pharmacy, are signal lights to arouse women to the advantages to be derived from concerted action.

"The world bestows its rewards, both in honors and money, but for one thing and that is Initiative," or the doing of the right thing without being told. But next to doing without being told, is to do when you are told once. It seems to me the Women's Section was created to work as do the other Sections, for the betterment of Pharmacy, along the lines and in the way women are privileged to arrange and conduct their sessions.

The scope of the Women's Section will lead to the establishment of new ideas and new ideals, and *Ideals* lead the world. Ideals live though men die. We should urge all women pharmacists, as their bounden duty to become members of the A. Ph. A., and to assist in increasing its active membership. If we have not accomplished tangible results in proportion to our efforts, we are large in hope, in an increasing belief in the value of Pharmacy for women, and that better things are yet to come. The Women's Section hopes to build its organization so substantially and to become so true a helpmate, that it will be the one indispensable Section of the A. Ph. A.

I consented to be your President for what may have seemed a second term, because we only organized at Nashville. I have kept just a little in advance of you, but at the close of this Convention I shall fall back, to walk side by side with you in the ranks, pledged "to keep step" in all your efforts for the advancement of your work. In retiring from the office of President I wish to express my appreciation for the high honor tendered me and the trust reposed in me by the President and Council who appointed me your first leader. To thank also the Officers of the A. Ph. A., the pharmaceutical press and all members who have assisted and encouraged this Section in its beginning. We bespeak your coöperation for our successors and faith and hope in us. I would express my appreciation for the coöperation of my Officers and Committees and to the Secretary who has been "a tower of strength."

I wish I could stir up in your minds a realization of the great opportunity set before you who are to follow in the path which we have broken. "'Tis not for me to prophesy. It is the young who must see the vision and follow it. The old may but dream dreams." Take this resolution home with you:—that when we return we make renewed efforts not only to disseminate the knowledge of the deliberations of this meeting but earnestly strive to further the aims and purposes of this grand Association which we are proud to serve.

REPORT OF THE SECRETARY.

Your Secretary has no detailed report to make, beyond the usual work of the office. The correspondence and coöperation with the standing committees constitute the most of the duties of this office and the work of those committees will be reported by the several chairmen.

ANNA G. BAGLEY, Secretary.

REPORT OF THE EXECUTIVE COMMITTEE.

Owing to the absence of Mrs. Claus, Chairman of the Executive Committee, the work has fallen upon the other members and, though we have done the work

gladly, I am not sure that we have accomplished all that we might. At any rate we have little to report.

During the time that has elapsed since the meeting at Nashville no special business has been brought to our attention and our work has been mostly an effort to obtain papers for this program. A good many requests were made but few responded. Lack of responsiveness may be due to the way the appeal was made or in some other way the fault of the committee.

One thing I have felt particularly and that is the necessity of interesting wives of druggists. This Section was not created primarily for women pharmacists, and we should never have a large part in the program. Owing to my limited acquaintance with women members who are not pharmacists I have been unable to do much in that direction.

ZADA M. COOPER.

The Membership Committee submitted the following:

The Membership Committee has secured a total of twelve members during the past year. Individual reports have not been submitted by all the members. Miss Henkel of Chevy Chase, Md., reports as follows:

"I have to report that I have written 100 letters in an endeavor to obtain new members for the American Pharmaceutical Association. Fifty of these were addressed to women pharmacists and fifty to men, not only in the district allotted me, but also in Ohio and Missouri. I am very sorry to say that thus far I have not had a single response."

Through the Secretary's office a general knowledge has been gleaned of the efforts made by this committee, all of whom observed the rally-days set aside by Chairman Packard, writing from 25 to 50 letters each. The committee feels that this is good work, and like all other advertising, will have its effect in future work along this line.

The report of the Chairman's work in District Number 3, comprising Ohio, Indiana, Kentucky, Illinois, Michigan and Wisconsin, is as follows:

Eighty copies of the Proceedings of the Women's Section were mailed to women graduates of the two colleges of pharmacy of Chicago, to women pharmacists of the city of Chicago, and of the State of Illinois. A personal letter, giving the objects and aims of the A. Ph. A. and of the Women's Section especially, were mailed to each of 40 of the above-mentioned 80, and ten personal interviews were obtained; all of these young women expressing themselves as very much interested in the Women's Section, and when circumstances permitted promised to become members.

Only two copies out of the 80 copies of Proceedings sent out were returned marked "Not Claimed." These two copies were promptly re-addressed and sent to two prominent women pharmacists who for some reason had let their memberships in the A. Ph. A. lapse.

Your Chairman has the promise of one member, now resident in the State of Idaho, and has secured the memberships of two,—one a resident of Oak Park, Ill., having charge of the Pharmacy in one of Chicago's large hospitals for women and children, and one in charge of the pharmacy department in a hospital in Atlanta, Ga.

According to the latest statistics obtainable, your Chairman finds that there are, in the State of Ohio, sixty-seven women pharmacists, with but seven of these, members of the A. Ph. A. Illinois has ninety-three registered women, and thirty assistant registered women pharmacists, with but five of them members of the A. Ph. A. Kentucky has thirty-two women pharmacists, with not one woman member. Indiana has seven women pharmacists, with not one of these a member. Michigan, nine women pharmacists and one a member, and Wisconsin sixty women pharmacists, with one member, making a total of two hundred and ninety-eight women pharmacists in the six states of this district, with but fourteen of these who are members of the A. Ph. A.

What is true of District No. 3 is probably true of all other districts—truly, the next membership committee has a large field to work upon.

Since our last meeting—August, 1913,—your Chairman has gathered and compiled a list of the names and addresses of over three hundred women pharmacists from various sources—the personal items mentioned in the several Drug Journals, and the Druggists' Directory, etc. This list has been turned over to your Secretary for her files and for future reference.

MRS. M. M. GRAY, Chairman.

The Press Committee reported as follows:—

Madam President and Members:—

In January, 1914, the Secretary notified me of my appointment as Chairman of the Press Committee.

I am deeply gratified for the honor and regret my inability to make a complete report of the work accomplished.

I addressed a communication to each member of the committee asking their coöperation and items of interest to the Section. I regret that but one reply and one newspaper clipping was received during the entire year.

We are very grateful to the Secretary for carrying much of the work and responsibility of this committee the past year.

As a delegate from the Women's Section to the Utah Pharmaceutical Association, I had an opportunity to speak of the Women's Section and made a plea for a state organization. I have also forwarded to the Secretary a paper read before the Utah Association by Mrs. Wynn Eddy, the wife of a pharmacist.

The Women's Section of the A. Ph. A. has been getting a great deal of publicity in various drug journals and especially the Journal of the A. Ph. A., which items are too numerous to mention in this report.

ELIZABETH H. CULLEY, Chairman.

The Chair appointed as Nominating Committee, Miss Elizabeth Jenkins, Chairman; Mrs. E. A. Ruddiman, Mrs. G. D. Timmons, Mrs. William B. Day and Mrs. George F. Payne.

Mrs. Kingsmill sang several selections.

SECOND SESSION.

The second session of the Women's Section convened at 10 o'clock Friday morning.

President-elect Mayo of the A. Ph. A. claimed the privilege of presenting the Women's Section with a gavel, which offer was promptly accepted with thanks.

Mrs. G. T. Chamberlin, of Hartford, Mich., President of the Michigan State Federation of Women's Clubs, brought the greetings from 18,000 federated women in Michigan to the women of A. Ph. A.

Mrs. Herman Neuhooff, of Detroit, accompanied by Miss Harriet Ingersoll, furnished the music for this session.

Mrs. Chamberlin addressed the Section on "What Druggists' Wives Can Do to Raise the Standard of the Profession."

Chairman Zada M. Cooper, presented the following papers:—

"First Aid to Druggists," by Mrs. Wynn L. Eddy; "The Drug Habit and Its Bearing on Pharmacy," Anna B. Schlumberger; "The Views of a Woman Pharmacist," Mrs. I. A. Anderson, and "Sunday and Early Closing," Mrs. R. L. Thompson.

The Secretary read the following communication:—

The Women's Organization of the National Association of Retail Druggists extends to the Women's Section of the A. Ph. A. a cordial greeting and expresses the hope that your meeting will be a satisfactory and a successful one, and that the high aims of your Association may be fulfilled. With best wishes to officers and members, we remain,

Yours sincerely,

MRS. JESSIE F. WATERHOUSE, President.

MRS. NELLIE FLORENCE LEE, Secretary.

Also greetings from Mesdames Clarissa Roehr and Bruce Phillip, of San Francisco, both of which expressed the hope that the Association would hold its 1915 meeting in that city.

The Committee on President's Address reported its approval of the ideals and hopes expressed in the address of the Madam President, and heartily approves its recommendations. The Committee on Resolutions expressed its great sorrow at the passing-away of Mrs. J. M. Good of St. Louis and tendered sincere sympathy to her bereaved husband and family. It discussed the work of women not alone in the Association, but in the larger work of the world and extended the warmest thanks of the Section to the Detroit Committee, to President Mayo for his gift of a gavel, and to Mesdames Chamberlin, Kingsmill, Neuhoff and Ingersoll and to those who contributed papers to the meeting.

The following were elected as officers for the ensuing year:—President, Mrs. John Culley, Utah; Hon. President, Mrs. S. A. D. Sheppard, Boston; First V. P., Mrs. Kittie Harbord Graver, Penn.; Second V. P., Mrs. H. M. Whelpley, Missouri; Third V. P., Miss Jean Gordon, Illinois; Historian, Mrs. George B. Kauffman, Ohio; Treasurer, Mrs. F. H. Carter, Indiana; Secretary, Miss A. G. Bagley, Ohio; Member Executive Committee for three years, Mrs. John G. Godding, Massachusetts; Membership Committee, Mrs. M. M. Gray, Misses Alice Henkel and Mary L. Creighton, Mrs. C. T. P. Fennell and Mrs. C. A. Stover.



MRS. GEO. B. KAUFFMAN,
Historian.



MRS. JOHN G. GODDING,
Executive Committee.

MINUTES OF THE SECTION ON PRACTICE OF PHARMACY AND DISPENSING.

The opening session was called to order by Chairman Nitardy at 2 p. m., on Wednesday, August 26.

The Chairman, in his preliminary remarks, requested the lenient judgment of the members in his work for he had been in the care of a physician since May 15, and had only recently obtained his permission to be present at the Convention. At the conclusion of his opening remarks he asked Asso. Chairman Becker to take the Chair during the reading of the Chairman's address. (Printed in September issue, P. 1309.)

When Mr. Nitardy had concluded his address, on motion of Prof. Hynson, the following gentlemen were appointed to consider its recommendation:—Messrs. Hynson, Raubenheimer and Weinstein.

Mr. Nitardy then resumed the Chair and called upon Prof. Hynson to read a paper entitled, "All-Fool's Day at the Dispensing Counter."

Prof. Hynson prefaced the reading of his paper by referring to the recent agitation for the abolishment of the Section. Every once in a while, he said, some one, who perhaps had never attended one of the sessions, advocated its abolishment. But, speaking from his personal experience, he thought this section one of the most useful of all those of the Association. Before its establishment he had found it difficult to get in touch with the meetings of the Association. The Scientific Section was "over his head," and at meetings of other sections matters were discussed of no vital interest to him as a retail pharmacist, and it had taken him three years of persistent work to establish the fact that, in retail pharmacy and dispensing there was enough actual science, art and knowledge to require the establishment of this Section. With that idea as his inspiration he had attempted in his paper to show the need of science, art and knowledge at the prescription-counter. The selection of All-Fool's Day was in consequence of its being between seasons, and also that it might be a day with a little nonsense in it. (Printed on P. 1537, with discussion.)

Mr. F. M. Apple read a paper entitled, "What Constitutes Good Prescription Service?" This was followed by the reading of a paper by Prof. Ed. Kremers on, "The Incompatibility of Chloral Hydrate and Potassium Bromide in Hydro-Alcoholic Solution."

Mr. Apple contributed a paper entitled, "Filling Capsules—A Suggestion." (Paper and discussion, P. 1562.)

Mr. Cornelius Osseward was called to read a paper on "What Percent of the Prescriptions Dispensed in Your Store Can You Conscientiously Declare to be Dispensed with Fresh Drugs and Chemicals?" (Paper and discussion, P. 1554.)

Prof. Army contributed a paper entitled, "The American Institute of Prescriptionists." Paper and discussion, P. 1542.

Mr. C. P. Beckwith read a paper entitled, "The Pharmacy of Adrenalin." (P. 1547.)

The Chairman then called for the regular order of business, the nomination of officers for the ensuing year, and the following gentlemen were nominated:—Cornelius Osseward for Chairman; Irwin A. Becker for Secretary, and D. S. Jones for Associate Chairman. Adjourned until Thursday at 9:30 a. m.

SECOND SESSION.

In his opening remarks, Chairman Nitardy called attention to the fact that it was a joint session with the Michigan State Pharmaceutical Association and he invited the officers of that Association to seats upon the platform. The election of officers for the Section was then held, and the gentlemen nominated at the previous session were elected as the officers of the Section.

Mr. Nitardy then read a paper entitled, "A Plea for Reform in the Dispensing of Ointments and Similar Preparations."

Mr. F. M. Apple read a paper by Charles H. LaWall entitled, "A Formula for a New Type of Antiseptic Solution."

Mr. Kimmich contributed a paper on "The Deterioration of Galenicals."

Mr. Caswell A. Mayo read a paper entitled, "The Accuracy of Clinical Thermometers."

The Committee on Chairman's Address reported as follows:—

REPORT OF THE COMMITTEE ON ADDRESS OF THE CHAIRMAN.

After a very careful consideration of the excellent address of Chairman Nitardy, which should be carefully studied by every pharmacist, your committee begs to present the following report, which approves of the recommendations herewith presented:

1. *Preservation of Records.* There is no question that the records of the Section on Practical Pharmacy and Dispensing should be preserved and should be available for the future officers.

2. *Compilation of a Mailing List.* Such a list should be compiled especially of those members who take an interest in the Section so they can readily be reached.

3. *Formulation of a Set of Questions.* No doubt the symposium which has been arranged by Chairman Nitardy will be a record breaker in the history of the Section and should be kept up each year.

4. *Systematic Research on Practical Pharmacy.* Above all, this should be done as there are very many questions which come up in the daily practice of the Pharmacists that need further investigation, and should be solved.

In conclusion, we ask every member to study the address of the Chairman very carefully and to help to assure the success of the Section on Practical Pharmacy and Dispensing, which is the Section for the practical Pharmacists.

Respectfully submitted,

JOSEPH WEINSTEIN.

OTTO RAUBENHEIMER.

HY. P. HYNSON, Chairman.

And on motion the report was adopted.

Mr. Wilbert addressed the Section on the work of the American Medical Association and in connection therewith exhibited several of its publications, and commented upon their usefulness to pharmacists and to physicians.

Mr. Hall read a paper entitled, "A New Antidote for Corrosive Sublimate Poisoning."

Adjourned to meet at the call of the Chairman.

Reports

REPORT OF THE COMMITTEE ON PATENTS AND TRADEMARKS.

To the Officers and Members of the American Pharmaceutical Association your committee respectfully present the following report:—

Degradation of the Materia Medica:—The skeptical attitude assumed by leading physicians and teachers of medicine, during the past quarter of a century, is responsible in great measure for the neglect of materia medica by the medical colleges and inadequate knowledge of drugs as remedial agents on the part of the medical profession. To such extent had this therapeutic nihilism reached, that it was said of the medical societies, "If any daring member has introduced a subject bearing on medical treatment, it has been with an apologetic air and humble mien, well knowing that if his remarks had any reference to the utility of drugs in the treatment of disease they would be subjected to good-humored banter, and received by those sitting in the seat of the scornful with amused incredulity."

Rehabilitation of the Materia Medica:—We are informed by Prof. W. A. Puckner, Secretary of the Council on Pharmacy and Chemistry of the American Medical Association, that the report of the Board of Trustees made to the House of Delegates at the last annual meeting, (held in Atlantic City) does not bear out the statement that drug nihilism is rampant in the medical profession at the present time.

This change in the attitude of the medical profession, is very gratifying to those of us who are lovers of the pharmaceutic art, and we hope to see pharmacy elevated to its proper position as a branch of medical practice as the final result. Pharmacy, or the art of selecting, preparing, preserving, compounding and dispensing medicine, to meet the requirements of a rational drug therapy, is dependent upon the medical profession and a fountain can rise no higher than its source.

This change in attitude, is doubtless, largely due to the constructive work of the Council on Pharmacy and Chemistry of the American Medical Association. The Committee on Therapeutic Research and the Committee on Useful Drugs, are making progress in a way that holds out hope for the pharmacy of the future. But to secure the full benefits of this work, pharmacists and manufacturers must coöperate with the Council in its efforts to rehabilitate a rational materia medica.

The rehabilitation of the materia medica, is inhibited by our irrational patent and trade-mark laws, which permit the inventor of a new chemical substance, medicine, or food product, to patent the product, patent the process, and register as a trade-mark the name by which it is to become afterward known and dealt in. By this plan it is hoped, by the "proprietary" medicine manufacturers, to establish a system of perpetual monopoly in place of the seventeen-year monopoly permitted under the patent law.

In marked contrast to this system is that adopted by Germany and most foreign countries, where no product-patents are allowed, only process-patents, and where no trade-mark law stands in the way of competition between the manufacturers of the same products, who are free to deal in them under their currently-used names, when they succeed in discovering improved processes for preparing them.

Suggested Points of Patent Law Revision:—Our patent laws need revising in at least three important particulars. First,—the law should except from patent-protection, chemical substances, medicines and foods, the same as is done in Germany and most foreign countries. Processes only should be patented, leaving the products open to competition under their currently-used names. However, if

the patented process relates to a new product hitherto never produced, all substances of like nature should be considered as having been made by the patented process until proof to the contrary is given. This is the provision adopted by the German patent law.

It has been stated that such a law would be unconstitutional in this country, because the burden of proof in case of infringement rests upon the complainant, it being assumed that the defendant is innocent until he is proved guilty. This objection is evidently groundless, as President Taft, known to be a competent constitutional lawyer, in one of his last presidential messages, requested Congress to so amend the patent laws as to throw the burden of proof upon the would-be infringer.

Second:—The patent law should provide that the inventor of a process for the production of a new product, shall provide the new substance with a name which shall appear as the principal title in the application for patent, and shall also be used as a principal title on all labels, in all advertisements and in all literature published by the owner of the patent, his heirs and assigns.

Third:—The patent laws should be so amended as to except the patenting of aggregations or mixtures of drugs, or, in other words, ready-made prescriptions. In Caffall M. S., Vol. 16, p. 22, we learn that the Board of Examiners in Chief of the U. S. Patent Office, finally decided in relation to such mixtures, that "it was never intended that any composition of matter or mixture of simples should be the subject of monopoly. If Rhubarb and Senna, or Calomel and Jalap, were for the first time put together, he who should do it, whether regular practitioner or quack, would not be an inventor or discoverer under the law. If done by a physician, it would be only the exercise of ordinary professional skill; if by another, it would be but an ignorant jumble of things, having supposed virtues and benefits to be obtained by the union of known drugs."

Yet, in spite of this decision, which seems to have been salutary for a time, the patent office has returned to the practice of granting patents for ready-made prescriptions, as will be noted by referring to United States Patents Nos. 1,081,069, 1,086,193 and 1,086,900, which are essentially for simple mixtures of substances to which the Council on Pharmacy and Chemistry has objected, and so far objected rather effectively, because at least several applications for patents along similar lines have been since refused.

It is evident, therefore, that the patent laws should be so amended, as to prevent further transgressions of the principle underlying the law, which requires that inventions to be patentable shall be inventions in fact, and not mixtures of old and well-known drugs claiming special new therapeutic virtues not in fact possessed.

Physicians' "Proprietaries":—The manufacturers of this class of products have possibly done more to divert the practice of pharmacy and the prescription business away from the retail druggist, and centralize both in the great manufacturing houses, than have the manufacturers of synthetic chemicals. They have been aided in this by the general practitioners of medicine throughout the country, who, on account of their ignorance of prescription writing, have relied upon the skill of the manufacturer to produce elegant pharmaceutical mixtures, rather than upon their own ability to write prescriptions. Many of these ready-made compounds are just as worthy a place in the U. S. P. or N. F., as the compound pharmaceuticals now contained therein. But none of them should be subject to patent protection, unless displaying in their make-up greater skill than naturally is to be expected from skilled pharmacists, chemists and physicians, in the ordinary practice of their respective vocations.

As just stated, for a time the Patent Office refused to grant patents for ready-made prescriptions, on the ground that no greater invention is shown by their inception than should naturally be expected from skilled practitioners.

Objectionable Proprietary System:—A new method of protection was there-

fore evolved, known as the "proprietary system." It consists of coining a name for a medicine and registering it as a trade-mark. The name is not used as a trade-mark, however, that is, as a mark to distinguish an article from another *brand* of the same article, but is employed as a name to distinguish one article from another. This is not in keeping with the intent of the trade-mark law, but competitors let it go at that, for law-suits cost money; and, besides, manufacturers and retailers of medicines generally are doing the same thing.

The trade-mark law should be so amended, as to prevent the registration of names of medicines as trade-marks. Long ago, Commissioner of Patents Seymour told your Chairman that he believed the time would come when the Government would refuse to register words as trade-marks, because of their misuse afterward. Mr. George H. Lothrop, of Detroit, who in his day was one of the leading patent and trade-mark lawyers in the United States, in a letter addressed to your Chairman, dated October 5, 1894, says: "It has always seemed to me that the great evil of the proprietary system, lies in the ability of ingenious and wealthy advertisers, to delude a large portion of the public into buying their wares at exorbitant prices. In several cases I have forced a disclosure of the cost of these proprietary medicines, and have generally found that the largest manufacturing cost was the bottle and the label, and yet, by expensive and persistent advertising, the stuff is sold at retail for from 75 cents to \$1.00 a bottle.

"The objectionable features of selling an article like this under a trade name, will probably in time be corrected by the courts, for I believe that they will eventually hold that where a man makes a new article which has no proper name, or a common appellative, and gives it a name by which it alone is known, he cannot hold an exclusive right to that name, under the law of trade-marks. If I am right in this position, then anybody will have the right to sell a proprietary medicine under its one name, and trade-mark rights will be restricted to names which either contain the name of the manufacturer or consist of some fanciful title which leaves the common appellative open to the public."

A Remedy for the Misuse of the Trade-Mark Law:—There is a remedy for the misuse of the trade-mark law as applied to patented *materia medica* products worthy of consideration in this connection. Take, for example, saccharin as listed by the house of Merck & Co., in Merck's Index. The patent for Benzoyl-sulphonic Imide, having expired, the name "saccharin," although claimed as a trade-mark, had by the decision of the Supreme Court of the United States in the Singer Sewing Machine case (1895), become common property. Merck & Co., recognizing this fact, listed the product in the *Index* under the name *Saccharin* and then added, as synonyms, the other chemical names, and all the so-called trade names under which saccharin is known, as follows:

"Saccharin Merck-Refined; Benzoylsulphonic Imide; Garantose; Glusidum; Gluside; Glycophenol; Glycosine; Saccharol; Saccharinol; Saxin; Sykose; Zuckerin; Glusimide; Agucarina; Toluolsüss; Anhydroorthosulphaminebenzoic Acid; Benzosulphinide (U. S. P.); Neo-saccharin; Saccharinose.

It is evident that when saccharin is prescribed under any of the trade names Merck & Co. consider it perfectly legitimate for the pharmacist to dispense "Saccharin, Merck-Refined."

What should prevent the application of the same rule to unpatented *materia medica* mixtures? Why should not each manufacturer and retailer have his own brand of the same thing, and use the names of all competing brands on his label as synonyms?—that is, of course, if the secret of the composition of the article has been divulged. In that case each manufacturer might use his own name, firm name, or initials, for pointing out his brand, as "Saccharin-Merck," or Fluid-extract of Cascara Sagrada, P. D. & Co., or Diphtheria Antitoxin, Mulford.

Secret Nostrums:—There is still another class of so-called proprietary medi-

cines concerning which there is much to be said in objection, and that is the secret nostrums falsely advertised to the general public as specific or cures.

If the public is to be its own doctor, people should at least know what they are buying as medicine, and should be protected from paying more for medicines than they are worth. What would happen if a law were passed forcing the manufacturers to disclose the formulas of their widely advertised products and confine their statements in advertising to the truth? It would put an end to the sale of some of the "proprietarys," but those worthy of survival would live and thrive. Probably the demand for the worthy would increase because of less competition and because confidence in their virtues would be gained by knowledge of their composition.

Your committee can readily imagine the shock that will be produced on the minds of the "proprietarys" on reading such a suggestion. In their opinion such legislation is confiscatory. "Every little druggist will make an imitation of our medicines and substitution will ruin our business," is the reason given for opposing such legislation.

Let us stop a moment and consider this question of confiscation. Where did the manufacturers of these "Proprietarys," get their formulas? They have already answered that question in part. You will find this partial answer in the "Petition of the Proprietors of and Dealers in Proprietary Medicines," addressed to the United States Congress and read at the annual meeting of the "Proprietary Association of America," St. Louis, Oct. 17-20, 1898.

"Petition of the Proprietors of and Dealers in Proprietary Medicines, including the Wholesale and Retail Dealers in Drugs, of the United States."

"The undersigned, representing the industries mentioned, hereby earnestly petition your Honorable House of Representatives and Senate of the United States, that the War Tax upon Proprietary Medicines may be promptly or speedily revoked, for the following potent and valid reasons:—

"1. Because it is founded upon entirely erroneous ideas as to the origin and value of these medicines, the general or prevalent idea being that these medicines are mere nostrums, the outcome of ignorance and greed, for gain; and that they are of no value as curatives for disease and are deserving of no legal recognition.

"WHEREAS, The real fact is that they, to a very large and universal extent, are the best and most successful prescriptions of our most advanced and successful physicians. The story is simple. The physician, and the more eminent he may be the more likely this result is to happen, sends his prescription to his druggist, who carefully prepares and sends it to the patient: this is followed by others and others, all made of the same ingredients and the same proportions and they are largely or even eminently successful. The druggist is alive to this—he knows from his own observation that he has in hand a cure for a certain definite form of disease, and gives it a name and launches it upon the public as a remedy for a certain form of disease."

Price Protection for Secret Nostrums:—We are now confronted by an anomaly. After doing all in their power to supplant the pharmaceutical profession with the medical profession and the public, the "proprietary" medicine trade is appealing to pharmacists to support them in securing legislation for the protection of the manufacturers against "fraudulent substitution," and the pharmacists are asking for price-standardization laws for the protection of prices of commercially-controlled and nationally-advertised products. Both of these objects are certainly in a sense desirable under existing conditions, but both should be carefully considered before the American Pharmaceutical Association commits itself to any action concerning either.

It should be remembered that the exclusive license granted to pharmacists, is largely dependent upon benefits conferred by the pharmaceutical profession upon the public. These benefits consist of, (1) the supplying of the public with medicines properly prepared from drugs selected by persons skilled in pharmacognosy, standardized to conform to the requirements of the U. S. P. and N. F., and compounded and dispensed by skilled pharmacists. Do the secret nostrums on the market conform to these professional and scientific requirements? (2) The protection of the public, from the results of ignorance and greed on the part of those who desire to exploit the sick for financial gain. Are pharmacists doing their duty to the public in this respect, when they deal in secret nostrums?

The manufacture and sale of secret nostrums, is certainly not legitimate pharmaceutical practice. Secrecy and monopoly are opposed to the principle of fraternalism and coöperation, which is claimed to be the foundation stone of professionalism in medicine and pharmacy. And yet both professions are violating this principle every day; the medical profession by prescribing secret and monopolized medicines, and the pharmaceutical profession in making and selling them.

When the above facts are taken into consideration, it is evident that neither profession has a right to demand exclusive right to practice its respective professions unless it is willing to fulfill its professional obligations to the public.

The question then is, how far can the pharmaceutical profession sanction a plan in which the secret nostrum manufacturers profit at the expense of the public? It is claimed that price-protection legislation will prove of great benefit to the manufacturers of nationally-advertised goods. Care should be taken by the pharmaceutical profession in dealing with this subject, and in aiding in securing such legislation to see that nothing is done to further degrade pharmacy.

The "proprietary" medicine trade have built up an enormous commercial business in drugs, representing millions of dollars of capital, which business has supplanted the pharmaceutical profession, and largely taken the place of the doctor in treating the sick. As for pharmacy and medical laws, which, theoretically, limit the practice of medicine and pharmacy to licensed practitioners, they do not apply to either vocation when conducted at wholesale.

The "proprietary" trade is already strong enough to defy the medical and pharmacal license laws. Surely nothing should be done to increase the grip of the nostrum trade on the public, and to decrease the influence and the business of medical and pharmacal practitioners. A law permitting the alleged proprietors of secret nostrums to fix the price of prescriptions confessedly stolen from the medical and pharmaceutical profession, and falsely advertised, as specifics or cures, has no defense. However, the false system of advertising adopted by these manufacturers, may be finally checked by the enforcement of the Shirley amendment to the national pure food and drug law and thus curb the secret nostrum business.

In regard to price protection, as you of course know, several bills are now before Congress having as their object the protection of prices for nationally advertised goods. President Wilson, in referring to such legislation expresses the opinion that "underselling to injure competition or create a monopoly is wrongful and should be punished; that low selling, when not for these reasons, should be permitted, otherwise little merchants would suffer and aim of legislation to curb trusts, defeated." If legislation were first secured forcing the medicine manufacturers to place their business on a legitimate basis in relation to the public, price protection laws as thus explained by President Wilson seem to present many advantages. Until the "proprietary" medicine business is purged from fraud and unfair competition with the medical and pharmaceutical professions, it should be exempted from protective laws of any kind whatever.

A Law to Prevent "Fraudulent Substitution":—While this discussion regarding price-protection of "proprietarys," has been going on, the "proprietarys" have

been busy in securing legislation to prevent fraudulent substitution, by passing a law in New York State more clearly defining what is meant by that term. As there is a vast deal of difference between fraudulent substitution and legitimate competition, illustrated by the act of the pharmacist who recommends a pharmacopœial or National Formulary preparation in place of a secret nostrum, this law may aid in making that difference more apparent. We refer to the "Act to amend the New York Penal Law in Relation to Trade-Marks" approved by Governor Glynn on April 14, 1914, which will take effect September 1, 1914. Clause 8 reads as follows:—

"Section 2354. Offenses against trade-marks. A person who shall knowingly sell, offer or expose for sale any article of merchandise, and shall orally or by representation, name or mark written or printed thereon or attached thereto or used in connection therewith, or by advertisement, or otherwise, in any manner whatsoever, make any false representation as to the person by whom such article of merchandise or the material thereof was made, or was in whole or in part produced, manufactured, finished, processed, treated, marketed, packed, bottled, or boxed, or falsely represent that such article of merchandise or the material or any part thereof has, or may properly have, any trade-mark attached to it or used in connection with it, or is, or may properly be, indicated or identified by any trade-mark, is guilty of a misdemeanor and punishable for the first offense by a fine not less than fifty dollars nor more than five hundred dollars, or imprisonment for not more than one year, or both such fine and imprisonment, and for each subsequent offense by imprisonment for not less than thirty days or more than one year, or by both such imprisonment and a fine of not less than five hundred dollars or more than one thousand dollars.

The fixing of prices of medicine by unlicensed practitioners for licensed practitioners to follow under penalty of the law; and the establishment of a law which appears to be so ambiguously expressed as to admit of being contorted, to punish pharmacists for offering to sell similar preparations of their own manufacture, are alike objectionable.

Your committee has the privilege of calling your attention to legislation recently enacted in the Philippine Islands which may well be adopted by the entire United States. This legislation, which went into effect July 1, 1914, requires the publication of quantitative and qualitative formulas on all labels of medicinal products; and that the advertisements of all such products shall be truthful and be accompanied with such formulas wherever they shall appear. No medical or pharmaceutical journal or daily paper containing an advertisement of a medicine will be permitted to circulate in the Philippine Islands unless the publisher complies with the law. Price protection under the protection of such a law would be largely free from the objections which now apply to patented and secret medicines sold at fanciful prices and advertised in a misleading manner to create a fictitious demand.

Redemption of Pharmacy from Unlicensed Practitioners:—Your committee also takes pleasure in reporting further progress in relation to the propaganda going on in various parts of the world, for the redemption of pharmacy from unlicensed practitioners and its restoration to a professional vocation.

At the Saratoga convention of the New York State Pharmaceutical Association held June 23rd to 25th, 1914, attention was called in the report of the Committee on New Remedies, to the fact that the "tar-barrel" has not yielded as many remedies as in former years. Nevertheless, the manufacturers of chemical and synthetical products are very active and are introducing products that will replace those on which the patent is about to expire. This can be observed in the case of aspirin or acetylsalicylic acid, the manufacturers of which are now introducing novaspirin, which is methylene-citryl-salicylic acid. The same holds true of atophan-2-phenyl-quinoline-4-carboxylic acid—which is being replaced

by novatophan, the ethyl ester of paratophan-6-methyl-2-phenyl-quinolin-4-carboxylic acid.

The Committee also calls attention to the good work that has been done in the United States as well as in foreign countries, in analyzing so-called "proprietary" medicines. Credit is given to the Chemical Laboratory of the American Medical Association and to the Ohio and also to the North Dakota Dairy and Food Commissioners, who have greatly helped in the exposure of some of the worthless nostrums. Excellent work in this connection has also been done in this country, by Prof. L. E. Sayre of the Kansas State University, and Dr. S. J. Crumbine, Secretary of the Kansas State Board of Health, and by Prof. D. H. Thoms, director of the Pharmaceutical Institute of the University of Berlin, and Dr. C. Mannich, of the Laboratory of the University of Goettingen. By the publication of the analyses of these remedies, the physician and pharmacist are being informed of their identity, thus permitting their investigation by these professions.

Turning to the Proceedings of the American Medical Association we note the Chairman's address read before the Section on Pharmacology and Therapeutics, at the Sixty-fifth Annual Session, held at Atlantic City, June 22nd-26th. The Chairman, Dr. John F. Anderson, Director of the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., called attention to "Some Unhealthy Tendencies in Therapeutics." This subject is well worthy of consideration by the American Pharmaceutical Association. Dr. Anderson says, "A large number of new *materia medica* products have been introduced within the last decade, for which claims have been made so extravagant as to warrant classing some of them as 'fake' remedies. The exaggerations displayed in advertising many other products which in themselves are of marked therapeutic value, has a tendency to throw disrepute upon them also." The tendency to prostitute pharmacy and therapeutics for dishonest commercial exploitation, is certainly a very unhealthy tendency and is throwing the entire drug business into disrepute. The monopoly established over some of these preparations by the great commercial houses engaged in the *materia medica*-supply business, by patents and by the control of their generic names and by secret formulas, and the large capital used in their commercial exploitation by misleading advertisements is tending to divert the preparation of medicines away from the pharmaceutical profession and the practice of medicine away from the physician, and into the hands of unlicensed practitioners, ignorant alike of disease and its proper treatment.

Is it Ethical for a Physician to Patent Surgical Instruments or Profit by Their Sale? If Not, Why is it Right for the Pharmacist to Do So?—We also note with interest that the A. M. A. is facing a similar problem concerning the assignment of patents to the Association, that the A. Ph. A. has under consideration. The patentee of a new surgical instrument presented his patent to the A. M. A., offering to donate his invention to the public under the protection of the Association. The offer is still under consideration.

However, there is one feature of this offer differing from those made to the A. Ph. A. The inventor promises not to engage in the making of money out of his invention. In the debate resulting from this offer, certain points regarding medical ethics, which have a strong bearing upon the recognition of pharmacy as a profession by the medical profession, were brought out, vital to the interests of pharmacists.

According to medical ethics it is unprofessional to patent surgical instruments or medicines or engage in the business of making them for sale, on the ground that a physician cannot occupy a *judicial* position toward the things he advocates as therapeutic agents or prescribes for the treatment of the sick.

Under such ruling, pharmacy can never be recognized as a profession because the pharmacist has things to sell. But how about the physician who sells his advice? How about the physician who dispenses his own medicine? How

about the medical journals that accept the advertisements of medicines? especially those commercially controlled by patents and trade-marks? Are they in a *judicial* position? How about Ehrlich and his patented and "trade-marked" Salvarsan, and the royalty he receives from the manufacturing chemical house engaged in marketing it? How about the Journal of the American Medical Association and its Council on Pharmacy and Chemistry? Does not the Journal accept advertisements of commercially-controlled products and do not the editors and members of Council—at least some of them—get pay for services rendered? Are they in a *judicial* position? Evidently they are not if accepting money for work done, necessarily places them on the side of advocates rather than judges, even though they obtain their pay indirectly from the advertisers.

It is true that we are all honestly biased by the things we believe in. But it is not true that no man can be *honest* who receives pay for his services. This fact is recognized in scientific circles, and medical and pharmaceutical societies and press exist for the very purpose of correcting the bias of selfish interests by free and open discussion. What is needed is impartial discussion of every advertised *materia medica* product by the professional societies and press, not only by physicians but also by those engaged in their manufacture. Open the door to the manufacturers of these products and let us hear what they have to say about them.

But that does not mean open the door to firms or corporations to discuss *materia medica* products in the professional societies or press. *Science requires individual responsibility*. Let the *individuals* having the personal charge of the manufacturing of the medicines used by the medical profession, tell us how they are made and what they are made of. If they are not sufficiently educated as scientific men to do that, they are not fit to have charge of such important work and we want to know about it.

Neither does it mean that we should open the professional societies and press to commercial exploitation by the manufacturing houses. The educational channels must be kept free from pretense and error and not converted into an advertising bureau. The press and societies can control the situation, either by refusing to accept information in their advertising columns or reading columns, concerning commercially controlled products except to condemn them; or by establishing a board of control, admitting to fellowship manufacturing houses willing to donate their product patents to the public and permit them to be honestly discussed. If there is no way to establish a scientific literature concerning advertised *materia medica* products, because they are being advertised, it is time to make the advertising of medicine a penal offense.

Under a revised system of patents free from the objectionable monopolistic features of our present patent-system, and under conditions that may readily be brought about by reforming the trade-mark system, there appears to be no greater objection to physicians availing themselves of patent-protection than pertains to their protecting their literary productions by copyright. Under present conditions the patent-system and the trade-mark system are conducted in direct opposition to the ethical principles underlying the proper practice of either medicine or pharmacy.

As for the patent and trade-mark laws, are we not forgetting their true object? The Constitution of the United States upon which these laws are founded, if they are constitutional, informs us in relation to the patent law, that, "to promote progress in science and useful arts," Congress shall have the power to grant authors and inventors for limited times the exclusive use of their respective writings and discoveries. If the patent law can be so applied to medicine as to promote progress in medical science, promote knowledge of the medical arts, and promote the commercial interests of physicians, pharmacists, botanists, bacteriologists and others engaged in the practice of the arts of preparing medicines and applying them to the relief of suffering and the curing of the sick, then let us as professional men coöperate in securing its application in such manner as to attain these objects. It is to the advantage of all concerned that inventors shall be encouraged

to invent and publish their inventions for the benefit of science, and the arts, and commerce. Let us not refuse them the financial rewards and scientific credit which is their due. *But we must know who they are and hold them personally responsible before we can assure ourselves that the rewards and credits go to whom they belong.*

Finally, let us not forget that such rewards and credits, according to the patent law, only belong to those who have in fact invented something *new and useful*, and do not belong to those who have invented nothing but names and are building up monopolies in the sale of medicines which do not belong to them. The patent law properly applied to medicine is compatible with professionalism and scientific progress; but the so-called "proprietary" system, with its secrecy, abuse of the patent and trade-mark laws, "hog-latin" nomenclature, misleading advertisements, and pretense to invention and discovery, is a hydra-headed monstrosity unfit to survive in this day of the square deal. The trade-mark law was never intended to protect capital invested in a business which is so apparently contrary to public welfare.

When it is considered that during the past thirty years, tens of thousands of alleged "new remedies" have been commercially introduced by advertising and recommended as superior to materia medica products already in use, and not one tenth of one per cent of them have proved of sufficient therapeutic value to justify their introduction, also that physicians have been largely deluded by misleading advertising to prescribe them, also that pharmacists have been forced to sell them; and the interests of the sick have been correspondingly injured; it is evident that all concerned should coöperate in correcting this abuse. Therefore your Committee suggests as an initial move the plan described in the following

PREAMBLES AND RESOLUTIONS IN REGARD TO NATIONALLY ADVERTISED DRUGS AND MEDICINES.

WHEREAS, The Supreme Court of the United States in the Singer Sewing Machine case (1895) decided that: "The result, then, of the American, the English, and the French doctrine universally upheld is this, that where, during the life of a monopoly created by a patent, a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created," and

WHEREAS, In the same decision the Supreme Court states: "Where another avails himself of this public dedication, to make the machine and use, the generic designation, he can do so in all forms, with the fullest liberty, by affixing such name to the machines, by referring to it in advertisements and by other means, subject, however, to the condition that the name must be so used as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indications that the thing manufactured is the work of the one making it, as will unmistakably inform the public of the fact," and

WHEREAS, It has been decided by the courts and it is a recognized principle of law, that "When an article is made that was theretofore unknown, it must be christened with a name by which it can be recognized and dealt in, and the name thus given it becomes public property, and all who deal in the article have a right to designate it by the name by which it is alone recognizable,"¹ and

WHEREAS, There can be no such thing as an exclusive right to any particular line of industry,² unless that industry is controlled by a patent, so that any person who knows how to make the same thing, and has obtained his knowledge in a legitimate manner, has a right to do so, and to offer the same for sale under its identifying name, i e., the name used by the purchaser in buying the article, and

¹ Leclance Battery Co. vs. Western Electric Co., 23 Fed. Rep., 227.

² See "Report of the Commissioners Appointed to Revise the Statutes Relating to Patents, Trade and Other Marks, etc." under Act of Congress, approved June 4, 1898.

WHEREAS, Medical and pharmaceutical science, and the requirements of pharmacopœial standardization and scientific literature demand the adoption of a fixed and changeless nomenclature, the publication of accurate knowledge of each materia medica product, as to its identity, physical, chemical and therapeutic properties, methods of preparation, compounding and dispensing, and the verification of claims to therapeutic efficacy by clinical tests by competent observers, and

WHEREAS, Public welfare demands that each brand of every product shall be branded with the name of the producer or his identifying mark or trade-mark, that his identity may be known and his responsibility fixed, thus permitting physicians, pharmacists and the public, to specify and receive the brand they may prefer, therefore, be it

Resolved, That We, THE AMERICAN PHARMACEUTICAL ASSOCIATION, invite the manufacturers of nationally advertised materia medica products to send to the Secretary of the Association a list of their advertised products, the same to include generic names or titles or trade-marks to be used for specifying brands, whereby the Association representing the Pharmaceutical Profession may be aided in providing the materia medica products on the market with proper nomenclature, and be it

Resolved, That we hereby give notice to manufacturers who neglect to respond to this invitation, that by so doing they tacitly consent to the use of the names of their products as common property, by any and all persons who may know how to make the same articles and have obtained their knowledge in a legitimate manner, and be it

Resolved, That we supply the medical and pharmaceutical journals with copies of these Preambles and Resolutions requesting editors to publish them and call especial attention to their provisions; and, after the lapse of 90 days, that the Secretary of the Association mail a copy to each manufacturer advertising in the medical and pharmaceutical journals, and the principal manufacturers advertising in the newspapers, inviting them to cooperate with the Association in fixing the nomenclature of the nationally advertised materia medica.

PROFESSOR PUCKNER'S REMEDY FOR THE TRADE-MARK ABUSE.

A copy of the above report, including the Preambles and Resolutions, was sent to Prof. W. S. Puckner, Secretary of the Council on Pharmacy and Chemistry of the American Medical Association for criticism and comment. Unfortunately his reply did not reach your committee in time to avail ourselves of all of his valuable suggestions. However, the following are so important that we have herewith added them to the report. Prof. Puckner says:

"There is no doubt that the proprietary system is an unqualified abuse, but the correction of this abuse is largely dependent on aggressive action by pharmacists and has little or no interest for medical men, despite the fact that they have from time to time registered their objections.

"The resolutions offered in connection with the report are rather vague, and if adopted will, in my estimation, lead to nothing except possibly to create further confusion. To my mind resolutions something like the following would be much more to the point:

WHEREAS, The objects and uses of a trade-mark are at the present time not thoroughly understood, and

WHEREAS, A number of the words registered in the United States Patent Office are in reality words descriptive of the goods on which they are used and can in no way be construed as marks to distinguish the origin or manufacture of the goods from other goods of the same class, now, therefore, be it

Resolved, That the American Pharmaceutical Association request the Commissioner of Patents to discontinue the registration of words and phrases contrary to the spirit and letter of the existing law; and be it further

Resolved, That the American Pharmaceutical Association instruct its General Secretary to apply for the cancellation of trade-mark registration in accordance with the provision made in the rules of the Patent Office relating to registration and annulment of trade-mark.

After reaching Detroit so much interest was manifested in the subject of patents on medicinal chemicals on account of restricted supplies from war conditions existing in Europe that the following resolution was added to our report at the request of many prominent representatives of pharmaceutical and drug interests present at the meeting:

RESOLUTION REGARDING PATENT LAW AMENDMENT.

WHEREAS, The difficulty experienced in this country of obtaining supplies of materia medica products patented by the United States and manufactured abroad, and the consequent increase of prices, owing to existing war conditions, emphasizes the necessity of providing ways and means for producing these products in the United States, therefore, be it

Resolved, That we, the American Pharmaceutical Association, hereby memorialize the Congress of the United States, appealing for an amendment of the United States Patent Law which shall make it obligatory on the part of manufacturers of such products to manufacture them in this country within a specified time dating from the issue of patents, under the penalty of revocation of patent privileges.

Respectfully submitted,

FRANCIS E. STEWART, M. D.,
For the Committee.



HARRY V. ARNY, PH. G., PH. D.,
Editor Druggists' Circular.



FREDERICK J. WULLING, PH. G., LL.B.,
President, American Conference of Pharmaceutical Faculties.

Editorial

ERNEST C. MARSHALL, Acting Editor.....63 Clinton Building, Columbus, Ohio

Thanksgiving.

HOW much there is expressive in this homely, old Anglo-Saxon word. How it appeals to the heart, stimulating the better nature of all mankind.

A delightful day, with its crisp air; its hint of winter's joys; its home-gatherings, with union of those long-separated; its jollity and its feasting; a day when all America can unite in heart-felt thankfulness that the Mayflower and her little, feeble band, seeking for political and religious freedom, came at last to their destination, and made a safe haven on "the stern and rock-bound" coast of New England, even though their highest achievement had been but this day.

We of the pharmaceutical world have much to be thankful for. We have the joy of living, the pleasures of helpfulness to others, to those who are sick and ailing. Much to be thankful for! Why, the whole world is before us to make us glad. The whole world? No, to our sorrow, we regret that, not the whole world, for across the sea there is much to make us sad. But, perhaps, with all, out of this *debacle* may come a better and a higher life for the peoples of Europe. "God works in a mysterious way His wonders to perform," and it may be that from the cruel war will come great good to the whole world. Out of the storm and stress of the French Revolution came the freedom of the *paysan*, the abolishment of arrogant nobility and liberty for the people. Some one has said that that Revolution was the first attempt to make the "Golden Rule" effective in this world, and perhaps out of this cruel strife will come another step toward that glorious end; one which will destroy that devilish paraphrase of that splendid rule of Life, which, enunciated by David Harum, has done incalculable harm to the world. "Do others before they do you, and do it first," is a devil's rule of life. Out of this strife, cruel and terrible though it be, may come to the people of these warring countries, the knowledge that they and they alone, are "THE STATE," and that all men are brothers, children of One Great Father. Kings, Emperors, Kaisers and nobles may learn that, "*Dei Gratia*," there is nothing higher or nobler in this world than a true man. That he alone is the NOBLEMAN, who is ennobled by his deeds and by his character, not by his birth.

Let us then, in this free America, where in the "melting-pot" of nations, we free men from the dross which clogs and stifles life in the older civilizations, give Thanksgiving that we are free, and that, although Government of the people is not without fault, it is infinitely better than government of lineage, government of militarism, of those "born to the purple."

On this day, give thanks not alone for what good we have, but also for what we have not of the evils of life, and let us bend our energies to making Pharmacy better, higher and nobler, and America, in truth, what our forefathers laid foundation for.—a land of freedom and of opportunity for the oppressed of all nations.

We stand upon the threshold of the door of Opportunity. Not the door of Commercialism, of sordid and debasing trade. But the opportunity of showing to the world the way to a better and a higher Civilization. Let us on this day dedicate ourselves to be better men and wiser men, and let our most fervent prayer upon this Day of Thanksgiving be, that we may do high and noble service to Pharmacy and, in so doing, to this land where, no

"Rank is but the guinea's stamp,
The man's the gowd for a' that."

THE WAR AND THE DRUG MARKET.

THE initial flurry incident to the declarations of war in Europe, has now somewhat subsided, and it is beginning to be possible to approximate the actual value of drug and chemical commodities of various sorts.

Under the early excitement many, who were dependent upon foreign supplies for their continuance in business, became "wild" and their efforts in the market to obtain future supplies, was doubtless a chief factor in forcing abnormal prices. This rush to obtain supplies for an unlimited period, became absolutely ridiculous, going to the extent even of affecting values on indigenous products in the drug line. As for example, the placing of an order for 500 barrels of powdered elm bark, *Ulmus Fulva* (which in its *habitat* is far removed from the scene of war), was uncalled-for and unwise and is an illustration of the lack of information on the part of those charged with the purchasing of supplies for large users of drugs. There is no more reason for an advance in the price of powdered elm bark than there is for change in the orbit of the moon, and yet it has come to us.

A very large part of the advance in prices of drugs and chemicals is due to what may be styled "frenzied buying" on the part of large consumers who do not seem to be well informed of sources of supply.

It is certainly true that all foreign products are due for an advance in price, and in some instances this is basic,—that is the original source of supply is curtailed or absolutely cut off,—but the greatest influence with respect to foreign products has to do with shipping facilities.

Immediately following the declaration of war, the merchant marine practically suspended business, so far as individual movements were concerned, and the earliest factor entering into the question of prices, is that of transportation, rather than a question of supplies at the place of origin.

We have now to note the reaction following the early frenzy.

It is not new to state, that commerce is the controlling influence in the world. It is to be noted, in the present situation, the movement of merchandise is of more importance to the world's welfare than the movement of armies, which latter can affect only a comparatively limited territory, while the first is world-wide in its influence.

It has been truly said that the present contest at arms, has not been paralleled in the history of the world, and yet the lines of commercial influence are already being drawn and are bound to influence the mighty contest now on.

The earnest endeavor of some of the nations engaged in the present conflict, seems to be and really is to ensure safety at sea for merchandise. This is very clearly shown by the desire of shippers, who have merchandise to transport across the sea, to secure their shipments under the flag of a nation which shall have at least a claim to exemption from war conditions.

The drug markets at the present time, are showing a reaction from the frenzied influences above mentioned toward a meeting of the conditions which actually exist. We note, in the general drug list, a very general decline from the excessive prices prevailing immediately after the outbreak of the war, the natural reaction following the conditions. Market values on foreign drugs and chemicals are

still much higher than the normal, and legitimately so, because of the increased cost, not of production, but of transportation.

From general reports which come to us, we are assured that the ordinary supply of foreign drugs for the current "crop," is held at the source of supply, and, in many cases, an extraordinary crop is in store.

The difficulty in transportation; the increase in transportation rates, the increase in marine insurance and the uncertainty surrounding deliveries, are now the only remaining excuses for general advances in values. Perhaps the most common is the marine insurance item.

It has come to our knowledge that marine insurance, in some cases at least, has been placed on a 20% *ad valorem* basis and the least advance of which we have knowledge is 25% advance on former prevailing rates.

It has been claimed with respect to the drug products of the warring nations, that the present year's "crop" has been sacrificed to the marching armies. Later reports deny this and the statement is made that this year's "crop" is considerably above the normal, and all that is needed to bring market values down to or even below the prices prevailing before the war, is a reasonably safe means of transportation.

The extension of the war to the colonies of the nations involved, will naturally extend the conditions heretofore stated, to certain products in these colonies, as for example, the drugs which we procure from Central and South Africa, and, possibly, as the Asian condition is developed, to East Indian and Japanese products. But as in respect to these, it seems that for the most part, sufficient stocks are already in this country to tide over a period of many months.

In regard to chemicals, it is well known that Germany has been the center of the chemical industry for many years, and that it has held the master-hand over many of what are classed as the necessary chemical products, particularly the organic or synthetic products. The German government has been very largely paternal with respect to its chemical industries, and they have been fostered in a variety of ways, until they have practically a world-control. The stoppage of these industries in Germany, has worked a hardship to the entire world, in that it must either pay exorbitant prices for certain products or do without.

We Americans, confronted with such a condition, naturally rebel, and exclaim: "Why can't we do these things ourselves?" The question is easily answered by the statement that we certainly can, but we should follow it by the subsequent statement that "We won't" and "Cause why?" Simply because, commercially, we cannot put ourselves on the German basis. We have heard much about establishing chemical industries in America to meet the present situation, which is all well and good. We certainly can do it. We have the money, we have the trained chemists, and ability to carry on the business in full, but it won't happen until conditions change very materially. Suppose we start a chemical plant for the production of organic bodies, as for instance benzoic and pyrogalllic acids, hydroquinone, and all the limitless number of synthetics produced from "coal tar." It would involve the investment of a large sum of money running into the millions, to organize and equip a proper plant. Now, having done this thing, and demon-

strated that we can produce all these products, when the war is ended, what will happen?

The millions that have been expended in the building of the plant and organization, will count for naught against the renewed German competition. We all know that the lowest class of American workmen receive a wage two, three, four times beyond that of the foreign workman, whether he be German or of any other nationality, and it is foolish to ignore the fact that, in certain chemical industries, we cannot compete, until our government protects our chemical industries as does Germany and some other countries.

It is true that Germany has some natural advantages, as for instance, she has some deposits of mineral containing potash, which we do not possess or which, if we do possess, have not yet been exploited, but the real reason for her commanding position in the chemical industry is the government support which these industries receive.

We see in the public press, the chemical, pharmaceutical and other journals, arguments and statements with regard to our ability to take care of ourselves in the matter of chemical products, but we will not do it until our government protects this industry, as is done in foreign countries, and with consideration for the diverse standards of living between American and foreign workmen.

GEORGE B. KAUFFMAN.

THE NEW PHARMACEUTICAL SYLLABUS.

THE attention of the members is especially called to the criticisms of the Syllabus, which appear on P. 1495.

As this work is one intended to powerfully and definitely influence the course of Pharmaceutical education in this country and to provide uniform, definite and certain courses of education for its coming pharmacists, our readers are earnestly requested to transmit to the Journal any succinct and informing comment upon the Syllabus which they may think desirable to make, with the purpose of determining its true value in pharmaceutical education.

ELECTION OF OFFICERS.

Just as we go to press, the following announcement is made by the Board of Canvassers of the result of the election for officers of the Association,

President, Dr. William C. Alpers, of Cleveland, Ohio.

First Vice President, Charles H. LaWall, Ph. M., of Philadelphia, Pa.

Second Vice President, E. A. Ruddiman, M. D., of Nashville, Tenn.

Third Vice President, Linwood A. Brown, Phar. D., of Lexington, Ky.

Members of the Council, Caswell A. Mayo, Ph. G., of New York, F. M. Apple, P. D., of Philadelphia, Pa., Harry V. Arny, Ph. D., of New York, N. Y.

The Board of Canvassers comprised the following members:—Clyde M. Snow, Chairman, Irwin A. Becker, William Gray, Henry W. Colson, Mrs. M. M. Gray, all of Chicago, Ill.

The Journal extends to the newly-elected officers its sincere congratulations, and also those of every member of the Association.

JOSEPH PRICE REMINGTON,

CHAIRMAN OF THE COMMITTEE ON REVISION OF UNITED STATES PHARMACOPOEIA.

Born March 26, 1847, in Philadelphia, Professor Remington comes, on the distaff-side, from Townsend Speakman, one of the earliest Philadelphia apothecaries. For three generations his ancestors have been residents of that city and members of the Society of Friends.

He began his pharmaceutical life in the employ of Charles Ellis, Son & Co. of Philadelphia, on January 1, 1863. While in the employ of this firm he commenced the study of pharmaceutical science at the Philadelphia College of Pharmacy, graduating therefrom in 1866.

The first day of January, 1867, he entered the employ, and became a member of the family of Dr. E. R. Squibb, which connection he maintained for three years. Returning to Philadelphia he engaged with the firm of Powers & Weightman, with whom he remained for four years, leaving them to start in business for himself, at the corner of Thirteenth and Walnut Sts., at which place he remained for thirteen years.

In 1871, he became the assistant to Edward Parrish, Professor of Pharmacy at the Philadelphia College of Pharmacy, and on his death remained as assistant to his successor, Professor William Procter, Jr. On the death of the latter, in 1874, he was elected to succeed him as Professor of Pharmacy. In 1879 he was chosen as Director of the Pharmaceutical Laboratory and in 1893 he was made Dean of the College.

He became a member of the American Pharmaceutical Association in 1868 and has served the Association well and faithfully in many important positions. From the formation of the Council in 1880 he was its Chairman until the year 1886. In 1893-4 he was the Permanent Secretary, and in his important service upon many committees he has given to the Association most valuable and loyal service, which was recognized in 1892 by his elevation to the Presidency of the Association, at the meeting in the "White Hills" at the Profile House, New Hampshire. In 1893 he presided at the meeting of the Association at Chicago, on which occasion he also presided over the Seventh International Pharmaceutical Congress. In 1878 he was one of the organizers of the Pennsylvania Pharmaceutical Association, and in 1896 he was elected as its President.

Besides his numerous and valuable contributions of papers to pharmaceutical literature, he is the author of Remington's Practice of Pharmacy, and he has been an Associate Editor of the United States Dispensatory, since 1879. In 1897 he became the Pharmaceutical Editor of Lippincott's Medical Dictionary. He represented the United States at the Eighth International Pharmaceutical Congress at Brussels, Belgium, in 1896, was a delegate to the Pan-American Medical Congress in 1893, and again in 1896.

His connection with the Pharmacopœia began in 1877, with service upon the Auxiliary Committee of Revision appointed by the Philadelphia College of Pharmacy. The following year the College appointed him as a delegate to the National Convention on Revision of the Pharmacopœia and he was chosen as a member of the Revision Committee and First Vice Chairman of that body. In 1890 he was again a delegate to the National Convention, and, on the death of Mr. Charles Rice, the Chairman of the Convention, he was elected to the position of presiding officer. In May, 1910, he was unanimously elected Chairman of the Committee on Revision.

In 1874, Professor Remington and Elizabeth B. Collins were united in matrimony and three sons and two daughters are the fruit of that union.

Professor Remington maintains a delightful summer-home at Longport, N. J., where much of the work of the revision of the Pharmacopœia is done.

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-Second Annual Convention

ALL FOOL'S DAY AT THE DISPENSING COUNTER.

HENRY P. HYNSON, PHAR. D., BALTIMORE.

Looking backward, through the mist of four decades, at the dispensing counters of city drug stores, if one has had good digestion and has done his "duty in that state of life unto which it has pleased God to call him," he must have very happy realizations of great progress and helpful development. If he can see even small evidences of his own contributions to this progress and to this development, there is added satisfaction and added happiness. Knowing, so perfectly, all that you do not know that you might know, about dispensing and actually *feeling* the truth of Osler's sound philosophy, you still may enjoy the retrospect, and contemplate, with comfort and pleasure, the greater ease, the greater comfort and the still greater usefulness of the better-equipped counter and the better-equipped dispenser of this better day.

One hundred and two physicians' prescriptions, and about twenty, out of the hundreds of general orders, which required dispensing knowledge,—some of them of the highest kind—was not a great day, as days go in "big stores," but they offered excellent opportunity for the exercise of many of the possessed attainments and, very likely, for many more that were unpossessed.

Of course, there were very many uninteresting and very usual prescriptions and orders; the more so because they are so usual that every one has learned to do them, just as every one has learned to do usual things, no matter how difficult they may be or how stupid is "every one."

This "All Fool's Day" was not a remarkable day at the prescription counter; nor was it selected *after* its offerings were known, yet it presented almost every variety of dispensing. Strangely enough, there was not much, about which the "damned doctor"—might be criticised. One of them did prescribe a super-saturated solution of calcium lactate, which would have resulted in a solidified mass, had it been sent out as a solution. But it had been learned that when more than five per cent of this salt, compared with the water present, is prescribed in solution, no attempt should be made to dissolve the lactate. Under such circumstances, the fine, bolted powder should be simply *mixed* with the fluid, whatever it may be. The frequent mis-ordering of calcium lactate is not always the fault of the prescriber, since authorities differ as to its solubility,—the variations, no doubt, arising from the differences in the ages of the products with which the several experiments were made; the salt is most soluble when freshly prepared.

The uncertain solubility of calcium lactate; forgetting that strontium is an alkaline earth and forms insoluble carbonates and sulphates, and not knowing that sodium nitrite is very easily decomposed, especially in acid liquids, are the three items that seem to give modern prescribers more trouble than all else beside.

Naturally, there were a good many proprietaries prescribed. The best the pharmacist can get out of these is some profit—very good in comparison with the responsibility involved, the time required to dispense them and the splendid advertising that follows having them in stock, when called for by patrons or inquired about by physicians. There were also a number of copyrighted articles which, of course, are subject to the same requirements regarding dispensing knowledge as free chemicals. For instance, a dispenser should know and remember as much about aspirin as about salicylic acid. The chemical or scientific names of these copyrighted articles were used in a few prescriptions. There were but two instances of "specifications." This is most encouraging; it shows greater confidence in manufacturing and dispensing pharmacists. The specifications of forty years ago were a much greater burden on the dispensing pharmacist than are the proprietary and copyrighted articles of to-day. It is one brand of aspirin now; it was, at least, four makes of fluid extract of ergot and six makes of quinine-pills, then.—Cheer up, youngsters, cheer up!

There were but six prescriptions for ready-made pills, and all these were of strychnine. They were dispensed in screw-cap vials, the best and safest containers for strychnine-pills and the best for all gelatin-coated pills, excepting those containing odorous substances, like asafetida or the valerates, which should be dispensed in perforated boxes. The popular and most convenient gelatin capsule has certainly come to the modern dispenser's rescue. They have almost entirely replaced the ready-made coated pill in our city and are largely taking the place of tablets with *prescribing* physicians. A three-fold blessing, indeed, are capsules; they bless the physician, they bless the pharmacist and, most of all, they bless the helpless, long suffering victims of both,—the poor invalids. The dispenser of to-day must be careful that he does not, to the disadvantage of all concerned, use soluble-elastic or soft capsules, instead of the regular slip-on-kind, for liquids. The hard capsules appear to be safer and are much easier to dispense.

All the prescriptions for capsules were marked as having been filled "dry." Not bad practice, since moisture, as we know, especially when high temperatures prevail, has most to do with the deterioration of medicinal substances. With present high standards for powdered drugs, and the very efficient extracts dried *in vacuo*, there are very few instances when capsules may not be dispensed with the material in dry powder. The great advantages of this are many and obvious. An expert dispenser can generally use as small a capsule for the powder, as he could if it were massed. Odorous substances, like asafetida, the valerates, or iodoform and very difficult ones, like methylene blue, should, undoubtedly, be massed and introduced with a needle.

If "new clerks" and students with drug store experience, are "straws that show the way the wind blows," there is a great deal of bad pharmacy practiced in the mere dispensing of capsules. It must not be forgotten that gelatin capsules, as now made, are wonderfully transparent and plainly show imperfections in the

mixing of the ingredients and the irregular colors of the mass. These capsules must be full and full alike; if the powder or the mass does not fill the capsules, then make either large enough with inert material to fill them. But the capsules must never be too full, (it is always bad to be "too full"), they must not be so full that the caps may not be pushed *all-the-way* on, for this is the only test by which the capsules may be made uniform. The capsules should be as bright, as glossy, and as clean, after they are filled, as they were when sent out by the manufacturer. This requires some effort, some care, but it may be accomplished, and should be accomplished, even with sodium salicylate.

In a general treatment of the day's requirements, reference might be made to the folding of powder papers; to the keeping of the powder within the paper,—a difficult accomplishment with bulky, light substances. This may be done by making an *extra* complete, but *very narrow*, fold at the beginning of the folding. This will be found to be wonderfully helpful. In the distribution of small quantities of extracts through bulky powders, there comes up a question as to whether or not it is desirable to improve the final appearance of the mixture of powders by using the pilular extract, softened with alcohol or dilute alcohol, as the case may require. This treatment with extract of belladonna, brings about almost startling comparative results. Konseals, too, may be made to advertise a store, either advantageously or disadvantageously. So many dispensers use much larger cachets than necessary; easily seen by holding the konseal, edge up, tapping it and looking through it toward light. Failing to seal them effectively, as witnesseth the box containing them and the disgust of the patient, is equally hurtful to the dispenser's reputation.

The mixing of fluids of varying alcoholic strength, was an oft requirement of the day. By simply following an order of mixing that made the dilution of the stronger alcoholics as *gradual* as possible, many troubles were avoided. "The order of mixing" is really the "IT" in dispensing-pharmacy, as stock-keeping is the "IT" in commercial-pharmacy.

Solutions, making up a large proportion of our "April Fool Day" work, are always the most interesting class of prescriptions. They require the bringing to bear of all our knowledge of chemistry and of physics and, more lately, of bacteriology. Asepsis and sterilization must, now, be considered, and a fair comprehension of mass-reactions and the dissociations of elements, must be enjoyed to make the intelligent and successful dispensing of solutions possible. The dispensing of perfectly clear, reasonably sterile solutions for eye instillations, and the dispensing of ointments for the applications to eye-lids, were the most exacting features of the day's work. Yet, it was this work that had stimulated the greater confidence enjoyed. Incidentally, it may be asked, "Would it not be wise to have the Pharmacopœia standardize the strength of yellow mercurial ointment for eyes?" The present official ointment would not be what is generally wanted by oculists; about two to four per cent is usually desired by them, one or two grains to the dram.

Weighing and measuring, with the mathematics involved, are still problems that test the wits of the apothecary. He must have sufficiently accurate appliances. How, without these, could he get one eighty-fifth of a milligram of tuberculin, in

a cubic centimeter of normal salt solution containing one-half of one percent of phenol? This was one of the problems of our day and such, are of frequent occurrence in modern pharmacy. One third of a grain of strychnine sulphate to be dissolved in four fluid-ounces of compound tincture of cardamon; one-fourth of a grain of glyceryl nitrite and one-half a grain of strychnine sulphate in a three fluid-ounce mixture of tincture of strophanthus and wine; one fluid-ounce of glycerin containing five per cent of phenol, were not all of the more or less difficult problems that came to this store on this day.

Weighing and measuring and, consequent calculations, bring up the question of stock-solutions, dispensing tablets and percentage-solutions. One must be careful that he is not too conservative, too straight-laced or too hard to convince in these regards, but the actual dispenser *must know*, for he is finally responsible. If percentage by weight is wanted, and that seems to be the only way that "parts" may be compared in making definite volumes of percentage-solutions, much thought, figuring and, sometimes, valuable material, may be saved by using a method which may be illustrated by our order for "one fluid ounce of carbolyzed glycerin, five per cent." It is not necessary to know or to think about the specific gravity of glycerin; simply balance a bottle, fill it to the desired point and weigh the glycerin. Divide the weight of the glycerin by nineteen and the quotient will be the *exact* amount of phenol required; the plan can be used for oil-solutions or any fluid, distilled water included, if desired. The proposition may be stated in this manner:—If five per cent is to be one twentieth, then the vehicle—the glycerin in this instance—must be nineteen twentieths. If a ten per cent solution is required, divide the weight of the vehicle by nine; if a twenty per cent is wanted, divide by four.

The confusion of the Metric system with the Apothecaries' weight and the wine measure, continues, as witnesseth a prescription for dilute hydrocyanic acid 3.0, codeine sulphate 0.32, syrup of wild cherry and water sufficient to make 100.0, with a teaspoonful as the dose. The usual two per cent of metric prescriptions prevailed.

Ointments, as usual, required all the art of the apothecary and much of his science, as well. The introduction of pyrogallol into one of these, with its tendency to darken, causes much speculation as to what would be the color of the last portion used, and leads to the thought, that much real, helpful knowledge would follow the practice of putting up additional quantities of unusual prescriptions for observation. No doubt, many of our thought-to-be successes in dispensing, would disappoint us if we could see them after a few days. It is really remarkable how frequently salicylic acid is used in ointments, and nothing requires more care in its manipulation, considering the difficulty of entirely destroying the sharp crystals and its extreme sensitiveness to iron. Resorcinol is much used in ointments and its satisfactory introduction is only possible through the water-carrying properties of wool fat, a not yet fully appreciated pharmaceutical help. This should, certainly, be a constituent of all ointments containing appreciable quantities of resorcinol, iodine and rose water. It is strange that pharmacists should use the hydrous varieties when the anhydrous is much better for these "holding in" purposes. The failure to mix the required amount of oil

with lanoline, before it is dispensed, and the inherent differences and different tendencies of the yellow and white solid petroleum vehicles, are thoughts suggested by the ointments of one "All Fool's Day."

Not the least interesting in dispensing problems of the day, were those connected with a laboratory-order from a physician,—such orders as every ambitious pharmacist should be prepared to fill and to enjoy the profit and the good advertising that follows the successful filling. Besides many simple chemicals, it called for two volumetric solutions, two microscopic stains and three special re-agents, used in stomach analysis. The difficulty in securing correct formulas for these stains and re-agents is generally the most difficult part of their preparation and makes it appear that, if they are not of a kind desirable for the National Formulary, they might find place in the proposed Recipe Book, although, they are, in no way, out of date or un-ethical.

If what has been written for a review of one day's dispensing at one store, is interesting, then more than as much more could be written upon the identical review. It is not for want of material, by any means, but a want of faith in the greater forbearance of those before me and who have suffered, that brings the *finis*.

DISCUSSION.

Mr. Raubenheimer said Prof. Hynson had again demonstrated to the members that the every day practice in the drug store, brought things which are of interest to one and all. The most common incompatibility which they had to contend with was sweet spirits of nitre. It was an unstable preparation because no matter what one mixed it with, it will decompose. Another item was potassium iodide, particularly if there is any acid to decompose it.

He agreed with Prof. Hynson that the cleanliness of capsules is somewhat neglected in the average store. The physician prescribed capsules, in order that the patient might not taste the drug, be it quinine, valerate of zinc, ammonia or iron, and the druggist should use all precaution to have the capsules properly dispensed. According to his recollection, Prof. Lascoff had advocated the use of rubber gloves, but he thought that not to be a good practice. Mr. Raubenheimer believed that mercuric oxide ointment would be used 100 years from now because of its medicinal value. Dr. Hynson's statement was that the ointment was too strong. Mr. Raubenheimer said nobody ever thought of using a ten per cent mercuric ointment in the eyes, but that it did serve as a base to be diluted with petroleum or whatever the physician desired.

Speaking of anhydrous lanoline he reminded the members present that lanoline was originally a trade-mark name for hydrous lanoline, but was not any more. Lanoline meant hydrous wool fat and he made it himself. He never bought any hydrous wool fat. He asked why he should import water from Germany? (Laughter.)

Mr. Hynson said, in regard to oxide of mercury ointment, that it was a more serious matter than Mr. Raubenheimer would have them believe. It was his opinion that a man might have some experience, but that his judgment might not be quite matured, and he would get a prescription for ointment of oxide of mercury, to apply to the eye lids; that one might not remember that the exact strength of the official ointment. Such things did happen.

He said Mr. Raubenheimer did him an injustice as he did not say a word about lanoline; he had specifically mentioned wool fat. Whenever he got a prescription for lanoline he used the copyrighted article because he thought that was what the doctor wanted.

THE AMERICAN INSTITUTE OF PRESCRIPTIONISTS.

H. V. ARNY, PH.D.

Reform in American Pharmacy is the call of to-day. We hear of prospective legislation which will separate the real pharmacy from the bazaar drug store, even as in Germany we find the Apotheke separated from the "Drogen Handlung." A year or so ago much was said of the creation of certified pharmacists by joint committees of physicians and pharmacists, and the latest is the appointment by the New York State Pharmaceutical Association of a Committee of Eleven, to study the entire question from one end to the other.

The interesting subject has been given much thought by the writer ever since the idea of the certified pharmacist was first broached. This idea, while considered sympathetically, never seemed very feasible to one who knew how exceedingly difficult it is to get physicians and druggists in conference assembled, to agree on questions of policy. What physicians consider essential, scarcely fits the views of a majority of druggists, and what the druggists decide on, rarely agrees with medical views of the same subject.

The next thought was that the certified pharmacist should be decided by the medical men alone. The main idea of a certified pharmacist is a man fitted to cater to physicians' wants by accurately filling prescriptions and otherwise contributing to the progress of the healing art. The question therefore rose as to the possibility of establishing the idea of the certified pharmacist under the guise of "accredited agents" of the American Medical Association. This idea, however, was soon abandoned and no one realized more clearly than the writer that any plan of a medical protectorate over pharmacy will not meet with the approval of the majority of pharmacists, even those who specialize on prescriptions.

This led to a third plan, in which the certification of pharmacists is to be done by pharmacists only and this idea is here presented under the fanciful name of The American Institute of Prescriptionists.

Let us imagine the practicing prescriptionists of this association—not the manufacturers, not the professors, nor the frankly commercial retail druggist—forming an organization under the motto, "prescription compounding our foremost consideration," and let them formulate such requirements of membership as follows:

1. The candidate must be a graduate of a recognized college of pharmacy and must be a registered pharmacist in the state wherein he resides. This will be agreed to with little opposition.
2. He must be the majority owner of a pharmacy and an actual compounder in same.

This is apt to cause a split at the beginning, since much available timber may be found among those who are employes in stores owned by others, but this proviso seems essential to head off the inclusion in the plan of corporation drug stores.

3. He must show that ——— percent of the business of his store is in prescriptions.

It will be noticed that the actual percentage is left blank and that the amount of prescription business is expressed as a ratio to the total business rather than as

a minimum fixed quantity. A man running a business of only ten prescriptions a day should be eligible, if his prescription receipts represent say, 30 to 50 percent of his total business; whereas a corporation store putting up fifty prescriptions a day should be ineligible if it were shown that the prescription receipts represent only 10 percent of the total sales.

4. He should show his interest in his prescription department by having it properly equipped with the necessary appliances and properly located in his store.

Any druggist sticking his prescription department on a hot and stuffy platform, midway between floor and ceiling, in order to use the space properly belonging to it for some rankly commercial purpose, shows by that act that he considers his prescription business of minor importance and by that act renders himself ineligible to membership in the Institute. Again, any druggist who is content to run his prescription department with broken graduates, and cracked mortars and with a scarcity of even these, shows he does not care for prescription business. As to suitable appliances, these are to be the subject of a paper at this meeting, so the only suggestion I offer is that the list should be based on the needs of a ten-prescription-a-day business and that of course a proportionally larger list must be formed in those stores where more than ten prescriptions are put up each day.

5. He must have the knowledge and the ability necessary to perform the tests of the pharmacopœia and routine analysis in clinical chemistry and must have in his store the necessary appliances to carry out such work.

A painter's supply store, some years since, used in its advertising literature the legend "a paint seller should know his paints as a druggist knows his drugs," which strikingly indicates the estimate set by the public upon the druggist's ability. The colleges of pharmacy have spent years teaching students how to detect adulterations in chemicals, how to assay drugs and how to determine the quality of powdered drugs by means of the microscope.

It is not, therefore, asking too much to expect the "member of the institute" to be sufficiently interested in the products sold under his name to be willing to examine these by means of official tests.

As to work in clinical chemistry—such as urinary analysis—this is the logical side-line for the prescription pharmacist, and it might be added that unless the pharmacist is ready to assist the physician in this direction, he can scarcely expect to interest the modern practitioner.

6. Membership is limited to a three-year term, and is renewable only when the member's qualifications remain unchanged.

In all callings is found the condition that certain representatives vested with the prerogatives of the occupation in question, find more profitable work and embarrass their original calling by using its prerogatives in their new field of endeavor. A man may honor himself and his country in the national legislative halls. Or he may be a great corporation lawyer and as such win great wealth and distinction. But when a man who has won a reputation in Congress spends his vacation looking after the interests of a corporation, such a combination of functions is—to say the least—in rather bad taste. So it is entirely possible to

imagine that a man selected as "member of the institute" may attract the attention of large commercial establishments who might consider the presence of this person on their staff as a distinct asset. This might be so, and even so it might be a distinct advantage for the person in question to accept the new position, but in this event his privileges as "member of the institute" should automatically terminate and that for the simple reason that membership in the organization is limited to practicing prescription pharmacists who own their own establishments and to such independent prescriptionists only.

Now that the six requirements for membership have been stated, an entirely proper question to ask is who shall enforce these requirements and how? This leads us to the question of organizing the Institute.

We are all aware of the propriety of the private club, which essentially consists of a self-organized group of men or of women of similar tastes and of similar ideals. A small number of these gather together and organize and then invite other desirables to join with them. This is exactly the method that should be used in organizing the American Institute of Prescriptionists.

Let some twenty to fifty prescription druggists, whom we recognize as leaders in retail pharmacy as a profession and those preferably consisting of representatives from every section of this country of ours, get together and organize, and let them, and them only, invite others possessing the qualifications stated above to join them, and thus start the Institute. It should of course be operated under a national charter and if possible the title, "Member of the Institute of Prescriptionists" (M. I. P.), should be legally protected from imitation. While the membership should be unlimited as to numbers, most rigid adherence to the conditions of membership should be observed. On first thought, it would seem that no one would want so trying a position as that of member of the committee on admissions, but the work of the American Conference of Pharmaceutical Faculties clearly shows that severe conditions, strictly adhered to, have the effect of keeping out undesirables and that with little bad feeling.

As to the short period of membership, it is plain that a one-year term is not possible without reorganization each year, hence it will be well to place duration of membership at three years, thus leaving two-thirds of the members at all times in active service.

And after all is said and done, what will be the use of the Institute to its members?

If properly conducted it will be the honor roll of retail pharmacy in America, and a druggist will be as proud to belong to it as a French scientist is to be invited to be long to the Académie Française.

To be a member of the Institute, to have the privilege of attaching to one's name the initials "M. I. P." will carry the prestige which unfortunately neither the registered pharmacist certificate nor any pharmacy college degree can possess.

The registered pharmacist certificate merely gives the right to run a drug business anyway—within the law—that its holder chooses. The college degree is of little value unless the college behind the degree is doing good work, and while a certain degree from a certain college may be a real distinction, the same degree from another college may be a joke. That both the registered pharmacist certificate and the college diploma are considered important, is shown by the fact that

provision is made that the "member of the Institute" shall be the possessor of both documents, but greater than these should be the title "M. I. P.," since it will show all, notably the prescription-writing physician, that here is a man to whom prescriptions are of the first importance, a man who by the vote of his fellows, is shown to be a real pharmacist.

Once launched, the Institute itself will be in a position to devise plans of co-operation that will be of financial advantage to each of its members, but that is a detail that cannot be discussed in this paper.

In conclusion, some one may say that the American Institute of Prescriptionists (A. I. P.) is an attempt to ape after the American Institute of Surgery, which in turn according to some of its critics, is an imitation of the Royal College of Surgeons. Of course, the primal thought of organization in the mind of the writer resembles to some extent the basic principles of the institute of surgery, but in detail the Institute of Prescriptionists no more resembles the surgeons' organization that it does the American Conference of Pharmaceutical Faculties or the association of certified public accountants, both of which are self-constituted private organizations frankly designed to sift the excellent from the inferior. And, if the American Institute of Prescriptionists can accomplish that purpose in retail pharmacy, it will more than justify its existence.

DISCUSSION.

MR. F. M. APPLE:—Mr. Chairman and Gentlemen:—I personally thank Dr. Arny for bringing this paper here, and I think that all of you ought to do likewise. He states in the latter part of his address, the Society of Certified Accountants in this way sifts the good from the bad and protects its Association by that means; and if such an effort should be applied to pharmacy it would be praiseworthy indeed.

We will first of all take up the question of desirability. There is no question but that it would be desirable to have an association of this kind under certain conditions, and those conditions would depend very largely upon the method by which it is organized and the restrictions placed upon the question of membership therein.

Now comes the question of the advisability of it. It would seem as though there could be no objections to this whatsoever; but on thinking over the question you will encounter this difficulty; men who would desire to be enrolled,—and I may be one of them; I don't say I would be one of the eligibles, because I don't know what the requirements are, but those who are rejected would allude to the eligible graduates as a lot of Pharisaical Pharmacists who confer upon themselves degrees, claiming they are better than anybody else, but who cannot substantiate their claims.

The durability of such an association will depend largely upon its effectiveness, that is, how practical it is in its application. That will naturally determine whether it shall be permanent or only a temporary effort. Again, there is a duty incumbent upon us that it shall not be organized in a "hit or miss" or thoughtless manner so that it may interfere with any effort that may be made later in a better way, so if it is not organized with great care it should not be organized, in deference to those who will come after us and who may possibly have better thought on the subject than we have.

As for the requirements, which seems to be "the milk in the cocoanut," as the saying is,—the essential part,—we will agree that any man who wants to be a member of such an Institute should naturally be a graduate of a reputable college of pharmacy, and also be a registered pharmacist in the state in which he practices. As for the second requirement, that he must be the majority owner of the store, that is a very difficult problem to settle. Take, for instance, our beloved Dr. Hynson, who is the father of this Section. I do not know what percentage of the Hynson-Westcott Company he owns, hence I do not know whether he would be eligible for membership in an Institute with such a provision. I have no defi-

nite recommendation to make there, for it is a very knotty problem, but I simply call your attention to that condition as an illustration of what you would encounter if you adopt that principle.

As to the percentage of the prescription business being a vital and essential requirement, I do not think that quantity should determine such a question. Quality should have precedence over everything else. If a man had all the other qualifications and he was unfortunate in being located so that he had to meet certain forms of competition that arose in his career; that he had to include in his business other lines of merchandise which departments he has conducted in harmony with his prescription business, should he be debarred? It depends altogether, to my mind, on the manner in which he conducts his store and how much of his time is devoted to a direct supervision of the prescription department, and not, as I said before, on the percentage of his prescription business as compared to his total volume of business.

As to the appliances, I certainly believe that any man should have appliances to carry out any process of manufacture or dispensing. It is not as vital, to my mind, that a man may have a few graduates with the lips knocked off as that he have mentality represented in first-class clerks, because a first-class clerk with a cracked graduate I would trust every time far more than I would a half-prepared one with a magnificent array or accurately determined prescription graduates. A person ought to have appliances enough to carry out the process properly, but I would add thereto as an essential requirement, reliable assistants. By that means you can control this question automatically. The semi-prepared men to whom I allude are those dangerous fellows, the qualified assistants, who, according to law, are permitted, "temporarily," to run the store; and the word "temporary" has been figured out to mean anything from a half hour to a couple of weeks. If a man wishes to go away on a vacation trip with the expressed intention of coming back he is only away "temporarily." It is based upon the principle that it takes time for a man to make a mistake and jeopardize the health of a community. It does not take but a few seconds of time to bring about a calamity at any time, as we well know.

As for the man being competent to test his drugs, that, I think, is answered automatically by the first requirement; if he is a graduate of a reputable college of pharmacy he should naturally have those attainments, because I think it would be a serious reflection on a college of pharmacy if its graduates could not carry out these processes.

As for the time-limit of membership, I think that three years is too long a period of time for membership, for this reason: that a man may be a good man to-day and for some unexplainable reason he may go wrong to-morrow and the Institute would have to suffer the detriment that would accrue to it from his continued membership, and you could not get rid of the man under the three years period. You do not want to make any limit of that kind. That wants to be so arranged that a man automatically drops himself from the Institute.

And that brings up the question of whether it shall be a membership or a license. I would recommend rather a license than a membership, on the basis, also, of a financial deposit on the part of the man, in order to guarantee his sincerity. I am led to recommend this by something I recently noticed in our local papers in Philadelphia. A golf club was being organized somewhat along this line; that when a man wished to leave the club or was expelled from the club, his money was returned to him. That is why the man could not bring legal action against them. They could get rid of him by saying, "Here is your money; get out." That is the same way, I think, here; the money could be returned, except such portions thereof as would have to be retained to meet current expenses that must be provided for first, and he must agree to that when he is accepted as a member. But I would not tie the hands of an Institute of this kind by a monetary consideration, that a man has any hold whatsoever by reason of any right you have given him, or by reason of any money he has invested therein. Make it so you can immediately get rid of any man that is obnoxious. Keep your escutcheon clear from all blots.

Mr. Mayo then stated that Prof. Arny had hit upon a medium which seemed to be full of promise, and was the first suggestion that seemed likely of solution of this very important problem, and one which had occurred time and time again in his state. At the state meeting

of the New York Pharmaceutical Association held in Saratoga Springs in June, a committee of ten was appointed to discuss this question of the separation of the sheep from the goats. He thought the proper solution of the question was one that required careful deliberation; that it was well worthy of a further study and moved that the proposal be referred to a sub-committee for consideration during the year, with instructions to report to this body. He again referred to the fact of the appointment of the committee in New York, and thought it quite likely that other committees had been appointed in other states.

Dr. Arny stated the idea of the paper was merely to present the subject that the members might think it over. He referred to the appointment of the committee in New York to look into this particular matter. In conclusion, he wished to say relative to Mr. Apple's criticism, that naturally the requirements of membership were purely tentative; that it was merely the thought he was trying to present, and therefore he would be most happy to go before the committee.

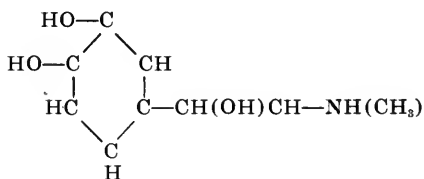
Dr. Apple, replying, said he wished Dr. Arny to understand that his remarks were not criticisms.

THE PHARMACY OF ADRENALIN.

C. P. BECKWITH.

Adrenalin has, to-day, a well-established place in the *materia medica*. In therapy, its field is large and expanding. Its chemistry and pharmacology have been studied elaborately. Of its pharmacy, however, comparatively little has been written. In dispensing this sensitive substance, there is much opportunity for error. I believe it a moderate estimate that of adrenalin-containing prescriptions met in actual practice, more than half are either ill-written or improperly compounded. In the present paper, it is proposed to discuss briefly the pharmacy of adrenalin, and, particularly, to suggest certain expedients and precautions favoring the conservation of its activity alone and in mixture.

The structural formula, when known, constitutes, perhaps, the most precise possible definition of a pure chemical compound. In the case of adrenalin, the formula has been established, beyond doubt, by both analysis and synthesis; for the sake of precision, therefore, let us define adrenalin as the *lævo*-rotatory isomer of the formula,



The *dextro*-rotatory isomer of the same formula, which has been found in the synthetic product only, is probably nearly or quite inert.

While this formula is before us, it is well to observe that the molecule contains groups that characterize it at once as an amine base, an alcohol and a phenol,—an observation that will help to a clearer understanding of its chemical behavior.

Adrenalin occurs naturally in the medulla of the suprarenal gland of warm-blooded animals, including man. Suprarenal glands of oxen, which are most readily obtainable in sufficient amount, supply the adrenalin of commerce. We

have no reason to doubt, however, that the natural substance is the same from whatever animal obtained.

Details of a process, identical in all essential points with that used on the manufacturing scale for the isolation of adrenalin from the gland tissue, may be found in an article by Dr. Takamine in the American Journal of Pharmacy, November, 1901.

Adrenalin of commerce, a nearly white micro-crystalline powder, is substantially pure, containing a very small fraction only of foreign matter. When properly stored, the pure crystals will remain unchanged for many years or perhaps indefinitely, but certain precautions should be observed as to the conditions of storage. Air, ammonia and certain other gases, moisture, strong light and heat, are in different degrees injurious. Under the combined action of air and moisture, adrenalin is decomposed rapidly. It is well, therefore, to store the product away from strong light and heat, in absolutely dry glass bottles or tubes, sealed air-tight. The drying of the container should be very thorough indeed, and, of course, the substance itself should be quite dry. A further precaution, superfluous however in ordinary practice, is to displace the air from the container with a dry inert gas. So protected and hermetically sealed, it is probable that adrenalin would prove absolutely permanent.

The pure substance is slightly soluble in cold water, and to a somewhat greater extent in hot water. Other ordinary simple solvents dissolve it very little, if at all, though aqueous solutions of certain salts have a marked solvent action. For instance, a strong aqueous solution of a borate, dissolves adrenalin abundantly, and borates prevent its precipitation by alkalies from solutions of its salts. Also, a strong aqueous solution of chemically neutral adrenalin chloride, will dissolve an appreciable amount of the adrenalin base.

In virtue of its phenol function, it forms water-soluble compounds with fixed caustic alkalies, but not with their carbonates nor with ammonia. Hence, from strong solutions of most of its salts, while the adrenalin base is partly precipitated by hydroxides or carbonates of strong alkalies, including ammonium, it is re-dissolved by excess of the fixed caustic alkalies only.

None of the solutions mentioned so far, is recommended for use in pharmacy, since in all, the adrenalin is oxidized rapidly on exposure to air.

In virtue of its amine function, adrenalin forms definite salts with the acids, usually very hygroscopic and difficult to preserve in dry form. They are in general very soluble in water and in alcohol, and these solutions may be made sufficiently stable for all ordinary uses. The salts are not very soluble in common simple solvents other than water and alcohol. For most pharmaceutical purposes, therefore, we are limited to the use of the salts of the base, in aqueous or alcoholic solution.

For instance, desiring to make an ointment containing adrenalin, the best practice is to prepare first, a concentrated aqueous solution of the chloride by dissolving adrenalin in the proper quantity of cold, moderately diluted hydrochloric acid, to incorporate the solution with sufficient lanolin, which as you know will take up much water, and to add, finally, whatever other ointment base may be prescribed. In case the prescribed fatty base, is miscible with sufficient alcohol,

it may infrequently be advisable to dissolve the adrenalin in the proper proportion of alcoholic, instead of aqueous, hydrochloric acid.

Very occasionally, ointments, suppositories, bougies, etc., containing adrenalin, are ordered, and the general method for ointments just outlined will suggest how they may be prepared.

Most commonly, however, aqueous solutions are prescribed; in fact commercial solution of adrenalin chloride, rather than the adrenalin base, is the usual starting point in prescription compounding. Some discussion is necessary, therefore, of the composition and properties of this preparation and of the precautions necessary to its conservation.

Commercial solution of adrenalin chloride contains one part per thousand of adrenalin chloride dissolved in physiologic salt solution with about one-half percent of chloretone. It is faintly acid in reaction, tastes of chloretone and salt, smells of chloretone, and, when fresh, is nearly colorless. Stored away from strong light and heat, with the seal unbroken, the solution will retain its activity for a long period. When, however, the stopper is removed and contact with air permitted, a new factor is to be considered. The oxygen of the air is destructive of adrenalin. Given good storage, the precaution most essential to the preservation of the commercial solution of adrenalin chloride, is to minimize contact with air. Only so much as is required for immediate use should be removed from the stock-bottle, which should be stoppered promptly and tightly. With ordinary care in handling, there is, within reasonable time, no necessity for serious loss through deterioration.

The oxidation that occurs upon undue exposure to air, is evidenced by change of color. The solution becomes pink, then red, then brown and a brown precipitate settles out. This fact is not without practical application since the color constitutes a rough, but fairly reliable index, of the potency of the solution. Experiments have been made to discover, if possible, some relation between the shade of color and the amount of deterioration. Solutions have been exposed freely to the air, the several changes of color observed, and physiological assays made from time to time. Of course, any quantitative statement based on personal estimate of a shade of color, is of necessity very crudely approximate. Bearing this in mind, however, and limiting the statement strictly to the undiluted commercial solution, we may say that so long as the color is not deeper in shade than what most persons would call pink, the loss of activity is practically negligible. When it becomes red, the loss of activity is quite measurable. It may amount to 10 or 20 percent of the whole. When brown, with the brown precipitate, the solution should be rejected, though even such solutions often retain considerable activity.

Aside from the physiological assay, which is too complicated for use in the pharmacy, I know of no entirely reliable assay method for adrenalin. Several colorimetric methods have been proposed, but there is none that I dare recommend as wholly accurate and trustworthy. The colors are often fleeting and vary in tint with the nature of the sample. Certain of the proposed reactions, also, are by no means specific for undecomposed adrenalin.

A rough qualitative test, to show the presence of active adrenalin in the commercial solution of adrenalin chloride of the composition already stated, is based on

its conduct with ferric chloride. As you are aware, ferric chloride gives striking and more or less characteristic color reactions with many of the phenols. Catechol, the parent phenol of adrenalin, gives, in dilute aqueous solution with a very little dilute ferric chloride solution, a brilliant green color, which, upon careful addition of very dilute alkali, passes through a series of color-changes from bluish-green to purple-red. Under like conditions, adrenalin acts similarly. The catechol nucleus is responsible for this reaction, so that it is not peculiar to adrenalin. If, however, dilute solutions of catechol and adrenalin chloride be treated with a little very dilute ferric chloride solution without subsequent addition of alkali, and if the two solutions be allowed to stand in the air for some minutes, a difference in their behavior will manifest itself. In the case of catechol, the green color persists; in that of adrenalin, it changes slowly to pink or red. While the test is not absolutely final, it is fair to conclude that a commercial solution of adrenalin chloride retains some activity when a sample, highly diluted, gives with a drop of very dilute ferric chloride solution a green color changing soon to pink or red. Many foreign substances interfere with the test, so that it may not be applicable to adrenalin in mixtures.

Having at hand a solution of adrenalin chloride known to be active, it remains to consider the precautions to be observed in dispensing it, alone and in mixture. Certain mixtures are chemically rational and therapeutically useful. If one is proposed, however, of whose feasibility there is doubt, let me counsel conservatism. Where possible, mixtures are best avoided; adrenalin is a sensitive substance, easily changed by many chemical reagents.

Chiefly to be feared, are alkalies and oxidizing agents. Almost any substance that, chemically, would be classed as an oxidizing agent, is more or less injurious to adrenalin. In this category are such substances as oxygen itself, free chlorine, bromine, iodine and their oxy-acids, permanganates, chromates, nitrites, salts of easily reducible metals, etc. Iron is extremely troublesome, because of its wide distribution and because a very minute amount will suffice to shorten measurably the life of an adrenalin solution. Traces of iron in other chemicals, in distilled water and even in glassware, are decidedly to be reckoned with. Of course, iron utensils should never be brought in contact with adrenalin.

Alkalies are no doubt destructive directly, but mainly they are pernicious, because they very greatly accelerate the destructive action of oxidizing agents. A faintly alkaline solution of adrenalin exposed to the air, will lose its activity very quickly. Such solutions are often prescribed, but ought not to be dispensed, unless confirmed by the physician after he has been informed of their instability. Every solution of adrenalin that is expected to retain its activity, should show a faint acid reaction. I am acquainted with no satisfactory expedient for preparing a stable adrenalin solution, that is not slightly acid. Organic acids and weak mineral acids are not very effective, unless present in considerable amount. A minute trace of a strong mineral acid, that is to say, a highly dissociated acid, is to be preferred.

In conformity with the last statement, the non-oxidizing acids, in reasonable dilution, are not injurious to adrenalin. Dilute sulphuric, sulphurous, hydrochloric, phosphoric, boric, salicylic, acetic, tartaric, citric,—in fact, most of the

acids commonly used in medicine,—are harmless. Oxidizing acids are of course objectionable.

Salts of the common alkaloids, of the alkali metals and, broadly, of the light metals generally, are not intrinsically harmful. If, however, their acid radicals are of weak,—that is to say, slightly dissociated,—acids, they may indirectly diminish the resistance of the adrenalin to oxidation by partial replacement of the trace of free strong acid normally present.

Phenols of the types of carbolic and cresylic acids are harmless. Ordinary camphors, terpenes, and similar bodies are not injurious, save in so far as they may be to a certain extent carriers of oxygen. Most aldehydes of high molecular weight, alcohols and ketones, are probably harmless. Formaldehyde, however, is directly destructive to adrenalin, and the two are wholly incompatible. As little as 1/10 of 1% of formaldehyde added to solution of adrenalin chloride will render it quite inert within a few hours.

In the foregoing statements of incompatibility, exhaustive accuracy is not pretended and doubtless there may be found exceptions. The purpose is merely to characterize certain broad types. An elaborate table of specific incompatibles, even were the data available, is beyond the scope of this paper.

To exemplify the use of these statements, and to emphasize some of the most important points, it will be well to examine and comment upon a few prescriptions. Some of these were submitted for criticism in the regular course of business; some are written arbitrarily to illustrate a particular case. All, however, are such as might be met with in the experience of any pharmacist.

1. \mathcal{R} Solution Adrenalin Chloride..... 1 fluidrachm

Let us begin at the beginning. This prescription requires only, that a fluidrachm be dispensed from stock, yet I venture to say that if filled carelessly, the solution will, in many instances, undergo deterioration far more rapidly than the same solution in the stock-bottle. Certain precautions are recommended that will apply not only to the present case, but to all prescriptions containing adrenalin. Either a glass-stoppered bottle should be used, or else the lower end of the cork should be covered with waxed tissue. The vial should be scrupulously clean and in particular it should be, as nearly as possible, free from alkali and iron in soluble form. It is advisable, therefore, to wash out all bottles with strong hydrochloric acid followed by much distilled water. This, however, is only a temporary expedient, and the best plan is to select an insoluble glass.

2. \mathcal{R} Sol. of Adrenalin Chloride..... 1 volume
Distilled water or physiologic salt solution..... 9 volumes

All the comments on the last prescription, apply equally to this. In addition, one should make sure that the distilled water or physiologic salt solution, is free from alkali and iron. It is a good plan, also, to use water or salt solution that has been freshly boiled and cooled. It has already been remarked that the commercial solution of adrenalin chloride is faintly acid,—a condition necessary to its stability. Here, this acidity is reduced, by dilution, to 1/10 its original proportion. In many ordinary bottles, there is sufficient soluble alkali to neutralize completely this trace of acid, and so to determine the rapid oxidation of the adrenalin. The life of this solution, therefore, would be greatly prolonged by the addition of chemically pure hydrochloric acid, in such proportion that the finished solution

contains about 1/100 of one percent of the absolute acid. Care should be taken that the acid itself is as nearly as possible free from iron, very appreciable amounts of which are present in many lots of, so-called, chemically pure hydrochloric acid.

Even when quite sterile at the outset, solutions like the one under consideration are liable to contamination in use. To prevent the development of fungus, a mild antiseptic may be added. Saturation with chloroform or chloretone would improve such solutions.

3. R	Adrenalin	$\frac{1}{4}$ grain
	Cocaine	5 grains
	Sodium chloride, C. P.	4 "
	Boric Acid.....	10 "
	Chloretone	$2\frac{1}{2}$ "
	Distilled water, sufficient to make.....	1 fluidounce

This solution would probably deteriorate fairly rapidly. There should be present some mineral acid stronger than boric. Very suitable would be hydrochloric acid, C. P. in quantity sufficient to saturate the adrenalin and cocaine, and leave an excess of about 1/100 of one percent of absolute acid in the finished solution. Also the boric acid should be free from iron,—an impurity very common in even the medicinally pure acid.

4. R	Sodium bicarbonate	
	Sodium borate	
	Sodium chloride, aa.....	2.5 grains
	Thymol	$\frac{1}{80}$ grain
	Sol. Adrenalin Chloride.....	1 fluidrachm
	Distilled water, sufficient to make.....	1 fluidounce

Nose and throat specialists sometimes order spray-solutions similar to this. Usually they are designed to be slightly alkaline, so that the addition of acid, even if otherwise advisable, would defeat the intention of the prescriber. In the present case, it would be almost useless to add hydrochloric acid, unless in quantity equivalent to the whole of the sodium bicarbonate and sodium borate. This is of course inadmissible. The remedy is, with the consent of the prescriber, to put up the adrenalin solution separately, instructing the patient to add, in proper proportion, to each dose of the spray-solution immediately before use. If dispensed as it stands, it will become inactive in a very short time.

5. R	Zinc sulphate.....	0.05 gramme
	Cocaine hydrochloride.....	0.2 "
	Adrenalin solution.....	10 drops
	Fennel water, B. P., sufficient to make.....	15. grammes

This prescription, dispensed by an English pharmacist on the order of an oculist, underwent marked deterioration within a few days. In reply to inquiry as to the cause, certain possibilities were pointed out. First, it is to be noted that the ten drops of adrenalin solution were diluted to about 15 cc., thus reducing the acidity of the adrenalin solution to such an extent that the trace of alkali yielded by most common glass bottles would be fatal. Further, zinc sulphate very often contains iron. This salt and, indeed, each of the ingredients, as well as the bottle itself, should be tested for iron. It is highly probable that one or both of these causes was accountable for the deterioration. The remedy would be to use materials and container as nearly as possible free from iron and alkali, and to add, as

already recommended, hydrochloric acid, C. P., up to 1/100 of 1 percent of the finished solution.

6. \mathcal{R} Mercuric chloride..... 4 grain
Sol. Adrenalin Chloride..... 2 fluidrachms
Water, sufficient to make..... 1 fluidounce

When this prescription was compounded by a pharmacist, there appeared, almost immediately, a slight grey precipitate, the solution becoming red. The precipitation was due, of course, to the reduction of the mercury, and the color, to the oxidation of the adrenalin. That the reaction occurred immediately, resulted, perhaps, from the use of slightly alkaline tap-water. Adrenalin chloride and mercuric chloride solution may be mixed, without immediate destructive reaction, if there is present a little free hydrochloric acid. Even with this precaution, however, the adrenalin is destroyed within a comparatively short time. This prescription should not be dispensed.

7. \mathcal{R} Cocaine hydrochloride..... 9 grains
Sol. Adrenalin..... 1½ fluidrachms
Iodine 4 grains
Cherry laurel water, B. P..... 2 drachms
Glycerin, q. s., to make..... 1 fluidounce

This prescription is copied from the Pharmaceutical Journal, Vol. 16, page 484, where it is condemned, because of the evident incompatibility between iodine and cocaine hydrochloride. It is further asserted, however, that the formula might be serviceable if the cocaine hydrochloride were omitted,—an obvious error since iodine is quickly destructive to adrenalin.

8. \mathcal{R} Adrenalin chloride..... 6 grains
Camphor 1 ounce
Phenol ½ ounce
Olive Oil..... 8 ounces

This formula is not practicable by reason of the comparative insolubility of adrenalin chloride in the mixture. A physician stated that a very similar prescription was being filled for him regularly. If so, it is probable that an examination of the product he was using would discover either the almost complete absence of adrenalin or the presence of ingredients not mentioned in the formula.

9. \mathcal{R} Solution Adrenalin chloride..... 1 fluidrachm
Sodium benzoate..... 1 grain

The trace of free hydrochloric acid of the adrenalin solution will be largely replaced by the less efficient benzoic acid. The solution will keep fairly well but will be less resistant to oxidation than the un-modified solution of adrenalin chloride.

To summarize in part,—the following considerations are of first importance in dispensing:

Deterioration of adrenalin solutions is usually due to oxidation, either by the oxygen of the air or by an added oxydizing agent.

Oxidation is retarded by acids, but accelerated by alkalies. Solutions alkaline in reaction, ought not to be dispensed.

In retarding oxidation, a trace of strong acid is, in general, more efficient than the equivalent amount of a weak acid. Solutions acidified with a trace of a weak acid, may be dispensed, but will not be very stable. Resistance to oxidation, other things being equal, seems to be a function of the number of hydrogen ions in a

unit volume of the solution. The acid should be used, therefore, not in proportion to the amount of adrenalin chloride present, but in proportion to the total volume of the finished solution. One one-hundredth of one percent of absolute hydrochloric acid, is a suitable proportion.

Prescriptions including oxidizing agents, should not be dispensed. Iron salts, in particular, are to be avoided. Containers, distilled water, and all materials entering into the prescription, should be as nearly as possible free from iron.

Glassware containing much soluble alkali should not be used.

Contact with air should be minimized.

WHAT PERCENT OF THE PRESCRIPTIONS DISPENSED IN YOUR STORE CAN YOU CONSCIENTIOUSLY DECLARE TO BE DISPENSED WITH FRESH DRUGS AND CHEMICALS?

CORNELIUS OSSEWARD.

The frequency with which we see druggists and very often pharmacists also, lay particular stress, in their advertisements, that nothing but absolutely fresh drugs and chemicals are used in dispensing, is my excuse in asking the above question.

Whenever I see such an advertisement or announcement, it reminds me of another too frequently in print, n. 1.

"PRESCRIPTIONS OUR SPECIALTY."

Our intentions may be good; we may think that we are dispensing fresh drugs; we may tell the dear public that we are specialists in dispensing, but will it stand investigation?

I am convinced that, under the present conditions, it is often impossible for the pharmacist to make such a statement and speak honestly, and that the firm using the largest sign "PRESCRIPTION SPECIALIST," or "PRESCRIPTIONS OUR SPECIALTY," do not possess a Pharmacopœia or National Formulary, and that the common utensils required in dispensing are conspicuous by their absence.

As there has been a great deal of that kind of advertising, which, after a little investigation could not stand the test, it is certainly refreshing to note the tendency for more honest and true statements.

Should we as pharmacists not be very careful how we advertise, how we write our copy? *Be sure* that you can *deliver* that which you promise.

In order to prove to you that we as pharmacists cannot at all times supply fresh drugs because we do not know about them, let me ask you,—

Are you giving your prescription stock as much attention as it requires?

Are you buying the right kind of stock in the right quantity? And are you taking proper care of this stock while in your possession?

Again, how long have these drugs and chemicals been on the jobbers' shelves? And how much care has the jobber given to the proper storing of his goods?

Is it not true that the average pharmacist, with the exception of the larger stores, buys mostly through the jobber, and it is therefore proper to ask whether the jobber looks after his stock, and stores it properly?

Again, the shipping of certain drugs, and especially the biologics, when subjected to great variation of temperature and climatic conditions, may soon become worthless.

Does the average pharmacist give due consideration to these important questions? If not, how can he say that the drugs he uses are absolutely fresh?

Again, does the average pharmacist understand or appreciate the value of proper storing? Does he know which drugs require the most care and attention to keep them in good condition?

At this time, and in this connection, it may be well to call attention to the fact that our Pharmacopœia does not give positive directions as to how some of the important drugs should be cared for and stored.

We may take *Digitalis Leaves* for example,—the only precaution given under *Digitalis*, is that the leaves should be collected from plants of second year's growth at the commencement of flowering.

It says nothing at all as to how these leaves should be stored. It does not state that the stems are worthless, and should be removed. No limit is given as to how long they may be kept on hand, notwithstanding the fact that it is well known that *Digitalis* leaves readily deteriorate, if not properly taken care of.

It is of interest to note how careful other Pharmacopœias are in this respect, when we read in them, under *Digitalis leaves*, the following cautions,—

"When *Digitalis* leaves are to be used, all stems must first be removed." "*Digitalis* leaves must not be kept longer than one year." "*Digitalis* should be freshly powdered whenever called for." "*Digitalis* leaves must be preserved by the use of unslaked lime."

Here then are explicit directions, as to how to keep it, how long to keep it, that the stems must not be used, and that the powder must be freshly powdered each time when called for. Following such precautions there is very little chance for having poor *Digitalis* leaves on hand.

Is it any wonder that Infusion *Digitalis* is practically worthless in a great many cases, not because it has not been properly made, but because the leaves were without any medicinal value?

And then we wonder why the physician prescribes some trade name article. Is it not because he failed to get results with the U. S. P. Infusion?

In our experience we have never failed to satisfy our physicians with getting results from Infusion *Digitalis*, prepared from leaves from which the stems were removed, and the preparation carefully preserved.

An investigation of commercial *Digitalis* preparations made by Weis, of Vienna, agrees with our experience, when he states that at present the best form in which to prescribe *Digitalis* is a freshly-made Infusion of physiologically-tested leaves.

He further states that of seventeen proprietary preparations examined, only three or four were of the strength stated, while others had only one-tenth the strength claimed for them.

If the crude material deteriorates so rapidly if not kept carefully, what about the preparations made from these drugs?

I have visited pharmacies where Fluid Extract and Tincture of *Digitalis* were stocked in gallon bottles, partly empty, the bottles covered with a thick layer of

dust, the dust proving without doubt that these bottles had not been disturbed for some time, and it would be interesting to find the activity of these preparations under such conditions.

Would it not be greatly to the interest of the patient if such preparations could not be purchased in such large amounts?

Here is where the pharmacist who manufactures his own galenicals has the great advantage, and can minimize such deterioration, by manufacturing only enough for his immediate wants, and renewing his stock frequently with a fresh supply.

So much for the simple galenical preparations.

What about the mixtures, the compound preparations, the ready-made prescriptions prepared for future use, instead of preparing them when needed? Can you always claim that these ready-made preparations are freshly prepared? Is it not true that you know nothing at all about when they were made, how long they have been in stock, and what changes of temperature they have been subjected to?

Is it reasonable to expect that these ready-made prescriptions distributed all over the country, very many of them consisting of several ingredients, are less liable to deterioration than the simple galenicals?

Is it not true that we know little regarding the influence of light and heat, and less of the chemical action in these organic compounds, and that for this reason only they should be prepared extemporaneously?

Have you ever examined your prescription file? Do you know the percent of these ready-made prescriptions prescribed? And do you know the percent of galenicals represented on your file?

I have taken the trouble to go over our files, and to get a fair average have taken 1000 prescriptions dispensed during June, and another 1000 dispensed during January.

I have here an itemized list of the proprietary preparations called for in these 2000 prescriptions, also the different U. S. P. and National Formulary products represented in these 2000 prescriptions. To read this list would take too much of our time. I will, therefore, give you the result in a condensed form, showing the number of times each class of preparations was called for in these 2000 prescriptions:

Vinegars	2	TRADE-MARKED OR PROPRIETARY PREPARATIONS.	
Acids	114	Liquids	470
Elixirs	134	Tablets	
Powd. Ext.....	66	Powders	
Sol. Ext.....	6	Suppositories	212
Fl. Ex.....	124	Total	682
Glycerites	6		
Infusions	22	DETAILED STATEMENT OF PREPARATIONS DIS-	
Liniments	8	PENSED IN ABOVE LIST.	
Mucilages	6	Vinegars	2
Mixtures	16	Acid, Boric	30
Plasters	4	" Carbolic	26
Solutions	46	" Benzoic	2
Spirits	40	" Hydrochlor. dil.....	16
Syrups	218	" Phosphor. dil.....	6
Ointments	66	" Nitrohydrochlor. dil.....	2
Tinctures	248	" Picric	4
		" Salicylic	18
		" Tannic	10
Total	1126	Total Acids.....	114

Elix. Calisaya	22	Syrups Ipecac.....	38
" " and Iron	2	" Hydriodic Acid.....	4
" Buchu, Juniper and Pot. Acet....	2	" Citric Acid.....	2
" Phosph. and Pot. Acet.....	2	" Ammon. Hypophos.....	2
" Iron Quin. Strych.....	58	" Orange.....	30
" Heroin and Terpin Hyd.....	48	" Hypophos.....	2
Total Elixirs.....	134	" " Co.	10
P. Ext. Cascara Sag.....	20	" Licorice.....	20
" " Nux Vom.....	16	" Raspberry.....	8
" " Aloes.....	10	" Senna Co.....	2
" " Ignatia.....	5	" Squill.....	16
" " Belladon.....	10	" " Co.	16
Total P. E.....	66	" Sarsa. Co.....	16
S. Ext. Belladon.....	6	" Tolu.....	24
Fl. Ext. Aloes.....	2	" Trifol. Co.....	6
" Belladon.....	4	" Wild Cherry.....	22
" Black Haw.....	2	Total Syr.....	218
" Black Cohosh.....	2	Plaster Canth.....	4
" Cascara Sag.....	10	Spirit Ammon. Arom.....	10
" Cascara Sag. Arom.....	50	" Nitre.....	20
" Cramp Bark.....	2	" Frumenti.....	10
" Can. Indica.....	6	Total Spirits.....	40
" Digitalis.....	4	Solutions Iron Mangan. Pepton.....	8
" Ergot.....	10	" Alk. Antisep.....	6
" Hydrastis.....	6	" Iron Ammon. Acet.....	6
" Leptandra.....	2	" Dobell's.....	8
" Lobelia.....	2	" Arsenic Chlor.....	4
" Hyosey.....	4	" Loeffler's (not official).....	2
" Nuv Vomica.....	6	" Ammon. Acet.....	8
" Phytolacca.....	2	" Alumin. Acet.....	4
" Podophyllum.....	2	Total Sol.....	46
" Passion Flos. (not official)...	2	Ointment Acid Boric.....	12
" Pichi (not official).....	4	" Aq. Rose.....	6
Total Fl. Ext.....	124	" Diach.....	4
Glycerit. Tannin.....	6	" Sulphur.....	6
Infusion Digitalis.....	22	" Wilkinson's.....	8
Liniment Chloroform.....	4	" Zinc Oxid.....	32
" Stokes.....	4	Total Ointments.....	66
Lotion Nigra.....	2	TRADE-MARKED PRODUCTS AND READY-MADE PRESCRIPTIONS.	
" Lead and Opium.....	20	Angier's Emulsion.	
Mucilage Acacia.....	6	Aletris Cordial	
Mixt. Licorice Co.....	16	Alphozone.	
Tinct. Aloes.....	4	Anisol Suppositories.	
" Aconite.....	10	Alkaline Elixir, Merrell.	
" Bellad. fol.....	10	Bromidia.	
" Benzoin Co.....	14	Borolyptol.	
" Canth.....	6	Chiodrastis.	
" Capsic. and Myrrh.....	2	Calophen Tablets.	
" Capsic.....	6	Capsolin.	
" Cardamon. Co.....	6	Cu-Co-Ba Capsules.	
" Digitalis.....	16	Colchi-Sal Capsules.	
" Gentian Co.....	24	Digitol.	
" Hyoscy.....	12	Essence Caroid.	
" Gelsem.....	2	Gonosan Capsules.	
" Iodi.....	12	Hydrastia Tonic.	
" Nux Vom.....	44	Iodosyl Ointment.	
" Opium.....	20	Kepler's Malt.	
" Opium Camphor.....	36	Laxol.	
" Strophan.....	4	Listerine.	
Total Tinct.....	248	Lysol.	

Trommer's Malt.	Syrup Hypophos Co., Fel.
Nephritis Tablets.	Hemabolooids Arsen.
Pruno Codiene.	Iodo Peptonoids.
Syr. Hydr. Acid, G.	Ingluvin.
Sal Hepatica.	Liq. Blaud's.
Toxinol.	Mercury Vasogen.
Tolu Cherry Cordial.	Pepso Laxatone.
Tyree's Powder.	Papayan-Bell.
Panzyne Tablets.	Regulin.
Palmo Dionin.	Ovoferrin.
Panopeptone.	Protonuclein.
Pinoleum.	Pepto Mangan.
Palpebrin.	Petrogen Liniment.
Sajodin.	Solution Strontium Brom. Chap.
Semnos.	Tongaline.
Syrup Trifol. Co.	Seltzer Aperient.
Salfene.	Carlsbad Salts.
Tritipalm.	Gastrogen Tablets.
Tonoids.	Lactopeptin.
Cascara Evac.	Neuronidia.
Waterbury's Cod Liver Oil Co.	Uroform.
Methylene Blue Co. Pills, Upj.	Pil Lapactic.
Pertussin.	Elixir Peptenzyne.
Sanmetto.	Syr. Tolu Heroin Co., Warner.
Ung. Pinolium.	Taka Diastase.
Hinkle's Pills, Warner.	Vag. Suppos.
Ambrozoin Tab.	Benzoinol.
Bronch. Capsules.	Phenolax.
Wine Cod Liver Oil.	Adrenalin Chlor. Sol.
Cerose.	Neurophosphates.
Wampole Cod Liver Oil.	Bismuthol.
Emuls. Cod Liver Oil, P. D. Co.	Kasagra.
Dioxygen.	Pil Hypophos. Co., Up.
Diazyme.	Ess. Pepsin, Fairch.
Formamint Tablets.	Elix. Lactopep.

This then gives us two-thirds, or about sixty-seven percent, U. S. P. and N. F. products, and about one-third, or nearly 33 percent, ready-made preparations.

This is a fair average, and it would be interesting to compare this with several other prescription-files, in different parts of the U. S., to see if this average really does hold.

It shows, however, that in our locality at least, the pharmacist has control over two-thirds of the ingredients prescribed, and can assume responsibility, providing he does most of his own manufacturing, or buys in the proper quantity from reliable sources. But what about the other one-third? Can he take responsibility for that of which he knows nothing at all?

Can you conscientiously state that these goods are absolutely fresh, when you do not know how long they have been made?

Is there no remedy to overcome this unfair condition?

Should not the physician, and also the patient, know that the pharmacist is powerless, that he cannot assume responsibility for one-third of the products he is called upon to dispense under the present conditions?

The vigorous warfare which has been waged by the American Medical Association the last few years against various mixtures, has no doubt reduced the use of many of these ready-made mixtures. Has the pharmacist been as active, has he been conscientious at the prescription counter, has he done his full duty toward both the physician and the patient? Has he supported the splendid work carried on by the Medical Association?

If we, as pharmacists, are at all times careful in our buying, as to quality, and

also quantity; take proper care of our stock; manufacture our own galenicals in such quantity as needed, and dispense the prescriptions entrusted to our care faithfully, and honestly, I am sure that the use of these ready-made products will not be as popular in the future.

And it may be well to always remember that:—

The public will come to the pharmacist who can deliver *fresh goods*.

It is ready and eager to trust you if you will deliver *fresh goods*.

But don't take the prescription, and make out the bill,

Unless you are sure you'll be able to fill

That prescription, because it won't pay you until

You *deliver* Fresh Goods.

DISCUSSION.

Prof. Hynson said he was much interested in the subject of this paper and the point he wished to bring out was, that we must not condemn as ready-made, something that is really a definite chemical or a stable compound, even if it were proprietary. A great many of the compounds referred to are just like our elixirs, and there was no reason why they should be fresher than those.

Mr. Osseward replied that he had included some preparations that would keep for almost an indefinite time, and had only tabulated them for the main purposes of his paper.

Mr. Jones expressed himself as being very greatly interested in the subject as Mr. Osseward had treated it. He had had experience in the investigation of conditions of products in the average drug-store in many places. He had served as the Chairman of the Committee on Standards in his state (South Dakota), and had done work for its drug-department. He had called the attention of the Drug Commissioners to the fact that the condition throughout the state was not very favorable as to the freshness of drugs that were used in the compounding of medicines. The fault was not all with the retailer; he divided the responsibility with the jobbers, and, to some extent, with manufacturers. With the consent of the jobbers, an investigation had been made by the Drug Commissioners and it was found that a large percentage of the drugs, as they were sold to the retailer, were given little attention as to their freshness and purity. He thought that perhaps twenty-five percent of the drug trade in his state paid attention to the proper dispensing of drugs, and seventy-five percent paid very little attention to it. He thought this condition would hold good the country over. The condition to-day is much better throughout the country than three, four, or five years ago. He thought the druggists should pay special attention to the proper condition of their drugs and the proper storing of them, and that with the exercise of a little care a wonderful improvement could be made in their condition. He asked Mr. Osseward how long he would consider an Infusion of Digitalis fresh. Mr. Osseward replied that he was absolutely opposed to stock Infusion of Digitalis. It should be always freshly made.

Mr. Jones asked if the stems of the leaf should be removed from the standardized article before using? Mr. Osseward replied that in the standardized drug he had found but very few stems, and these he did not remove. Mr. Jones further inquired if Mr. Osseward would advocate the use of any other than standardized Digitalis. Mr. Osseward replied that he would not, especially for the infusion, for when the physician prescribed that preparation he looked for immediate results.

Mr. Hostmann inquired of Mr. Osseward as to his authority for his statements as to the deterioration of digitalis leaves. In his reply, Mr. Osseward said it was better to be on the safe side, and he would not use any digitalis that he knew to be over a year old. He had no definite authority for this, but he took this position from an excess of caution.

Mr. Hostmann said he had heard Prof. Hatcher, who had spent the best years of his life investigating the digitalis question, say that he had examined more than one sample of digitalis leaves that were quite old, some almost twenty years old, that had been carelessly kept in paper bags, and that these older drugs assayed better than samples that were only one

or two years old that had been properly cultivated, collected and stored. He practically stated that, as long as the digitalis leaves are all right when grown, they retain their strength for many years.

Prof. Hynson asked if Mr. Hostmann remembered what Dr. Hatcher had said about the permanency of preparations of digitalis? Mr. Hostmann replied that while it had been some time since the lecture he felt quite sure that the Professor stated that he had examined tinctures of digitalis more than ten years old, and that they showed no deterioration of strength,—that is they tested even better or at least as good when tested physiologically as those freshly prepared from selected leaves. The Professor's statement, with regard to the relative values of fluidextract and tincture had slipped his mind, but he was quite sure he had made the statement he quoted.

Mr. Hall agreed with Mr. Osseward as to the infusion of digitalis. If one would make a sample of the infusion and put it under observation, changes would be observed in it in twenty-four hours. It might retain its efficacy for a week or two, but it should be freshly prepared when prescribed. As to the deterioration of other preparations of the drug, he stated that some four to six years ago samples were collected for physiological testing by the University of Ann Arbor. He furnished for test a sample of fluidextract of digitalis which must have been nearly fifteen years old, and this sample showed the best results on test.

Mr. Becker stated that on the containers for Allen's digitalis leaves, was printed the statement of the results of their assay, and he asked how much regard should be paid to that statement.

Mr. Holzhauer said that this statement is made according to their own standard; that it would always or nearly always, come up to the regular standard or go above it. He did not believe that the trade should adopt everybody's standard as a standard for strength. He had seen samples of Allen's leaves that assayed almost twice their stated strength.

Prof. Hynson asked what system was in use by the members to indicate the age of a product. He would like to know how it was possible to tell whether one had fresh drugs in his store or not. Mr. Osseward said, the only way he could suggest was to buy the drugs direct. Mr. Hynson then inquired how, by looking at a container, one could tell the age of its contents? Mr. Osseward replied that there were a number of drugs for which there was not much call, and that he kept a fairly good index of his goods and at stated periods he went over those and in that way he got a very fair idea of how old his stock was. Another and a very important thing was to be careful of the amount of goods purchased. There were many things purchasable in quantity which had an attractive discount, yet he thought the rule to be followed in the purchase of certain goods, was not to purchase more than could be used in a certain number of months.

Dr. Wulling said, that while he could not answer Prof. Hynson's question directly yet he could advance this suggestion. At the University of Minnesota they had demonstrated that a qualified pharmacist can raise his own digitalis, that is the equal of Allen's or any other. Minnesota has a fair climate and any state that had a milder climate ought to be able to succeed better than Minnesota. They had been doing experimental work along this line for three or four years and much of the drug that they had raised had been converted into fluidextract and tincture, but they did not raise sufficient to supply all those who desired to experiment with it. They were cultivating it only for the purposes of education, but they had certainly determined that there was no difficulty in its cultivation, and those of the members who possessed a plot of land ten by fifteen feet in size can raise every year enough digitalis at least for one year. He advised, however, that tests should be made of the drug, both by the pharmacopœial assay and biologically. Possibly every one did not possess the facilities for the latter. Pharmacists in a city could cultivate a little plot of digitalis on the outskirts of the city, but he cautioned them that certain inexperienced botanists have exhibited a mild form of poisoning acquired by handling the drug. Another word of caution was this, that there are many who desire to cultivate medicinal plants who are not qualified by sufficient pharmaceutical training. It was not enough to possess agricultural knowledge but the one who cultivated digitalis should also be a pharmacist. They were advising persons not to attempt the cultivation of medicinal drugs unless they had some sort of pharmaceutical training.

Prof. Hynson said the point he wished to elucidate was that the time had arrived when druggists must have some way of knowing the date of the receipt of his drugs. Some months ago he had asked the receiving-clerks in both stores to date everything that they received. He did not have "August 24, 1914," put on the goods, but he had the stamps made this way, "8—24—4," in consecutive numbering and that told him the story. If anyone had a better suggestion than that he would like to have it explained. He referred to the statement of Mr. Osseward relative to fresh goods and invoices, and he said that his firm had taken an invoice several years ago and that invoice embraced 17,000 different articles. If there were some way to indicate when these articles were purchased it would be most desirable. A member stated that the system used by him was that of employing the first two figures to represent the month of purchase. If an article was purchased in January, he put a zero in front of the one, thus 01. If bought in August the mark on the goods would be "08." The month would be indicated by the first figures, then the next figures show the cost, and the next the day of purchase. Say that the figures are 081725, it will show that the goods were bought on the twenty-fifth of August and that they cost seventeen cents. Initials were added to show from whom the articles were purchased.

Mr. Apple said he had found it to be an advantage to combine the date with the cost-mark.

Chairman Nitardy explained the plan in use by his firm. In order to indicate the date on which any preparation was made, they used a numbering-stamp of which the first two numbers represented the year, and the last three numbers the day of the year;—thus, 14125 meant, the 125th day of the year 1914.

Mr. Osseward said that the main point sought to be brought out by his paper was that we must pay more attention to the storage of our goods.

Mr. Charles T. P. Fennell had occasion to buy some digitalis leaves in March of the present year and he wished to know the exact date of their importation. He ascertained that they were imported in July of 1913, while the jobber from whom he purchased them assured him that they came over in April, 1912. Consequently the stamp did not always accurately indicate the age of the drug. He then asked Dr. Wulling to give them more details as to the cultivation of digitalis in Minnesota.

Dr. Wulling said that they had investigated the matter from different points of view and had made many ash-determinations. The first year's crop met every requirement of the Pharmacopœia. Their results had been remarkable. He had been asked by a number of gentlemen for information regarding the cultivation of this drug and while he did not wish to thrust himself into the discussion, he would be willing to give brief information regarding their experiments if it was so desired.

Mr. Jones inquired if Dr. Wulling would advise the growing of digitalis by pharmacists. Dr. Wulling replied that he could only say, they had tried it in Minnesota with success. He, therefore, would deduce the probability of success elsewhere.

They did not plant the seed in the open. They began indoors in March, in order to have the plants of sufficient size to mature during the first year. In an adjoining room were a number of samples, fifteen or twenty, grown in their medicinal garden. All digitalis whether home-grown or otherwise, should be tested to see that it met the pharmacopœial requirements. A physiological test could be very easily made if one knew how to make it.

Mr. Meyer advised the labelling of infusion of digitalis with a "Shake" and "Keep in a growing the plant in Brooklyn, N. Y., and getting very good results from the first year's crop, sowing the seed out-of-doors. They recently had a demonstration in New York City that was rather interesting, made by two senior students of the College of Pharmacy. These students were sent to Dr. Hatcher for four lessons in pharmacological assaying. They described Dr. Hatcher's methods and they appeared to present no difficult problems.

Mr. Meyer advised the labelling of infusion of digitalis with a "Shake" and "Keep in a Cool Place" labels. He was gratified to learn from Mr. Osseward's paper that sixty-seven percent of the prescriptions described there were for official preparations. This he thought was very encouraging.

FILLING CAPSULES—A SUGGESTION.

FRANKLIN M. APPLE, PHAR. D.

Anyone who has been called upon to fill into capsules dry powders realizes the difficulty that one experiences when endeavoring to place large amounts of bulky medicines, such as Cinchonidia Salicylate, in a small-sized capsule, and this can readily be demonstrated by the trouble one encounters when ten grains of this chemical is directed to be dispensed in the smallest-sized capsule possible to contain it.

The commonplace method of filling capsules with medicines in a dry state consists of forcing the powder into the two ends of the empty capsule by repeated plunging of the halves of the capsule into the powder, and then trying to force the two portions together, which oftentimes results in the ends of the capsule being crushed in, due to the condition of the powder therein contained.

By proceeding as has been customary to fill the two ends of the capsule, and placing them together with gentle twisting thereof, so that the two ends overlap somewhat, we are ready to utilize the suggestion here offered as follows:—Place the capsule between the thumb and forefinger of one hand, the ends of the capsule being the portions of the same in contact with one's body, then proceed to rotate the capsule with the forefinger and thumb of the other hand, pressing upon the body of the capsule to as great an extent as is allowable, whilst rotating it, which results in the powder being forced into the remotest portions of the capsule's ends, displacing the air that had been confined therein by the previous method of forcing the powder into the confined space, thereby fortifying the film of gelatine that constitutes the ends of the finished capsule, so that greater pressure can be placed thereon from outside without danger of crushing in the end.

Assuredly, as the space occupied by the undesired air is now filled with powder, more of the latter can be placed therein, or the space occupied by the former amount of medicine will be less than it was before the capsule was subjected to the proposed treatment.

It is really surprising how much one can reduce the bulk of a powder when resorting to this method of filling capsules therewith in a dry state.

DISCUSSION.

Mr. Apple illustrated his method of filling capsules. In order to remove the objection to the capsule coming in contact with moist fingers, he suggested covering the fingers at points of contact with court-plaster.

The Chairman said that the paper demonstrated how many little points there were in the practice of Pharmacy that were helpful and of value to every one. It was seldom that these little things were thought of enough importance and value to be brought out in a paper.

Prof. Hynson asked Mr. Apple if the substances used were always powdered, before filling the capsules, and was informed that the writer always dispensed the powder in a fine state of sub-division. Another question by the same gentleman was, as to the amount of powder he placed in the capsule. Mr. Apple said that he filled the capsules with just as much powder as he could get into each end. Mr. Hynson queried whether, if the capsules are filled by the powder, so that the cap will not occupy the place it did on the empty capsules, if Mr. Apple would dispense them that way? Mr. Apple replied that he could always force the capsule together so that it was entirely closed. Mr. Hynson said that he had noticed that some dispensers would use, for instance, a No. 2 capsule, and after filling would dispense it of the same length as a No. 1. He wished to ascertain as to the general practice regarding this matter.

Contributed and Selected

UNITED STATES PHARMACOPŒIA.

NINTH REVISION.

ABSTRACT OF PROPOSED CHANGES WITH NEW STANDARDS AND DESCRIPTIONS.

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PART VI—FIRST PROOF.

A sixth installment of the Abstract of proposed new descriptions and standards, and of changes in descriptions and standards is herewith submitted.

This Abstract embraces a miscellaneous group of pharmacopœial articles and includes most of those which have not already been published in abstracted form.

Where no reference is made to rubrics, formulas, directions, tests, or assays, it is understood that the material facts remain the same as in the United States Pharmacopœia, Eighth Revision.

Comments should be sent to the Chairman of the Revision Committee, Joseph P. Remington, 1832 Pine street, Philadelphia.

Acidum Citricum.—Melting point omitted. Added tests: An aqueous solution of Citric Acid (1 in 10), which has been nearly neutralized with ammonia water, remains clear on the addition of calcium sulphate T. S. (oxalic acid). Heat about 5 Gm. of powdered Citric Acid for fifteen minutes on a water-bath with 5 Cc. of sulphuric acid in a porcelain dish, which has been previously rinsed with sulphuric acid, keeping the mixture protected from dust. No darker color than yellow develops (tartaric acid). Dissolve 10 Gm. of Citric Acid in 20 Cc. of distilled water, add 2 Cc. of sulphurous acid and boil the mixture until the odor of sulphur dioxide is barely perceptible. Cool the solution, mix it with 1 Cc. of a solution of sodium cyanide in distilled water (1 in 10) and follow this immediately with stronger ammonia water until the solution possesses a slight odor of ammonia. When cold, transfer the solution to a glass-stoppered cylinder of practically colorless glass, graduated at 50 Cc., dilute with sufficient distilled water to measure 50 Cc. and add 3 drops of a solution of sodium sulphide in distilled water (1 in 10). After mixing the solution well, the color produced, if any, when viewed downward against a white surface, is not greater than the color of a solution prepared as follows: To prepare the solution for the blank test, dissolve 3 Gm. of ammonium chloride (conforming to the tests for purity described in the Appendix), in 20 Cc. of distilled water, add 4 Cc. of a solution containing 0.080 Gm. of lead nitrate in 1000 Cc. of distilled water, and then 1 Cc. of diluted hydrochloric acid. Treat this solution with sulphurous acid, sodium cyanide and stronger ammonia water, then dilute and mix with sodium sulphide

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as described above. Before adding the sodium sulphide solution, the liquid must possess a distinct odor of ammonia. The two cylinders used must be matched and must be of practically colorless glass and have the same internal diameter (lead).

Acidum Hydriodicum Dilutum.—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.” Added test: Mix 0.5 Cc. of Diluted Hydriodic Acid with 10 Cc. of distilled water, add 8 Cc. of silver nitrate T. S. and 6 Cc. of ammonium carbonate T. S., digest the mixture for 10 minutes on a bath of boiling water, cool, and filter. The filtrate, upon supersaturating with nitric acid, should not become more than slightly opalescent (chloride). Residue of 8.3 percent. on evaporation changed to 3 percent. on evaporation and ignition at low red heat.

Acidum Hydrobromicum Dilutum.—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.” Residue on evaporation changed from “no appreciable residue from 10 Cc.” to “not more than 0.0025 Gm. from 25 Cc.” *Assay.*—Weigh accurately about 20 Cc. of Diluted Hydrobromic Acid, dilute it with 30 Cc. of distilled water, and titrate with normal potassium hydroxide V. S., using methyl-orange T. S. as indicator.

Acidum Hydrochloricum.—Rubric changed from “31.9 percent.” to “not less than 31 percent. nor more than 33 percent.”

Acidum Hydrochloricum Dilutum.—Rubric changed from “10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

Acidum Hypophosphorosum.—Rubric changed from “30 percent.” to “not less than 30 percent. nor more than 32 percent.”

Acidum Hypophosphorosum Dilutum.—Rubric changed from “10 percent.” to not less than 9.5 percent. nor more than 10.5 percent.” Added test: Neutralize a portion of the Acid with ammonia water, filter and render the filtrate alkaline with ammonia water; it shows no turbidity with calcium chloride T. S. Modified test: 6 Cc. of Diluted Hypophosphorous Acid with 3 Cc. of nitric acid, and 10 Cc. of distilled water, evaporated to dryness on a water bath, should not respond to the arsenic test.

Acidum Nitricum.—Rubric changed from “68 percent.” to “not less than 67 percent. nor more than 69 percent.”

Acidum Phosphoricum.—Rubric changed from “85 percent.” to “not less than 85 percent. nor more than 88 percent.”

Acidum Phosphoricum Dilutum.—Rubric changed from “10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

Acidum Sulphuricum.—Rubric changed from “not less than 92.5 percent.” to “not less than 93 percent. nor more than 95 percent.”

Acidum Sulphuricum Dilutum.—Rubric changed from “not less than 10 percent.” to “not less than 9.5 percent. nor more than 10.5 percent.”

Acidum Tartaricum.—Melting point omitted. Added test: Dissolve 10 Gm. of Tartaric Acid in 20 Cc. of distilled water, add 2 Cc. of sulphurous acid and boil the mixture until the odor of sulphur dioxide is barely perceptible. Cool the solution, mix it with 1 Cc. of a solution of sodium cyanide in distilled water

(1 in 10) and follow this immediately with stronger ammonia water until the precipitate formed is redissolved and the solution has a slight odor of ammonia. When cold, transfer the solution to a glass-stoppered cylinder of practically colorless glass, graduated at 50 Cc. Dilute it with sufficient distilled water to measure 50 Cc. and add 3 drops of a solution of sodium sulphide in distilled water (1 in 10). After mixing the solution well, the color produced, if any, when viewed downward against a white surface is not greater than the color of a solution prepared as follows: Dissolve 2 Gm. of ammonium chloride (conforming to the tests for purity described in the Appendix), in 20 Cc. of distilled water, add 4 Cc. of a solution containing 0.080 Gm. of lead nitrate in 1000 Cc. of distilled water, and then 1 Cc. of diluted hydrochloric acid. Treat this solution with sulphurous acid, sodium cyanide and stronger ammonia water, then dilute and mix with sodium sulphide as described above. Before adding the sodium sulphide solution, the liquid must possess a distinct odor of ammonia. The two cylinders used must be matched, must be of practically colorless glass, and have the same internal diameter (lead).

Adeps Benzoïnatus.—10 Gm. of Siam Benzoin directed instead of "20 Gm. of Benzoin."

Aether.—Rubric changed from "about 96 percent." to "from 95.5 percent. to 97.5 percent., by weight of ethyl oxide." Added requirement: Ether for anesthesia is to be dispensed only in small, well closed containers and is not to be used as an anesthetic after the original container has been open twenty-four hours. Specific gravity: changed from "0.716 to 0.717" to "from 0.713 to 0.716" at 25° C. Boiling point changed from "about 35.5° C." to "about 35° C." Added description: It is slowly oxidized by the combined action of air, moisture and sunlight with the formation of peroxides, which produce explosive compounds. Modified tests: The moist residue left on the spontaneous evaporation of 25 Cc. of Ether from a shallow dish is odorless and neither reddens nor bleaches blue litmus paper. Dried at 100° C., this residue does not exceed 0.001 Gm. On shaking 10 Cc. of Ether occasionally during one hour with 1 Cc. of potassium hydroxide T. S. in a glass-stoppered tube, protected from light, no color is developed in either liquid (aldehyde). Added test: Shake 10 Cc. of Ether occasionally during one hour with 1 Cc. of a freshly made solution of cadmium potassium iodide (1 in 10) in a glass-stoppered cylinder, previously rinsed with the Ether under examination and protected from light; no color is developed in either liquid (peroxides). Test for undue amount of alcohol or water omitted.

Aqua Hamamelidis.—Process omitted. New description: A saturated aqueous distillate obtained by distilling hamamelis bark with steam or water and containing not less than 14 percent. by volume of absolute alcohol. Clear and colorless, or not more than faintly opalescent or slightly yellowish liquid having a characteristic aroma and taste. Added tests: Neutral or only faintly acid to litmus. Specific gravity: 0.979 to 0.982 at 25° C. Free from mucilaginous or fungus growths or an acetous odor. It gives no reaction with hydrogen sulphide T. S. or with ammonium sulphide T. S. (metallic impurities). Not more than 0.025 Gm. of residue remains on evaporating 100 Cc. to dryness on a water bath (limit of

dissolved impurities). Assay for alcohol content by general method in Appendix. Add 8 drops of an aqueous solution of resorcinol (1 in 200) to 5 Cc. of Hamamelis Water, and then carefully pour this upon 5 Cc. of sulphuric acid, contained in a test-tube, in such a manner that the two liquids do not mix. After standing 3 minutes a rose-red ring should not appear at the line of contact of the liquids nor should a distinct, white layer appear above this zone (formaldehyde). Ten Cc. of Hamamelis Water should give no reaction for methyl alcohol when treated according to the test given under alcohol for the detection of methyl alcohol.

Aspidosperma.—The dried bark of *Aspidosperma Quebracho blanco*, Schlechtendal (Fam. Apocynaceæ), without admixture of more than 2 percent. of wood and other foreign matter. In irregular chips or in longitudinal pieces attaining a length of 14 cm. and a thickness of 35 mm.; outer corky layer from 3 to 35 mm. in thickness, brownish-gray or reddish-brown and deeply furrowed, frequently somewhat reticulate with longitudinal and shallow transverse fissures, the crevices being occasionally lined with the mycelia of a grayish mould; outer surface of bark from which the cork has been separated, light reddish-brown and usually more or less roughened; inner surface occasionally with adhering wood, otherwise light yellowish-brown to light reddish-brown, longitudinally finely striate and finely porous; fracture short-fibrous with projecting bast fibers; nearly inodorous, taste bitter and slightly aromatic. Under the microscope transverse sections of *Aspidosperma* show a number of successive layers of cork separated by large groups of stone cells, isolated bast fibers and parenchyma; inner bark with starch-bearing medullary rays 1 to 5 cells in width, separating narrow wedges composed of large prominent groups of stone cells in which are occasionally included one or more thick walled bast fibers; bast fibers usually single, very thick walled, strongly lignified and surrounded with crystal fibers and starch-bearing parenchyma. Powder: Reddish-brown, bast fibers single, very long and surrounded by crystal fibers, the crystals being in prisms frequently terminated by pyramids and from 0.008 to 0.030 mm. in length; stone cells in large thick groups composed of numerous more or less tabular cells; cork cells more or less polygonal in outline with thick, slightly lignified walls; starch grains single or 2 to 4 compound, the individual grains spherical, ovoid or more or less planoconvex, from 0.003 to 0.025 mm. in diameter.

Calcii Glycerophosphas.—The normal calcium salt of glycerophosphoric acid containing not less than 90 percent. of anhydrous normal calcium glycerophosphate. A fine white powder, odorless and almost tasteless, somewhat hygroscopic. One Gm. dissolves in about 50 Cc. of water at 25° C.; soluble in less water at a lower temperature; the presence of citric acid increases its solubility; insoluble in alcohol. An aqueous solution shows an alkaline reaction to litmus and to phenolphthalein. A cold, saturated, aqueous solution yields white, iridescent scales of anhydrous Calcium Glycerophosphate when heated to boiling. When heated above 170° C. the salt is decomposed, evolving inflammable vapors and at a red heat is converted into calcium pyrophosphate. A saturated aqueous solution of the salt yields with ammonium oxalate T. S. a white precipitate, insoluble in acetic acid but soluble in hydrochloric acid. With lead acetate T. S. the

saturated solution yields a white precipitate which is soluble in nitric acid. Dissolve 1 Gm. of Calcium Glycerophosphate in 10 Cc. of diluted nitric acid and add an equal volume of cold ammonium molybdate T. S.; no precipitate should be formed within one hour (phosphates). On heating the mixture, however, a yellow precipitate will be formed. Ten Cc. of an aqueous solution of the salt (1 in 100) in water, acidified with a few drops of hydrochloric acid, does not respond to the test for heavy metals. Dissolve 0.1 Gm. of the salt in 10 Cc. of diluted nitric acid and add 1 Cc. of silver nitrate T. S.; a distinct opalescence may appear but no precipitate within one minute (chloride). Dissolve 0.1 Gm. of the salt in 10 Cc. of diluted hydrochloric acid and add 1 Cc. of barium chloride T. S.; no distinct turbidity appears within one minute (sulphate). Shake 1 Gm. of finely powdered Calcium Glycerophosphate with 25 Cc. of absolute alcohol, filter the mixture, evaporate the filtrate on a water bath and dry the residue for an hour at a temperature not exceeding 70° C. The resulting residue does not weigh more than 0.01 Gm. (limit of alcohol, soluble impurities, etc.). Weigh accurately from 0.5 to 1 Gm. of the finely powdered salt and dry it to constant weight at a temperature of 130° C.; the loss does not exceed 10 percent. (limit of water). Weigh accurately about 0.4 Gm. of the salt, previously dried to constant weight at 130° C., dissolve it in 20 Cc. of a 5 percent. solution of acetic acid and add 30 Cc. of distilled water. Heat the mixture to boiling and add an excess of ammonium oxalate T. S. Collect the resulting precipitate, wash, dry, and then ignite it until of constant weight. This residue of calcium oxide weighs not less than 23.47 percent. of the weight of Calcium Glycerophosphate taken. Weigh accurately about 1 Gm. of Calcium Glycerophosphate and ignite it to constant weight; the resulting residue of calcium pyrophosphate weighs not less than 54.4 percent. of the amount taken.

Ceratum.—White Petrolatum omitted; new formula: White Wax, 300 Gm., Benzoinated Lard, 700 Gm.

Ceratum Cantharidis.—Cantharides, in No. 60 powder, 350 Gm., Glacial Acetic Acid 25 Cc., Oil of Turpentine 150 Cc., Yellow Wax 175 Gm., Rosin 175 Gm., Benzoinated Lard 200 Gm. To make 1000 Gm. Macerate the Cantharides for 48 hours in a warm place, in a covered container, with the mixed Oil of Turpentine and Glacial Acetic Acid. Melt together the Rosin, Yellow Wax and Lard, add the macerated Cantharides and heat the mixture on a water-bath, with occasional stirring, until it weighs 1000 Gm. Finally stir until firm. Formerly 320 Gm. of Cantharides were macerated with 150 Gm. of Liquid Petrolatum for 48 hours under the same conditions, the mixture was then added to the melted Rosin, Wax and Lard and heated for one hour on a water-bath before cooling.

Collodium Flexile.—New formula: Collodion 950 Gm., Camphor 20 Gm., Castor Oil 30 Gm. To make 1000 Gm. Weigh the ingredients, successively, into a tared bottle and shake the mixture until the Camphor is dissolved.

Cresol. — Modified definition: A mixture of the isomeric cresols ($C_6H_4CH_3OH$) obtained from coal tar. Specific gravity changed from "1.036 to 1.038" to "from 1.030 to 1.038" at 25° C. One Cc. of Cresol dissolves in about 50 Cc. of water, usually forming a cloudy solution; it is miscible with alcohol, ether, benzene, petroleum benzin, and glycerin; it is soluble in solutions

of the fixed alkali hydroxides. Added test: A saturated, aqueous solution of Cresol becomes blue-violet on the addition of ferric chloride T. S. and is neutral or shows a slightly acid reaction to litmus. Modified test: A solution of 1 Cc. of Cresol in 60 Cc. of water shows not more than slight turbidity (hydrocarbons).

Elixir Aromaticum.—No change.

Elixir Adjuvans.—Title changed to Elixir Glycyrrhizæ and the amount of Fluidextract of Glycyrrhiza changed from 120 Cc. to 125 Cc. per 1000 Cc.

Emplastrum Belladonnæ.—Process omitted. Rubric changed from "not less than 0.38 percent. nor more than 0.42 percent. of mydriatic alkaloids" to "30 percent. of extract of belladonna leaves and yielding not less than 0.35 percent. nor more than 0.40 percent. of mydriatic alkaloids." It may be made with a vehicle of rosin plaster or rubber adhesive plaster. *Modified Assay*: Remove the cloth from the face of the plaster and introduce 10 Gm. of the spread plaster cut into strips, into a flask, add 50 Cc. of chloroform, and shake it until the plaster is dissolved. Pour the chloroform solution into a 250 Cc. beaker and wash the cloth upon which the plaster was spread, and which is in the flask, with two portions of 25 Cc. each of chloroform, adding the washings to the chloroform solution in the beaker. Then wash this cloth with 80 Cc. of alcohol containing 1 Cc. of ammonia water and pour the washings into the chloroform solution in the beaker. Stir the mixture gently and allow it to stand until the rubber has separated into a compact mass. Dry the cloth upon which the plaster was spread, weigh it and subtract its weight from the original weight of the plaster. Pour the chloroform-alcohol solution into a 350 Cc. separator, rinse the beaker and rubber with 10 Cc. of alcohol and add the rinsing to the separator. Then add to the separator 100 Cc. of water, rotate the mixture until thoroughly mixed and allow it to stand until the liquids separate. Then draw off the chloroform into a second separator containing 50 Cc. of water, shake it thoroughly and after separation draw off the chloroform into a beaker and pour the aqueous solution into the first separator. Return the chloroform solution to the second separator and shake out the contents of the first separator with two portions of 10 and 5 Cc. each of chloroform, adding them to the chloroform in the second separator. Completely extract the alkaloids from the chloroform solution by shaking it out repeatedly with weak sulphuric acid. Collect the acid washings in a separator and add ammonia water until the solution is decidedly alkaline to litmus, and completely extract the alkaloids by shaking out repeatedly with chloroform. Filter the chloroform solution through a pledget of cotton, evaporate it to dryness and dissolve the alkaloids from the residue in exactly 5 Cc. of tenth-normal sulphuric acid V. S., and titrate the excess of acid with fiftieth-normal potassium hydroxide V. S., using cochineal T. S. as indicator. Each cubic centimeter of tenth-normal sulphuric acid V. S. consumed, corresponds to 28.92 milligrammes of mydriatic alkaloids.

Emplastrum Cantharidis. — Cantharides Cerate, Rosin Plaster spread on fabric, each, a sufficient quantity. Prepare Cantharides Plaster by spreading cantharides cerate upon rosin plaster, leaving a margin around the edges. Each square centimeter of spread plaster is to contain 0.1 Gm. of cantharides cerate.

It may also be spread on muslin, paper, or other suitable material. It should be made extemporaneously.

Emplastrum Capsici.—No change.

Emplastrum Plumbi.—Lead Oxide 1000 Gm., Olive Oil 1000 Gm., Lard 1000 Gm., Boiling Water, a sufficient quantity. Heat the Olive Oil and Lard in a bright copper or other suitable vessel of a capacity of not less than four times the bulk of the ingredients, sift the Lead Oxide through a No. 80 sieve upon the surface of the hot liquid and mix thoroughly. Then gradually add 350 Cc. of Boiling Water, and continue the boiling, constantly stirring with a wooden spatula, and adding sufficient boiling water, from time to time, to replace that lost by evaporation until the mass is homogeneous and a small portion removed and dipped into cold water is found to be pliable and tenacious. Then remove from the fire and wash several times with warm water to remove the glycerin. Finally knead the mass until it is free from water, roll it into cylindrical forms of suitable size, and wrap them in paraffined paper.

Emplastrum Resinæ.—Rosin, in fine powder, 140 Gm., Lead Plaster, 800 Gm., Yellow Wax 60 Gm. To make 1000 Gm. Melt the Lead Plaster and Yellow Wax together with a gentle heat, then add the Rosin and, when melted, mix thoroughly, strain, and allow it to cool, stirring until it stiffens.

Extractum Physostigmatis Pulveratum.—It yields not less than 1.7 percent. nor more than 2.3 percent. of the alkaloids of Physostigma. One gramme of the Powdered Extract to represent 13 Gm. of average strength Physostigma. Exhaust 1000 Gm. of Physostigma, in No. 60 powder, by percolation first using 1000 Cc. of alcohol, 3 volumes, and water, 1 volume, in which 5 Gm. of Tartaric Acid has been dissolved, and continuing with Alcohol, 3 volumes, water, 1 volume. Distil the alcohol from the percolate, at as low a temperature as possible, and evaporate at not more than 80° C. to 200 Cc. Wash this residue with two portions (250 Cc. and 200 Cc. respectively), of purified petroleum benzin, evaporate the washed residue to pilular consistence, at a temperature not exceeding 80° C., incorporate 20 Gm. of starch and dry in warm air. Dry, powder, assay, and add a sufficient quantity of Starch. Former process directed exhaustion with Alcohol, evaporation of percolate to dryness on water bath, assay and dilution with a sufficient quantity of powdered glycyrrhiza.

Extractum Viburni Prunifolii Pulveratum.—One gramme of the Powdered Extract to represent 5 Gm. of Viburnum Prunifolium. Exhaust 1000 Gm. of Viburnum Prunifolium in No. 30 powder, with Diluted Alcohol. Distil the alcohol from the percolate at as low a temperature as possible, evaporate, at not more than 80° C. to a soft extract, incorporate 5 Gm. of magnesium oxide and dry on glass plates in warm air. Powder and add sufficient starch to make 200 Gm.

Fluidextractum Aspidospermatis.—Use No. 30 powder, and prepare by Type Process B, using a mixture of 110 Cc. of Glycerin, 670 Cc. of Alcohol and 220 Cc. of Water as Menstruum I, and a mixture of two volumes of Alcohol and one volume of Water as Menstruum II.

Fluidextractum Cascarae Sagradae Aromaticum. — New formula: Cascara Sagrada 1000 Gm., Magnesium Oxide 125.0 Gm., Pure Extract of Glycyrrhiza 40.0 Gm., Glycerin 200.0 Cc., Alcohol 250.0 Cc., Benzosulphinide 1.0 Gm.,

Oil of Anise 2.5 Cc., Oil of Cassia 0.2 Cc., Oil of Coriander 0.1 Cc., Oil of Betula 0.2 Cc., Boiling Water, a sufficient quantity, to make 1000 Cc. Mix the Cascara Sagrada with the Magnesium Oxide, moisten with 2000 Cc., of Boiling Water, stirring occasionally during 2 hours, and percolate with Boiling Water until the drug is exhausted. Evaporate percolate to 500 Cc., and while warm, dissolve in it the Pure Extract of Glycyrrhiza. When cold, add the Glycerin, then the Alcohol containing the Benzosulphinide and the Oils and then add sufficient Water to make 1000 Cc.

Fluidextractum Scilla.—Macerate 1000 Gm. of Squill, in No. 20 Powder, for 2 hours, with sufficient of a mixture of 2000 Cc. Alcohol, 1000 Cc. Water in a tightly-covered vessel. Then shake down evenly in a percolator, add more of the same menstruum and, when saturated, macerate 48 hours. Now percolate slowly, using same strength menstruum, to obtain 1000 Cc. of percolate. Again macerate drug in percolator for 12 hours, afterwards collecting a second 1000 Cc. of percolate. Again macerate for 12 hours and collect a third percolate of 3000 Cc. Distil the alcohol from the mixed percolates at as low a temperature as possible, and evaporate the liquid to 800 Cc. Slowly add to this residue when cold, with continuous agitation, 2000 Cc. of Alcohol and set aside, tightly closed for 12 hours. Decant supernatant liquid from syrupy layer, filter decanted liquid and wash syrupy residue with two portions, 300 Cc. each, of a mixture of alcohol 4 volumes, water 1 volume, passing the washings through the filter into the previously collected alcoholic liquid. Reduce the combined alcoholic liquids, by distillation, to 800 Cc. and add Diluted Alcohol to make 1000 Cc. Former process directed extraction with a mixture of Acetic Acid 275 parts and water 725 parts, and evaporation to 1000 Cc.

Gelatinum.—Modified description: An amorphous solid, in sheets, flakes, ground, powdered or shredded form, colorless or slightly yellowish, and having a slight characteristic odor and taste; unalterable in the air when dry, but decomposing when moist or in solution. Modified test: A hot solution of Gelatin in distilled water (1 in 40) should be free from putrid odor, and is not more than slightly acid to litmus; it appears not more than slightly opalescent in a stratum of 2 cm. and on cooling to 6° C. and standing for several hours it forms a firm, transparent or translucent jelly. Ash changed from 2 percent. to "not more than 3 percent." Added tests: A solution of the ash in 25 Cc. of distilled water, made with the aid of heat and a few drops of hydrochloric acid, does not respond to the Test for heavy metals. Heat 1.5 Gm. of Gelatin with 30 Cc. of hydrochloric acid (1 in 4) in a 150 Cc. Erlenmeyer flask on a water bath, and when the Gelatin has dissolved, add 3 Cc. of saturated bromine water and heat it on a water bath for 15 minutes, shaking the flask occasionally. Then add 0.5 Gm. of potassium iodide and follow it immediately with 0.5 Cc. of a 25 percent. solution of stannous chloride. Heat the solution for 5 minutes on a water bath, cool and subject it to the test for Arsenic. The stain produced, if any, is not greater than that produced in a test made with the same quantities of the reagents to which 2 Cc. of the standard arsenic solution has been added.

Glucosum.—The product obtained by the hydrolysis of starch, consisting chiefly of dextrose and dextrans. A colorless or slightly colored, thick, syrupy

liquid. Odorless or nearly so; it has a sweet taste. Very soluble in water, sparingly soluble in alcohol. An aqueous solution is neutral or slightly acid to litmus. Add a few drops of an aqueous solution (1 in 20) to 5 Cc. of hot alkaline cupric tartrate T. S.; a copious red precipitate of cuprous oxide will be produced (distinction from cane sugar). Weigh accurately about 0.5 Gm. of Glucose in a wide, glass-stoppered, tared weighing bottle, add 2 Cc. of distilled water, evaporate the water at about 70° C. and then dry it to constant weight at 90° C. The loss in weight of the Glucose does not exceed 21 percent. (water). Not more than 1 percent. of ash on incineration at a temperature not exceeding a low red heat. A solution of 5 Gm. of Glucose in 15 Cc. of distilled water, mixed with 5 drops of phenolphthalein T. S. requires not more than 0.6 Cc. of tenth-normal potassium hydroxide V. S. to produce a pink color (free acid). Dissolve about 2 Gm. of Glucose in 50 Cc. of distilled water, boil the solution for one minute and cool. The addition of one drop of tenth-normal iodine V. S. to this solution produces no blue color (starch). On now adding a few drops of starch T. S. to the solution, a blue color is produced (sulphur dioxide). Ten Cc. of an aqueous solution of Glucose (1 in 20) does not respond to the test for heavy metals. If the solution of Glucose is not colorless, comparison must be made with 10 Cc. of the same solution, to which a volume of distilled water, equal to that of the hydrogen sulphide, has been added. Dissolve 1.5 Gm. of Glucose in 5 Cc. of distilled water, add 5 Cc. of diluted sulphuric acid and 1 Cc. of bromine water and heat for 5 minutes on a water bath. Then add 0.5 Gm. of potassium iodide, follow it with 5 drops of stannous chloride T. S., cool and subject the solution to the test for Arsenic. The stain produced, if any, is not greater than that produced in a test made with the same quantities of the reagents to which 2 Cc. of the standard arsenic solution has been added.

Glyceritum Hydrastis.—No change in formula. *New Assay*: 100 Cc. yields not less than 1.12 Gm. nor more than 1.37 Gm. of the ether-soluble alkaloids of Hydrastis. Proceed as directed in the Assay of Fluidextract of Belladonna Root, modifying the process there given by using 5 Cc. of the Glycerite of Hydrastis instead of 10 Cc. of the Fluidextract of Belladonna Root. Use only ether as the immiscible solvent throughout the assay. Wash the final ether extractions with 10 Cc. of water, draw off the water and discard it. Then filter the ether solution through a pledget of purified cotton, wash the cotton with ether, evaporate the filtrate and washings and dry the residue at 100° C. to constant weight instead of titrating it. The weight will represent the amount of ether-soluble alkaloids in 5 Cc. of the Glycerite of Hydrastis.

Linimentum Saponis.—Modified directions: Add the Soap to 700 Cc. of Alcohol in which the Camphor and Oil are dissolved, then add water to make 1000 Cc., agitate the mixture until Soap dissolves and filter. 725 Cc. of alcohol was formerly used.

Magma Bismuthi.—Containing an amount of bismuth hydroxide equivalent to not less than 5.50 Gm. nor more than 6.00 Gm. of bismuth oxide in each 100 Cc. Bismuth Subnitrate 80 Gm., Nitric Acid 120 Cc., Ammonium Carbonate 10 Gm., Ammonia Water, Distilled Water, each, a sufficient quantity, to make 1000 Cc.

Mix the Bismuth Subnitrate with 60 Cc. of Distilled Water and 60 Cc. of Nitric Acid in a flask and agitate, warming gently until a solution is formed. Pour this solution with constant stirring, into 5000 Cc. of Distilled Water to which 60 Cc. of Nitric Acid has been added. Dilute 480 Cc. of Ammonia Water with 4000 Cc. of Distilled Water in a glazed or glass vessel of at least 12000 Cc. capacity. Dissolve the Ammonium Carbonate in this solution and then quickly pour the Bismuth solution into it with constant stirring. If the mixture is not distinctly alkaline, add a sufficient quantity of Ammonia Water to make it so and allow the mixture to stand until the precipitate has subsided, then pour or syphon off the supernatant liquid and wash the precipitate twice with Distilled Water, by decantation. Afterwards transfer the magma to a strainer of close texture, arranged in a percolator so as to provide continuous washing with Distilled Water, the outlet tube being elevated to prevent the surface of the magma from becoming dry, and allow the operation to proceed until the washings cease to react with phenolphthalein T. S. Then transfer the moist magma to a graduated vessel and add a sufficient quantity of Distilled Water to make the product measure 1000 Cc. and mix thoroughly. A thick, white, opaque liquid containing bismuth hydroxide in suspension in water. Neutral to litmus and phenolphthalein. One Cc. of hydrochloric acid added to 1 Cc. of Bismuth Magma produces a clear solution. Pour the clear solution into 10 volumes of distilled water; a white precipitate is produced. Evaporate 10 Cc. of Bismuth Magma to dryness and ignite the residue to constant weight; not less than 0.550 Gm. nor more than 0.60 Gm. of bismuth oxide results.

Massa Ferri Carbonatis.—Added Assay.—Weigh accurately about 1 Gm. of Mass of Ferrous Carbonate, dissolve it in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as indicator, shows not less than 41.5 percent. of ferrous carbonate.

Massa Hydrargyri.—Added Assay.—Weigh accurately about 1 Gm. of Mass of Mercury, dissolve it in a mixture of 10 Cc. of distilled water and 5 Cc. of nitric acid and heat it on a water bath until red fumes cease to be evolved, and the liquid becomes pale yellow. Then add 150 Cc. of distilled water and 2 Cc. of ferric ammonium sulphate T. S. and titrate the solution with tenth-normal potassium sulphocyanate V. S. It shows not less than 32 percent. nor more than 34 percent. of mercury.

Nitrogenii Monoxidum.—A gas, Nitrous Oxide (N_2O). It is colorless, possesses a slight characteristic odor and a somewhat sweetish taste. It supports the combustion of many substances. For convenience in handling and use it is compressed in metal cylinders. It is quite soluble in water at low temperatures; at 25° C., 1 volume of water dissolves about 1.3 volumes of Nitrous Oxide. Pass 2000 Cc. of the gas, measured under normal atmospheric pressure at about 25° C. through 100 Cc. of barium hydroxide T. S. at a rate not exceeding 4000 Cc. per hour; not more than a slight turbidity is produced (carbon dioxide). No opalescence is produced in a mixture of 100 Cc. of distilled water and 1 Cc. of silver nitrate T. S. by 2000 Cc. of the gas under the conditions described above (halogens). No change in color is produced in 100 Cc. of distilled water to

which 5 drops of litmus T. S. have been added, by the passage of 1000 Cc. of the gas through the liquid under the conditions described above (acids or bases). No alteration in color is produced in a solution of 0.2 Cc. of tenth-normal potassium permanganate V. S. in 100 Cc. of distilled water by the passage of 1000 Cc. of the gas through the liquid under the conditions described above (reducing substances).

Oleatum Hydrargyri.—The 25 Cc. of Distilled Water is replaced by 20 Cc. of Alcohol in the new formula.

Oleoresina Petroselinii.—Exhaust Parsley Seed, in No. 60 powder, with Ether. Distil most of the Ether from the percolate, using a water bath and evaporate the remainder spontaneously, stirring frequently. Allow the Oleoresin to stand without agitation for four or five days and decant the clear liquid portion from any solid residue.

Oleum Sesami.—A fixed oil expressed from the seeds of one or more cultivated varieties of *Sesamum Indicum* Linné (Fam. Pedaliaceæ). Preserve in well-closed containers. Sesame Oil is a pale yellow, oily liquid, almost odorless, and having a bland taste. Slightly soluble in alcohol, miscible with ether, chloroform, petroleum benzin and carbon disulphide. Specific gravity: 0.916 to 0.921 at 25° C. Shake 1 Cc. of the Oil for half a minute, with a solution of 0.1 Gm. of sugar in 10 Cc. of hydrochloric acid; the acid layer will become bright red and change to dark red on standing. Blue litmus paper previously moistened with alcohol is not more than slightly reddened by 2 Cc. of the Oil (free acid). Mix 5 Cc. of the Oil in a test-tube with 5 Cc. of a mixture of equal volumes of amyl alcohol and a 1 percent. solution of sulphur in carbon disulphide and immerse the test tube to one-third of its depth in boiling saturated aqueous salt solution. No reddish color develops in 15 minutes (cottonseed oil). Saponification value not less than 188 nor more than 193. Iodine value not less than 103 nor more than 112.

Oleum Terebinthinae.—The volatile oil recently distilled from the concrete oleoresin obtained from *Pinus Palustris* Miller and from other species of *Pinus* (Fam. Pinaceæ) with water, below 100° C. Added: optical rotation variable. Solubility in alcohol changed from "3 volumes" to "5 volumes." "Very slight residue on evaporating 1 Cc." changed to "Not more than 0.05 Gm. of residue on evaporating 10 Cc. in a small dish on a water bath." Added tests: Distil 200 Cc. of the Oil at the rate of two drops per second, from a 300 Cc. globe flask, having the side tube 8 cm. above the bulb. Ninety percent. of the Oil distills between 154° and 170° C., the temperature being read with the mercury column of the thermometer immersed in the vapor. Five Cc. of the Oil added to an equal volume of hydrochloric acid in a test tube, shaken vigorously and allowed to stand for a few minutes, does not give a brownish or greenish color (resinous oils or their derivatives). Introduce 5 Cc. of Oil of Turpentine cautiously, drop by drop, into a small flask, of from 35 Cc. to 50 Cc. capacity, having a long graduated neck, and containing 25 Cc. of fuming sulphuric acid, and agitate the mixture cautiously but vigorously and frequently during five minutes, keeping the temperature just below 65° C. by immersion in cold water. Then cool, and add sulphuric acid until the bottle is filled to the upper graduation on the neck, when the clear, reddish viscous layer, which forms after the

dark mass has settled for 2 hours, should not exceed 1 percent. of the volume of Oil taken. A larger residue of colorless liquid, with a refractive index of less than 1.500 at 20° C. shows the presence of mineral oil. Caution: The addition of the Oil of Turpentine to the fuming sulphuric acid, drop by drop, is necessary because of the violence of the reaction.

Opium Deodoratum.—No change.

Opium Granulatum.—No change.

Pilulæ Ferri Carbonatis.—*Added Assay*: Dissolve three pills in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as an indicator, shows not less than 0.065 Gm. of ferrous carbonate in each pill.

Pilulæ Ferri Iodidi.—*Added Assay*: Dissolve five pills in 15 Cc. of diluted sulphuric acid and dilute the solution with distilled water to about 100 Cc. The immediate titration with tenth-normal potassium dichromate V. S., potassium ferricyanide T. S. being used as indicator, shows not less than 0.04 Gm. of ferrous iron in each pill.

Potassii Chloras.—*Modified Test*: Ten Cc. of an aqueous solution of the salt (1 in 20) does not respond to the test for heavy metals. *Modified Assay*: Weigh accurately about 0.1 Gm. of Potassium Chlorate, transfer it to a 250 Cc. flask and dissolve it in 10 Cc. of distilled water. Then add 25 Cc. of acidulated ferrous sulphate T. S. to the solution, insert a valve stopper (see below) and boil the mixture for ten minutes. Now cool the mixture, add 10 Cc. of a 10 percent. manganous sulphate solution and titrate the excess of ferrous sulphate with tenth-normal potassium permanganate V. S. At the same time conduct a parallel experiment with another portion of 25 Cc. of acidulated ferrous sulphate T. S. to ascertain the total amount of ferrous sulphate in the solution used. *Valve Stoppers*.—Take a piece of rubber tubing of convenient diameter, and about 5 cm. in length and, having placed a piece of glass rod in one end and having slipped the other end over a glass tube which passes through a perforated stopper of a size convenient to fit the flask used, cut a longitudinal slit about 15 mm. long in one side of the rubber tube about half way up.

Resina.—Specific gravity changed from "1.070 to 1.080" to "from 1.07 to 1.09" at 25° C. Ash statement changed from "yielding no appreciable ash" to "ash not exceeding 0.05 percent." *Added description*: Its alcoholic solution shows an acid reaction.

Scopolaminæ Hydrobromidum.—Hyoscine Hydrobromide added as a synonym. *Modified description*: "The Hydrobromide of lævorotatory scopolamine, also known as hyoscine, obtained from various plants of the Solanaceæ. Colorless, transparent, rhombic crystals, sometimes of large size, odorless, slightly efflorescent. Its aqueous solution (1 in 20) is neutral or at most only slightly acid to litmus. "It melts at 151.8° C." changed to "when anhydrous it melts between 190° and 192° C." Reference to melting point of the chloraurates omitted. "Strongly lævogyrate" changed to "specific rotatory power of the salt, determined in an aqueous solution containing the equivalent of 5 Gm.

of anhydrous scopolamine hydrobromide in 100 Cc. of solution, at 25° C., is from 22° to 25.75° in a 100 mm. tube. Added tests: Two Cc. of chloroform shaken with 1 Cc. of an aqueous solution of the salt (1 in 20) to which a few drops of chlorine water have been added, will cause the chloroform to assume a brownish color. When dried to constant weight at 100° C. the loss in weight does not exceed 13 percent. It also loses its water of crystallization slowly over sulphuric acid. "No residue on incineration" changed to "On incinerating 0.1 Gm. no weighable ash remains." Added tests: A few drops of ammonia water T. S. added to 1 Cc. of an aqueous solution (1 in 20) causes no turbidity; the addition of potassium hydroxide T. S., only a whitish, transient turbidity (foreign alkaloids). Add 0.05 Cc. of tenth-normal potassium permanganate V. S. to 15 Cc. of an aqueous solution (1 in 100); the solution is not completely decolorized within 5 minutes (apoptropine). Modified test: The solution of about 0.1 Gm. of the salt in 1 Cc. of sulphuric acid, produces not more than faint yellow color (carbonizable impurities); a drop of nitric acid added to this solution, will produce an orange color, due to the liberation of bromine, but no deep-red color, fading to orange, should be noticeable (morphine). The platinic chloride test is omitted.

Sevum Præparatum.—Added tests: One Gm. of Prepared Suet dissolved in 50 Cc. of hot alcohol and a few drops of phenolphthalein T. S. added, does not require more than 0.6 Cc. of tenth-normal potassium hydroxide V. S. to produce a pink color (limit of free acid). Saponification value: not less than 193 nor more than 200. Iodine value: not less than 33 nor more than 48.

Sodii Glycerophosphas.—The sodium salt of glycerophosphoric acid containing not less than 66 percent. of anhydrous Sodium Glycerophosphate. It occurs either in the form of white, monoclinic plates or scales, as a white powder, or as a semi-solid mass having a saline taste; odorless. Very soluble in cold and hot water, nearly insoluble in alcohol. An aqueous solution (1 in 20) shows an alkaline reaction with litmus and a very slightly alkaline reaction with phenolphthalein T. S. Heated to about 60° C. the salt begins to lose water. When strongly heated it is decomposed, evolving inflammable vapors, and at a red heat is converted into sodium pyrophosphate. An aqueous solution (1 in 50), acidified with hydrochloric acid, does not respond to the test for heavy metals. Dissolve 1 Gm. of Sodium Glycerophosphate in 20 Cc. of diluted nitric acid and add an equal volume of cold ammonium molybdate T. S. No precipitate is formed within one hour (phosphates). On heating the mixture, a yellow precipitate will be formed. Triturate about 1 Gm. of Sodium Glycerophosphate, accurately weighed, with 25 Cc. of absolute alcohol, filter the mixture, evaporate the filtrate on a water-bath and dry the residue for one hour at a temperature not exceeding 70° C. The residue weighs not more than 1 percent. of the amount of salt taken (limit of alcohol-soluble impurities). Weigh accurately about 2.5 Gm. of the salt, dissolve it in 50 Cc. of distilled water and titrate with half-normal hydrochloric acid V. S., using 3 drops of methyl orange T. S. as indicator. It indicates not less than 66 percent. of anhydrous Sodium Glycerophosphate.

Syrupus.—No change.

Syrupus Acaciæ.—No change in formula. The syrup is to be heated at boil-

ing temperature for fifteen minutes, the volume restored with boiling water and the product preserved in sterilized bottles, closed with sterilized stoppers and capped.

Syrupus Acidi Citrici.—No change in formula. The syrup is directed to be made at short intervals and preserved in containers which have previously been washed with boiling water.

Syrupus Aurantii.—No change.

Syrupus Aurantii Florum.—No change.

Syrupus Calcii Lactophosphatis.—The Sugar has been reduced from 725 Gm. to 650 Gm. and 50 Cc. of Glycerin has been added.

Syrupus Hypophosphitum.—The Sugar has been reduced from 650 Gm. to 600 Gm., 50 Cc. of Glycerin added and the Tincture of Fresh Lemon Peel omitted. The alternative percolation method has been omitted.

Syrupus Ipecacuanhæ.—No change.

Syrupus Lactucarii.—No change.

Syrupus Picis Liquidæ.—The preliminary washing of the tar is omitted. An alternative percolation method is added.

Syrupus Pruni Virginianæ.—The Sugar has been increased from 700 Gm. to 800 Gm. and the Glycerin reduced from 150 Cc. to 50 Cc. The drug is moistened with water containing the Glycerin, allowed to macerate 24 hours, before starting percolation and 500 Cc. of percolate then collected. The Sugar is dissolved in the latter by agitation and Water added to make 1000 Cc. Formerly the aqueous percolate dropped into the Glycerin in the receiving bottle and did not percolate through the drug.

Syrupus Rhei.—No change.

Syrupus Rhei Aromaticus.—No change.

Syrupus Sarsaparillæ Compositus.—The Oils are mixed with Alcohol to make 20 Cc., then alcoholic solution added to the fluidextracts and this mixture added gradually to enough Syrup to make 1000 Cc. Formerly 650 Gm. of Sugar was used and water to make 1000 Cc. No alcohol was added.

Syrupus Scillæ.—No change.

Syrupus Scillæ Compositus.—The Antimony and Potassium Tartrate is dissolved in 10 Cc. of hot water and this solution added to 750 Cc. of Syrup to which is then gradually added the mixed Fluidextracts, and finally enough Syrup to make 1000 Cc. Formerly the alcohol was evaporated from the mixed Fluidextracts, 300 Cc. of water added and the mixture filtered through talc, the filter being washed with Water to make 400 Cc. of total filtrate. The Antimony and Potassium Tartrate, dissolved in 25 Cc. of hot Water, was then added and 750 Gm. of Sugar dissolved in the liquid, water being added to make 1000 Cc.

Syrupus Senegæ.—No change.

Syrupus Sennæ.—No change.

Syrupus Tolutanus.—No change.

Syrupus Zingiberis.—No change.

Tinctura Cantharidis.—The drug is to be macerated with the Alcohol in a container fitted with a reflux condenser (upright glass tube) at a temperature

of from 50° to 55° C., during 24 hours, with frequent agitation. The mixture is then transferred to a percolator and 1000 Cc. of percolate obtained. Formerly the drug was percolated with Alcohol in the usual way after 6 hours maceration, no heat being used.

Terra Silicea Purificata.—(Purified Kieselguhr). A form of Silica consisting of the frustules and fragments of diatoms, purified by boiling with diluted hydrochloric acid, washing and calcining. It does not contain more than 10 percent. of hygroscopic moisture. Preserve it in tightly closed containers. Purified Siliceous Earth is a very bulky and very fine powder, white or of a pale light gray or pale buff color, without odor or taste. It readily absorbs moisture and will retain about four times its weight of water without the mixture becoming fluid. It is insoluble in water, acids or dilute alkaline solutions. Boil 10 Gm. of Purified Siliceous Earth with 50 Cc. of distilled water and filter the mixture; the filtrate is colorless and neutral to litmus. When ignited it does not darken nor lose more than 10 percent. of its weight (excessive moisture). The dried powder does not darken or lose appreciably in weight on ignition (organic impurities). Add 1 Gm. of Purified Siliceous Earth to 25 Cc. of hydrochloric acid; no effervescence should occur (carbonates) and after boiling and filtering, the filtrate is colorless, and separate portions, when tested, yield no precipitate with barium chloride T. S. (sulphates) and no blue color with potassium ferrocyanide T. S. (iron). Treat 1 Gm. of Purified Siliceous Earth with 20 Cc. of diluted hydrochloric acid and filter. Ten Cc. of the filtrate, when evaporated to dryness and the residue ignited, should not leave a residue weighing more than 0.005 Gm.

Tinctura Cinchonæ.—Menstruum II changed from Alcohol 65 parts and Water 25 parts to Alcohol 75 parts and Water 25 parts.

Tinctura Cinchonæ Composita.—Red Cinchona powder and Bitter Orange Peel powder changed from No. 60 to 40. Menstruum II changed from Alcohol 65 parts and Water 25 parts to Alcohol 75 parts and Water 25 parts.

Tinctura Digitalis.—Menstruum changed from diluted Alcohol to Alcohol 3 volumes and Water 1 volume.

Tinctura Iodi.—The 50 Gm. of Potassium Iodide is dissolved in 50 Cc. of distilled water in a bottle, 70 Gm. of Iodine is then dissolved in this solution by agitation and enough Alcohol added to make 1000 Cc. No water was used in the former process.

Tinctura Sanguinariæ.—Ten Cc. of Hydrochloric Acid replaces the 20 Cc. of Acetic Acid, otherwise the process remains the same.

Trioxymethylene.—It contains not less than 96 percent. of trioxymethylene or paraformaldehyde; $(\text{HCOH})_3 = 90.05$, a polymeric form of formaldehyde. It occurs in white, friable masses, or as a powder, having a slight odor of formaldehyde. On heating it is partly converted into formaldehyde and partly sublimed unchanged. Slowly soluble in cold water, more readily soluble in hot water with the formation of formaldehyde, insoluble in alcohol or ether; soluble in fixed alkali solutions. A mixture of about 0.01 Gm. each of Trioxymethylene and morphine sulphate and 10 drops of sulphuric acid assumes a violet-red color, changing to blue. On incinerating 2 Gm. of Trioxymethylene, not more than 0.1

percent. of ash remains. Shake about 0.5 Gm. of Trioxymethylene, finely powdered, with 10 Cc. of distilled water; the latter should remain neutral to litmus. Assay: Weigh accurately about 1 Gm. of Trioxymethylene, finely powdered, mix it with 50 Cc. of normal potassium hydroxide V. S. in a 250 Cc. flask and add immediately, but slowly, through a small funnel, 50 Cc. of solution of hydrogen dioxide which has been previously rendered neutral to litmus with sodium hydroxide. When the reaction has ceased and the foam subsided, rinse the funnel and the sides of the flask with distilled water, allow the liquid to stand for half an hour and then determine the excess of alkali with normal sulphuric acid V. S., using litmus T. S. as indicator.

Trochisci Acidi Tannici.—No change.

Trochisci Ammonii Chloridi.—No change.

Trochisci Cubeæ.—No change.

Trochisci Potassii Chloratis.—No change.

Trochisci Sodii Bicarbonatis.—No change.

Unguentum.—Five percent. or more of the Benzoinated Lard may be replaced by White Wax in southern latitudes and during the heated season in other localities.

Unguentum Acidi Borici.—The Paraffin is reduced to 50 Gm. and the White Petrolatum correspondingly increased. 100 Gm. of Paraffin was formerly directed.

Unguentum Acidi Tannici.—No change.

Unguentum Aquæ Rosæ.—The clause is omitted directing the omission of the Sodium Borate when the ointment is used with metallic salts, otherwise no change.

Unguentum Belladonnæ.—The Hydrous Wool-Fat is increased from 20 Gm. to 30 Gm., 10 Gm. less of Benzoinated Lard being taken. No other change.

Unguentum Chrysarobini.—No change.

Unguentum Diachylon.—White Petrolatum replaces Olive Oil in the Ointment.

Unguentum Gallæ.—No change.

Unguentum Hydrargyri.—No change.

Unguentum Hydrargyri Ammoniati.—No change.

Unguentum Hydrargyri Dilutum.—The mercury has been reduced from 33.5 percent. to 30 percent.

Unguentum Hydrargyri Nitratæ.—Modified process: Mercury 7.0 Gm., Nitric Acid 17.5 Gm., Lard, free from Water, 76.0 Gm. To make about 100 Gm. Warm the Lard in a capacious porcelain dish until it has just melted (about 45° C.); add 7 Gm. of the Nitric Acid all at once and continue the heat until the characteristic reaction is complete. Hold an inverted glass funnel over the dish to protect the operator from any Lard spurting from the dish during the reaction. Withdraw the heat immediately after the rapid rise of froth which accompanies the end reaction and cool the treated Lard, stirring it until it assumes a bright citrine color. Dissolve the Mercury in the remainder of the Nitric Acid, warming it if necessary, to prevent crystallizing and mix the solution with the previously prepared Lard. The quantity prepared has been changed from 1000 Gm. to 100 Gm. Formerly 70 Gm. of Nitric Acid was added to 760 Gm. of melted Lard at 105° C. and, when the reaction moderated, the heat was reapplied until effervescence

ceased. The mercuric nitrate solution was then stirred into the cooled, prepared Lard as above.

Unguentum Hydrargyri Oxidi Flavi.—No change.

Unguentum Iodi.—No change.

Unguentum Iodoformi.—Benzoinated Lard replaces the Lard; otherwise no change.

Unguentum Phenolis.—2.25 Gm. of Liquefied Phenol replaces 3 Gm. of Phenol and Ointment replaces White Petrolatum as the vehicle.

Unguentum Picis Liquidæ.—No change.

Unguentum Stramonii.—No change.

Unguentum Sulphuris.—Sublimed Sulphur replaces Washed Sulphur; otherwise no change.

Unguentum Zinci Oxidi.—No change.

ARSENIC TEST.

Standard Arsenic Test Solution.—Dissolve 0.1 Gm. of pure arsenic trioxide which has been finely pulverized, dried in a desiccator and accurately weighed, in about 5 Cc. of a 20 percent. solution of sodium hydroxide (free from arsenic). Neutralize the solution with diluted sulphuric acid, and then dilute it in a graduated flask to exactly 1000 Cc., using recently boiled distilled water at 25° C., to which 10 Cc. of diluted sulphuric acid has been added. Accurately measure 10 Cc. of this solution, transfer it to a 1000 Cc. flask and again dilute it to 1000 Cc. with recently boiled distilled water at 25° C., to which 10 Cc. of diluted sulphuric acid has been added. Employ this solution, containing 0.001 milligrammes of arsenic trioxide in each 1 Cc. in preparing the standard stain. This solution should be kept in a glass-stoppered bottle. It is advisable to prepare fresh solutions whenever new standard stains are to be prepared.

Preparation of the Chemical to be Tested.—Add 1 Cc. of a mixture of equal volumes of concentrated sulphuric acid, and distilled water to 5 Cc. of an aqueous solution of the chemical (1 in 25) or to a solution in 5 Cc. of distilled water of the residue remaining after special treatment. Acidulation as just directed is not necessary in the case of inorganic acids. Then add 10 Cc. of a saturated aqueous solution of sulphurous acid. Heat this liquid in a small beaker, on a water-bath, until it is free from sulphurous acid and has been reduced to about 2 Cc. in volume. Dilute this evaporated liquid to about 5 Cc. with distilled water.

Test-Apparatus.—Prepare several generators, equipped with tubes, etc., as described below. Select as a generator a bottle of about 50 Cc. capacity, having a mouth about 2.5 cm. in diameter and provide a well-fitting rubber stopper, suitably perforated. In one of the perforations in this stopper insert a thistle tube about 5 mm. in diameter and 15 cm. long, slightly bent where it emerges from the stopper and constricted at its lower extremity to an opening about 1 mm. in diameter, reaching within about 2 mm. of the bottom of the bottle. Insert through another perforation of the stopper a vertical exit tube about 13 cm. in total length and 1 cm. in diameter throughout the upper portion (about 10 cm.) and constricted at its lower extremity to a tube of about 3 cm. in length and about 5 mm. in diameter. This latter tube should extend but slightly below the stopper. In

the lower part of this exit-tube is to be inserted a small pledget of dry glass wool and then a strip of the freshly-prepared but dry lead acetate test paper rolled into a coil, and above this a plug of the moist (not wet) lead acetate glass wool. In the upper extremity of this tube insert through a perforated cork stopper, a glass tube 12 cm. in length, having an internal diameter of about 3 mm. In this is to be placed the mercuric bromide test paper, bending or creasing the upper portion of the strip so that it will retain its position. The strip should extend within about 2 cm. of the perforated cork stopper and must not be introduced into the tube until ready to start the test. This tube should be thoroughly cleaned and dried each time it is used.

Preparation of Standard Stain.—Introduce into the generator about 8 Gm. of the zinc followed by 25 Cc. of dilute sulphuric acid (1 in 4) and 5 drops of the acid stannous chloride T. S. Insert the stopper containing the thistle tube and the exit tubes into which have been placed the glass wool pledget, the dry lead acetate test paper, the moist lead acetate glass wool, and the mercuric bromide test paper as described under the Test Apparatus. Add at once through the thistle tube 2 Cc. (accurately measured) of the standard arsenic T. S. and wash this down into the apparatus with 5 Cc. of the dilute sulphuric acid (1 in 4). Should the evolution of the gas be violent at first, check the reaction by immersing the bottle in cold water. Should the reaction subside, increase it by placing the bottle in warm water. If the reaction be too violent, the stain will spread and not form a distinctive band, thus making the color intensity comparisons difficult. After the test has continued for forty-five minutes, remove the mercuric bromide test paper and place it in a clean, dry tube for comparison. This stain represents 0.002 milligrammes of arsenic trioxide in addition to any stain produced by the reagents. The stain from the reagents should scarcely be perceptible when determined by a blank experiment. For preservation the standard test strips are to be dipped into hot melted paraffin.

Testing the Chemical.—Introduce into another generator about 8 Gm. of the zinc, followed by 25 Cc. of the dilute sulphuric acid (1 to 4) and 5 drops of acid stannous chloride T. S. Insert the stopper containing the thistle tube and the exit tube charged with the test papers and glass wool, as just described. Then add at once through the thistle tube 5 Cc. of the solution to be tested, previously reduced as directed, under *Preparation of the Chemical*, and wash this down into the apparatus with 5 Cc. of the dilute sulphuric acid (1 in 4). When the evolution of hydrogen has proceeded actively for forty-five minutes, remove the mercuric bromide test paper and carefully compare it with the standard stain prepared as described above. The stain produced by the chemicals tested should not exceed in length or intensity of color that prepared as a standard, indicating not more than 1 part of arsenic in 100,000 parts of the substance tested.

Antimony, if present in the substance tested, will produce a gray stain. Sulphites, sulphides, thiosulphates, and other compounds which liberate hydrogen sulphide or sulphurous acid, when treated with sulphuric acid, must be oxidized by means of nitric acid and then reduced by means of sulphurous acid as directed under *Preparation of the Chemical*, before introducing into the apparatus. Sulphur compounds as well as hydrogen phosphide give a bright yellow band on

test-paper. If sulphur compounds are present, a simultaneous darkening of the lead acetate test paper and glass wool will occur. If such be the case, the operation as directed under *Preparation of the Chemical* must be repeated upon a fresh portion of the sample, using greater care in effecting the complete removal of the sulphurous acid. In testing hypophosphites special care should be observed to completely oxidize the sample as directed, otherwise a yellow stain, which might be confused with the orange yellow color produced by arsenic, may be produced through the evolution of hydrogen phosphide. Compounds containing antimony should be tested for arsenic by Bettendorf's Test. The test apparatus should be thoroughly cleaned and dried immediately after use.

REAGENTS.

Arsenic Trioxide, Pure (Arsenous Oxide).— As_2O_3 . Arsenic trioxide for use in the Arsenic Test should comply with the description and tests given under Arseni Trioxidum, and also the following additional tests: One Gm. of the trioxide, when heated in a porcelain crucible under a hood until vapors are no longer evolved, should yield not more than 0.2 mgm. residue (non-volatile matter). Reduce the arsenic trioxide to a fine powder and thoroughly dry it in a desiccator; it should show 100 percent. of arsenic trioxide when assayed as directed under Arseni Trioxidum.

Filter Paper, Quantitative.—For use in the Arsenic Test use Schleicher and Schull's No. 589 (Blue Ribbon) or Swedish O, filter paper, or other make of like surface or quality, for the Mercuric Bromide Test Paper.

Glass Wool.—(Spun Glass.)—Fine threads of spun glass. Two Gm. of glass wool when digested on a bath of boiling water for one-half hour with 100 Cc. of diluted hydrochloric acid, the mixture filtered and the filtrate evaporated to dryness and then dried at 110°C ., should leave not more than 0.01 Gm. of residue (soluble matter). Boil 1 Gm. of glass wool for a few minutes with a mixture of 25 Cc. each of diluted nitric acid and distilled water; filter, evaporate the filtrate to dryness and treat the residue with 10 Cc. of distilled water and again filter it; the filtrate should not be affected by the addition of hydrogen sulphide T. S. (lead).

Lead Acetate (Glass Wool).—Immerse Glass Wool in a mixture of equal parts of lead acetate T. S. and distilled water and remove the excess of liquid by pressing it between filter-paper. The glass wool should be prepared as just described immediately before it is required in the test.

Lead Acetate Test-Paper.—Immerse strips of heavy white filter-paper 5 cm. wide and 8 cm. long in a mixture of equal parts of lead acetate T. S. and distilled water, drain off the excess of liquid and dry the strips on glass in an oven at 100°C .

Lead Acetate Test Solution.—Dissolve 10 Gm. of clear, transparent crystals of lead acetate, $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 + 3\text{H}_2\text{O}$ (Plumbi Acetas, U. S. P.) free from adhering lead carbonate, in sufficient water to measure 100 Cc. Preserve the solution in well-stoppered bottles.

Mercuric Bromide.— HgBr_2 . It occurs in white rhombic needles or prisms or

lustrous scales or as a granular, crystalline powder fusing at about 325° C. and subliming without decomposition. Soluble in 200 parts of water at 25° C. and 5 parts of boiling water; readily soluble in boiling alcohol.

Mercuric Bromide Test Paper.—Cut stiff, heavy quantitative filter-paper into strips 3 cm. in width and 12 cm. in length. Immerse these strips for five minutes in alcoholic mercuric bromide T. S. Remove the excess of solution by pressing the strips between filter-paper and then dry them quickly on glass in an oven heated to 100° C. Place the strips at once in a wide-mouthed bottle and stopper it securely.

Mercuric Bromide Test Solution, Alcoholic.—Dissolve 5 Gm. of Mercuric Bromide in 100 Cc. of alcohol, employing a gentle heat to facilitate solution. Keep it in glass-stoppered bottles protected from the light.

Stannous Chloride, $\text{SnCl}_2 + 2\text{H}_2\text{O}$. Colorless crystals readily soluble in water and alcohol. When in contact with air or excess of water, the salt readily forms a basic chloride, hence when dissolved, its solutions should be acidulated with hydrochloric acid. The presence of arsenic above the U. S. P. limits should be determined. Boil two grammes of the salt with 10 Cc. of hydrochloric acid for several minutes; the solution should remain clear and colorless for one hour. When tested for arsenic as directed under the blank test for arsenic, 0.3 Gm. of stannous chloride should not produce a stain. *Alternative process:* Heat tin with concentrated hydrochloric acid, taking care that the metal is in excess. When the acid has become saturated, pour off the clear fluid from the undissolved excess of tin, filter it through asbestos and set it aside until crystallization takes place. Break up the crystals, drain, and dissolve them at once as directed under the Test Solutions or in Bettendorf's Arsenic Test. When thus prepared, stannous chloride must respond to the tests for arsenic given above. 0.3 Gm. of stannous chloride should not produce a stain. When freshly prepared the salt should be completely soluble in one part of alcohol (foreign salts).

Stannous Chloride Test Solution, Acid.—Dissolve 40 Gm. of stannous chloride crystals in 60 Cc. of concentrated hydrochloric acid and preserve it in a glass-stoppered bottle.

Sulphuric Acid, Concentrated for Tests, H_2SO_4 . When concentrated sulphuric acid is especially directed in a test, it is intended that the strongest pure acid of a specific gravity of not less than 1.834 at 25° C. be employed. In addition to the tests prescribed for this acid in the text of the Pharmacopœia, it is required to conform to the following more rigorous tests before it can be employed as a reagent. Dilute 1 part of the acid with 4 parts of distilled water; the stain from 25 Cc. of this dilute acid should scarcely be perceptible when subjected to the Arsenic Test. Pour 1 Cc. of diphenylamine T. S. carefully so as to form a separate layer upon 5 Cc. of the concentrated sulphuric acid contained in a test-tube; no distinct blue color should appear at the zone of contact (nitric acid). Upon carefully pouring about 2 Cc. of hydrochloric acid, in which a particle of sodium

sulphite has been dissolved, over about 2 Cc. of the concentrated sulphuric acid, no reddish zone should appear and no precipitate should form (selenium).

Tin, Sn.—Pure metallic tin in the granulated or mossy condition. Digest 5 Gm. of tin with 40 Cc. or a sufficient quantity of nitric acid (Acidum Nitricum, U. S. P.), on a bath of boiling water until entirely converted into a white powder, then evaporate it completely to dryness. Stir the residue with 25 Cc. of diluted nitric acid and 25 Cc. of distilled water and filter it. To the filtrate add 1 Cc. of diluted sulphuric acid (Acidum Sulphuricum Dilutum, U. S. P.), evaporate it as far as possible upon a water-bath, and to this add 10 Cc. of distilled water; no weighable residue should remain undissolved (lead). When converted into stannous chloride it should comply with the tests directed under that salt.

Zinc for Arsenic Test.—The Zinc should preferably be in globular form, about 3 to 6 mm. in diameter, known as No. 7 Shot Zinc. It should be free from sulphur and phosphorus. The stain from 8 Gm. of Zinc should scarcely be perceptible when determined by a blank experiment.

Heavy Metals Test.—This test is to be used to detect the presence of undesirable metallic impurities in official chemical substances or their solutions; these should not respond affirmatively within the stated time. Acidulate 10 Cc. of a solution of the substance in distilled water (1 in 50) contained in a test-tube of about 40 Cc. capacity with 1 Cc. of diluted hydrochloric acid (unless otherwise directed), warm it to about 50° C., add an equal volume of freshly prepared hydrogen sulphide T. S., and allow the mixture to stand in a well-stoppered test-tube, in a warm place, at 35° C. for half an hour. At the end of this time the mixture should still possess the odor of hydrogen sulphide; if not, it should be thoroughly saturated with the gas and again set aside for half an hour. Any change in the color of the solution which is being tested should be noted by comparison with the same volume of the hydrogen sulphide T. S. (which has been likewise acidulated), when viewed crosswise by reflected light while held against a white surface.

GREAT PURCHASE OF SUGAR.

The Western Mail states that in consequence of the cessation of the British supply of beet sugar from Germany, Austria, and Belgium, Mr. McKenna, Home Secretary of the British Government, has purchased 900,000 tons of raw sugar at about £20 (\$97.33) per ton, the transaction involving an outlay of about £18,000,000 (\$87,597,000). The sugar has been purchased in Demerara, Java, Mauritius, and other places. This is by far the largest purchase of sugar which has ever been made. The sugar is to be sold virtually at cost price to the refiners, who by arrangement with the Government have agreed to sell the commodity when refined to the dealer at a fixed price based upon the cost of the article, plus a fair manufacturing profit.

AMYL NITRITE; ITS PREPARATION, PURITY AND TESTS.

FRANK O. TAYLOR, PH. C.

(Continued from September Number.)

(3) For the third experiment a sample made from alcohol No. 1, which had not been saturated with the nitrous gas, was used. Before fractionation it assayed 65 percent. 100 cc. were then distilled and each of the parts tested separately for the content of amyl nitrite.

Below 80°	2%	99°-100°	6%
80°-90°	5%	100°-101°	5%
90°-92°	2%	101°-105°	13%
92°-94°	5%	105°-110°	9%
94°-96°	7%	110°-120°	10%
96°-97°	2%	120°-130°	14%
97°-98°	6%	Residue above 130°	7%
98°-99°	5%		

Fraction 90°-100°—Assay—87.3%.

Acidity—0.2 cc.

Fraction 101°-120°—Assay—74.2 %.

Acidity—0.3 cc.

Fraction above 120°—Assay—7.4%.

Acidity—0.5 cc.

Amyl nitrite, or compounds posing as such, is still present in the distillate above 120°, being retained by the unchanged amyl alcohol or the other high boiling compounds. The higher boiling portions are seen to be the most acid.

(4) A fourth experiment using alcohol No. 3 was for the purpose of following each step in the process and checking it by assay. Process was the same as before except that the alcohol was not cooled. From 150 cc., 175 cc. of crude unpurified nitrite was obtained.

Assay before washing and drying—82.6%

Assay after washing and drying—86.4%

showing an increase in percentage by the removal of non-nitrous compounds and reduction of volume.

Distillation proceeded as follows:

Below 94°	1.4%	100°-101°	6.9%
94°- 96°	5.5%	101°-105°	10.8%
96°- 97°	11.7%	105°-110°	6.2%
97°- 98°	15.2%	110°-120°	3.5%
98°- 99°	15.9%	120°-125°	3.5%
99°-100°	11.7%	Residue	4.8%
		90°-100°	61.4%
		94°- 99°	48.3%

Assay of fraction 90°-100°..... 97.3%

Assay of fraction above 100°..... 83.8%

(5) Experiment five was almost the same as four. Alcohol No. 1 was used, the crude nitrite was shaken with soda ash to remove acid and water at the same time.

Assay after digestion with soda ash—87.1 percent.

Distillation:—

Below 90°	.....few drops	99°-100°	.....10.0%
“ 94°	.....1.3%	100°-101°	.....4.7%
94°-96°	.....10.7%	101°-105°	.....10.0%
96°-97°	.....14.0%	105°-110°	.....6.0%
97°-98°	.....18.7%	Residue above 110°	.....9.3%
98°-99°	.....12.0%		

Assay of fraction 90°-100°..... 97.7 percent

Assay of fraction above 100°..... 68.5 percent

(6) The preceding experiments having revealed the difficulty of *completely* converting amyl alcohol to the nitrite in spite of the fact that almost all of it may be easily changed, further experiments were made to determine how far this conversion could be carried by this process. To this end 150 cc. of alcohol No. 1 was partially saturated with nitrous acid and then, continuing the stream of gas, it was heated gently until distillation began. The thermometer was kept in the liquid to guard against any unnecessary heating. A mixture of amyl nitrite and water with perhaps a little amyl alcohol distilled quite constantly at 85°-86° (temperature of liquid) until about 150 cc. of distillate was obtained and bumping began in the flask. The stream of gas was now stopped, the thermometer raised to its usual place in the vapor and distillation continued to 100°. At this point the distillation was stopped and a stream of nitrous gas again introduced into the liquid in the flask and continued until it passed through without absorption. After this, distillation was resumed as before. A third time this was repeated in the residual liquid, then the mixed distillates were washed with water, twice with sodium carbonate solution, and again several times with water, then dried over calcium chloride. This crude product amounted to 133 cc., had an acidity of 0.7 cc. and assayed 91.6 percent.

Distillation:—

Beginning at 93°		98°- 99°	.....18.4%
Below 94°	.....1.6%	99°-100°	.....8.0%
95°-96°	.....8.8%	100°-101°	.....2.4%
96°-97°	.....16.8%	Residue above 101°	.....16.8%
97°-98°	.....24.8%		
	90°-100°	.....78.4%	
	94°- 99°	.....68.8%	

Here is an amyl nitrite made without any rectification, much superior to either U. S. P. or B. P. standards. In order to find how nearly a perfect amyl nitrite was obtained by this one rectification without a fractionating column, the 78 percent distilling between 93° and 100° was again assayed and fractionated.

Assay.—96.7 percent.

Distillation:—

92°-94°	.....6.7%	97°-98°	.....11.1%
94°-95°	.....11.1%	98°- 99°	.....5.6%
95°-96°	.....25.6%	99°-100°	.....3.3%
96°-97°	.....31.1%	Residue above 100°	.....4.0%
	90°-100°	.....94.5%	
	94°- 99°	.....84.5%	

Anything better than this cannot be desired for therapeutic use.

Production of Pyridine Nitrite in Manufacture of Amyl Nitrite.

When the residue left in the flask after the third distillation in experiment No.

6 for the production of amyl nitrite was allowed to cool, long, silky crystals formed on the sides of the flask. Noticing this peculiar fact the residue was poured into a glass evaporating dish and set on ice. No crystals formed at once but after some hours a considerable crop of matted needle-shaped yellow crystals was formed. They were readily soluble in the mother liquor on warming; so much so that pressure between filter papers would not remove excess of mother liquor since the crystals would redissolve even at room temperature and be absorbed by the paper. They were finally partially purified by washing with ether on a vacuum filter.

They were extremely soluble in water, very soluble in alcohol and chloroform, somewhat soluble in amyl alcohol and amyl nitrite, slightly soluble in ether and to a less degree in petroleum ether. They had a marked odor resembling pyridine, were strongly acid to litmus and gave a marked test for nitrates. They melted at about 116° .

From their crystalline appearance, odor and tests they were suspected to be pyridine nitrate, so in order to fully identify them the lower aqueous layer, resulting from the manufacture of a much larger quantity of amyl nitrite, was separated and evaporated on a steam-bath until crystals began to form. On cooling in a desiccator a considerable quantity of crystals formed and these were carefully separated from the small quantity of mother liquor and washed with ether on a vacuum filter. The crystals so obtained were yellowish in color and were purified, by three times recrystallizing from water, freeing from mother liquor each time on a vacuum filter and washing with ether. They were now pure white needles melting at 117° - 118° , not hygroscopic and soluble exactly as the previously obtained impure crystals and were identical with the crystals of pyridine nitrate prepared from pure pyridine.

The presence of pyridine nitrate in amyl nitrite, or its production in amyl-nitrite manufacture, seems not to have been mentioned before, tho it is possible that the crystals of ammonium nitrate mentioned by Maisch (*Am. Jour. Pharm.*, 1871, 146) were in reality pyridine nitrate.

Cause of Production.

One of the reactions producing pyridine is the heating together of iso-amyl nitrite and phosphorus pentoxide. It is reasonable to suppose that the hot vapors of nitrous acid together with a small quantity of nitric acid carried over at the same time will react with amyl alcohol to form pyridine nitrate. The fact that pyridine has been found in impure amyl alcohol may have some significance in this connection tho from experiments made there was no evidence of pyridine being present in the alcohol used.

To prove that the action of nitric acid on amyl alcohol produces pyridine nitrate, nitric acid was boiled in one flask and the vapor passed through 150 cc. of amyl alcohol contained in a second flask, for several hours; the alcohol used being the same as that used for the production of most of the amyl nitrite. The aqueous layer was separated, the alcohol washed with water and the washings, together with the solution first separated, evaporated on the steam-bath. Crystals were obtained which on purification proved to be pyridine nitrate.

A second lot of 150 cc. of the same amyl alcohol was shaken with 5 cc. of concentrated nitric acid and after standing for a short time the alcohol was washed well with water and the washings evaporated as before. Here also pyridine nitrate was produced.

A sample of Kahlbaum's amyl alcohol distilling completely between 130° and 132° , when shaken with nitric acid in the same manner and subsequently washed, yielded a small amount of pyridine nitrate crystals. The quantity of these was, however, much less than with the preceding sample.

We have these three hypotheses to account for the production of pyridine nitrate. (1) The presence of pyridine in the amyl alcohol; (2) the production from some impurity in the amyl alcohol either directly or by catalytic action; (3) the production direct from amyl alcohol. The first of these can scarcely be considered in view of the above experiments on amyl alcohol distilling so perfectly at the theoretical boiling point. Of the next two the second seems preferable.

Further investigation on this point was prevented by lack of time but would be of interest.

By reason of its extreme solubility in water and low solubility in amyl nitrite, pyridine nitrite can be completely removed from amyl nitrite by thorough washing with successive small quantities of water. Amyl nitrite may be tested for pyridine nitrate or water-soluble nitrates in the following manner:

Thoroughly agitate 10 cc. of amyl nitrite with 5 cc. of water in a separatory funnel, run off 2.5 cc. of the water into a test-tube, add 5 cc. of 10 percent. sulphuric acid and sufficient urea to effect the destruction of all nitrites. This point may be ascertained by removing a portion of the solution and adding iodo-starch paste. If no blue color be produced add to the rest of the fluid a few drops of iodo-starch paste and a piece of pure zinc. If nitrates are present the solution will soon become blue.

By this test amyl nitrite which has not been washed well was shown to contain soluble nitrates, supposedly entirely pyridine nitrate, while after thorough washing no trace of nitrates was made apparent by this test. Hence an amyl nitrite which shows this nitrate reaction has not received careful washing and, in view of the noxious character of pyridine compounds, should be classed with the undesirable samples.

CHARACTER OF NITRITE FROM DIFFERENT FRACTIONS OF SAME ALCOHOL.

If the alcohol used distils over a range of three or four degrees what difference, if any, would there be in nitrite made from different fractions?

To throw some light on this a liter of alcohol No. 1 was distilled and the first 100 cc. of distillate, and last 100 cc. remaining in the flask, was converted to nitrite.

(7) The same method was used as for (6) excepting the repetition of the nitrating after the first distillation. From the 100 cc. of alcohol in each case, 100 cc. yield was obtained after washing and drying with A (the first fraction) and 94 cc. with B (the last fraction).

Assay:—A		93.9 percent
B		91.5 percent
Distillation:—	A	B
Below 92°	2%	....
92°-94°	9%	....
94°-96°	28%	1%
96°-97°	16%	18%
97°-98°	14%	37%
98°-99°	9%	11%
99°-100°	6%	11%
100°-101° .....	....	5%
101°-105° .....	....	7%
Above 100°	14%	20%
Above 105° .....	....	8%
90°-100°	84%	78%
94°-99	67%	67%

Both products are excellent in assay and distillation, and, tho some agreement is shown in quantity of distillates at 90°-100° and exact agreement at 94°-99°, yet the greater amount of distillate from A is about two degrees lower than that from B.

(8) This experiment was carried out by keeping the amyl alcohol cold with an ice-water bath and saturating with nitrous acid slowly and as completely as possible, then washing, drying and distilling, collecting the portion between 90° and 100°. Of the washed and dried nitrite 83.3 percent distilled at the required temperature. This was now assayed and fractionated.

Assay.—99.7 percent.

Distillation:—

94°-96°	9%	98°-99°	9%
96°-97°	38%	99°-100°	5%
97°-98°	32%	Residue	6%

70 percent within one degree of the theoretical boiling point.

In order to compare the amyl nitrite obtainable from this alcohol and from a very pure sample both by the nitrous-acid process and the sodium nitrite-sulphuric acid process, a number of experiments were made.

(9) Kahlbaum's amyl alcohol was treated with nitrous acid as in the preceding, no arrangement for cooling being made, and continuing the current of gas until it passed unabsorbed. It was then permitted to stand until the brown color disappeared and after that again treated with nitrous gas. Finally, let stand for some hours before preliminary purification.

Assay.—74.4 percent.

Distillation.—(In brief.)

Beginning about 96°	105°-110°	18.0%
Below 100°	110°-120°	12.0%
100°-105°	120°-130°	6.0%
.....

Continuing rapidly to 140° and a residue remaining undistilled at 155°.

(10) As for (9), shortening the length of treatment with nitrous acid, this being continued only until the amyl nitrite began to turn brown.

Assay.—77.6 percent.

Distillation:—

Beginning about 93°	102°-105°	9.9%
93°-98°	105°-110°	7.4%
98°-99°	110°-145°	9.7%
99°-100°	Residue	5.4%
100°-102° .....	.....	.....

(11) Process carried out as in the preceding shortening the length of the time during which the stream of nitrous gas was passed into the alcohol.

Assay.—57.7 percent.

Distillation:—

Below 90°	5.3%	105°-110°	10.7%
90°-100°	21.0%	110°-130°	14.0%
100°-105°	32.0%	Residue above 130°	15.0%

The part boiling below 90° is due to imperfect drying and consequent presence of water.

(12) The amyl alcohol was heated gently with a micro-burner so that a portion of the amyl nitrite formed distilled over. Again the result was poor.

Assay.—70.4%.

Distillation:—

Below 94°	0.7%	102°-105°	13.3%
94°-98°	9.3%	105°-120°	11.3%
98°-100°	20.0%	120°-135°	5.4%
100°-101°	12.7%	Residue	16.7%
101°-102°	8.7%		

(13) Finding that under none of these conditions did this alcohol yield good results, in number 13 the alcohol was kept cool with ice-water and the nitrous gas passed slowly.

Assay:—

Distillation:—

Below 95°	1.2%	99°-100°	8.1%
95°-96°	1.3%	100°-105°	8.7%
96°-97°	5.6%	105°-110°	1.9%
97°-98°	51.9%	Residue	3.1%
98°-99°	16.3%		
	90°-100°	84.4%	
	94°-99°	76.3%	

This is an excellent result, better than any so far obtained without rectifications; but the necessity for cooling is very apparent. The result is, however, not so far superior to the best obtained from the less pure alcohol as might have been expected.

(14) The nitrous-acid process has been shown to yield excellent results when carefully carried out, both as regards good product and high yield. It would be interesting to know whether the sodium nitrite-sulphuric acid method yields sufficiently better results to justify its use on a manufacturing scale.

Alcohol No. 1 was used and the process carried out as given by Dunstan and Wooley for iso-butyl nitrite (*Pharm. Jour.* (3) 19, 487). Sixty-eight grammes of 95 percent sulphuric acid was mixed gradually with 152 cc. amyl alcohol, keeping the mixture cold. This was now run very slowly beneath the surface of a solution of 100 grammes sodium nitrite in 300 cc. of water, cooling with a bath of ice-water. After the reaction was ended the amyl nitrite was washed and dried as in the other process.

The product was very dark in color, being reddish-brown, and this was unchanged by washing. Bad as was its appearance, it tested surprisingly well.

Acidity—0.4 cc. *Aldehyde*—None. *Assay*—90.9 percent.

Distillation:—

Below 92°	0.7%	98°- 99°	7.1%
92°-94°	3.6%	99°-100°	3.6%
94°-96°	11.4%	100°-105°	4.3%
96°-97°	42.8%	Residue	6.0%
97°-98°	19.3%		
		90°-100°	88.5%
		94°- 99°	80.6%

This is not equal to the assay of (13) but is superior to it in distillation, in which respect it is also superior to any of the preceding experimental samples.

(15) It remained to make a similar experiment on the purest alcohol. Kahlbaum's alcohol treated in like manner as above yielded, from 150 cc., 135 cc. of a brownish yellow amyl nitrite.

Assay.—94.8 percent.

Distillation:—

95°-96°	4%	98°- 99°	5%
96°-97°	68%	99°-100°	5%
97°-98°	12%	Residue	5%
		95°-100°	94%
		96°- 98°	80%

Of the whole product, 60 percent distilled between 96.5° and 97°. This is approaching very closely to a pure amyl nitrite, and is obtained, it must be remembered, without any rectification.

At a later date a quantity of amyl nitrite was made on a manufacturing scale, using the arsenic-sulphuric acid process, which gave exceptionally good results. Amyl alcohol No. 1 was used, nitrous gas was slowly passed through it, keeping the alcohol cooled to about room temperature, until the solution was brown. It was then allowed to stand in the sunlight till it changed to a light green color and was then washed thoroughly with 5 percent sodium carbonate solution and dried over soda ash.

Assay.—98.6%.

Distillation:—

Below 95°	4%	97°- 98°	10%
95°-96°	16%	98°-100°	6%
96°-97°	60%	Residue	4%

Here is 86 percent distilling within a range of 3° and 96 percent between 90° and 100°.

High Boiling Substances Produced with Amyl Nitrite:—From the temperature reached in the distillation of many of the lots made by the nitrous-acid process, it appeared that some body was produced, having a boiling point higher than amyl alcohol, so for the purpose of obtaining any information that might present itself the fractions boiling below 90° and above 100° from several of the preceding experiments were united and treated again with nitrous gas, washed, dried, assayed and distilled.

Assay.—64.4 percent.

Distillation:—

Below 96°	2.3%	102°-105°	6.2%
96°- 98°	10.8%	105°-140°	10.0%
98°- 99°	8.5%	140°-150°	2.3%
99°-100°	11.5%	150°-160°	4.2%
100°-101°	14.6%	160°-175°	4.6%
101°-102°	13.9%	Residue above 175°	9.2%

Thirty-three percent distilled below 100°, but the most for any one degree was between 100° and 101°. After reaching 105° the amyl nitrite had evidently almost all distilled, for the temperature rose rapidly to 140° and over 9 percent remained undistilled at 175° with the temperature still rising. This showed that some body with a very high boiling point was produced. Whether this was from the amyl alcohol or from an impurity, or what it was, no attempt was made to ascertain, as that went beyond the scope decided on for this work. It presents, however, an interesting problem for any one with the time to devote to it, as this high boiling point substance was undoubtedly present to a small extent in unrectified amyl nitrite, such as is chiefly found on the market.

Boiling Point of Amyl Nitrite and Water.—In a number of distillations of amyl nitrite it was noticed that tho the assay would be high, yet the point of beginning of the distillation would be below 80° and that there was a more or less prolonged time during which the thermometer remained nearly stationary at about 80°. In these same cases it was always noticed that a trace of water was present. This seemed good evidence that a binary mixture of amyl nitrite and water distilled at this point. To determine if the conclusion were true, 100 cc. of amyl nitrite were carefully rectified and the part distilling between 96.5° and 97.5°, amounting to 37 cc. was taken as practically pure. This was mixed with 15 cc. of water and distilled in the same manner as other amyl nitrites.

Distillation:—

79°-80°	12 cc. = 23.0%
80°-81°	21 cc. = 40.4%
81°-85°	4 cc. = 8.8%

Between 79° and 81° 63.4 percent of the mixture distilled over and the ratio of water to amyl nitrite was 1:11, by volume, so that nearly 82 percent of the original amyl nitrite distilled between 79° and 81°. The ratio between the water and nitrite for the portion distilling between 81° and 85° was 1:9, which goes to show that as the ratio between water and nitrite changes in the distilling flask there is also a change in the ratio for the distillate. This comparatively low boiling point of the binary mixture constitutes a more delicate test for water in amyl nitrite than the freezing test, for it has been repeatedly found possible to detect traces of moisture in samples which were passed as perfectly dry by the freezing test. Even in the presence of but minute traces of water, the first few drops of distillate will be near 80° and then the temperature will run quickly above 90°. Even before distillation begins, the binary mixture will vaporize into the neck of the distilling flask and there condensing show drops of water on the glass, which are not to be mistaken for condensed amyl nitrite. In view of the proneness to decomposition of amyl nitrite in presence of moisture, this test becomes of value as certifying to a freedom from moisture not shown by freezing.

Much more accurate data regarding a binary mixture of water and amyl nitrite would be of interest, such as might be obtained by a delicate fractional distillation apparatus like Young's evaporator still-head. Also, the investigation of a probable ternary mixture of water, amyl alcohol and amyl nitrite is to be recommended.

Summary.—In conclusion we would call attention to these various facts:

1. That the character of amyl nitrite on the market to-day is, as a whole, mediocre, with a little very good and other small part very bad.
2. That with proper care first-class amyl nitrite may be made commercially.
3. That the nitrous acid process is preferable for commercial work with fairly pure alcohol but the sodium nitrite-sulphuric acid process is preferable when very pure alcohol is used and a product of great purity desired.
4. That a very pure alcohol seems to be less easily converted to nitrite by the nitrous acid process than one less pure.
5. That, while the most of an alcohol may be easily changed to nitrite by the nitrous-acid process, the last portions are much more difficult to convert.
6. That the amyl nitrites made from the first and last fractions of an alcohol boiling chiefly between 128° and 132° differ slightly in boiling point.
7. That certain compounds of very high boiling point are produced.
8. That pyridine nitrate is produced by the nitrous-acid process from even a very pure alcohol and to a greater degree from less pure varieties.
9. That amyl nitrite shows a reduction of acidity by distillation.
10. That a binary mixture of pure amyl nitrite and water distil at about 80° and this fact may be used as a more delicate test for moisture in amyl nitrite than the freezing method.
11. That neither the assay nor distillation alone give reliable information as to the character of amyl nitrite.
12. That considering the results obtained the following is by no means too high a standard:—

Specific Gravity.—0.870—0.880 @ 15°=0.865—0.875 @ 25°.

Acidity.—U. S. P.

Aldehyde.—U. S. P.

Nitrate.—No more than a faint trace when tested by the method given.

Assay.—The U. S. P. method, modified to require not less than 90 percent.

Boiling Point.—At least 80 percent to distil between 90° and 100°.

Moisture.—No traces of water to be shown at the beginning of distillation by a momentary lowering of the boiling of any part to about 80° C.

FROM THE LABORATORIES OF THE PARKE, DAVIS CO.

REVIEW OF CURRENT PHARMACEUTICAL LITERATURE.*

CHARLES H. LAWALL, PH. M.

The following abstracts are intended to give, in as brief a form as possible, the literature of the month having a practical bearing, direct or indirect, upon the subject of pharmacy and allied sciences. No attempt has been made to consider articles written from the purely academic standpoint, although a number of such articles, most of them excellent in character, are scattered throughout the journals for the month:—

JOURNAL OF INDUSTRIAL AND ENGINEERING CHEMISTRY.

The Determination of Mercuric Iodide in Tablets:—The difficulties in the way of estimating mercuric iodide in tablets are outlined and a method is proposed, based upon the oxidation of organic matter and solution of the mercuric compound by digestion with an acidulated solution of potassium chlorate under a reflux condenser. The final determination is made by precipitation of the mercury as mercuric sulphide. The results range within 3 or 4 percent. of the correct figures in known samples.—A. W. Bender, Sept., 1914, p. 753.

Estimation of Antipyrin:—A very satisfactory method for the quantitative determination of antipyrin, based upon its absorptive power for iodine, is proposed, which is satisfactory in the presence of phenacetin, acetanilid or sulfonal, and which, in known mixtures, enabled recoveries within 1% of the correct amount to be made.—W. O. Emery and S. Palkin, Sept., 1914, p. 751.

The Ferric Alum Estimation of Casein:—The authors compare the Kjeldahl nitrogen-determination method of estimating casein, with a method based upon the reaction and precipitation which occurs when milk is mixed with a standard solution of ferric alum, the excess of the latter being determined by the well-known iodometric method. The time consumed in carrying out the proposed method is only 35 minutes and according to tabulated results its accuracy compares favorably with the more tedious and time-consuming methods which have been used heretofore.—H. V. Arny and H. H. Schaefer, Sept., 1914, p. 748.

Hypothetical Combinations in Water Analysis:—This is a very complete resumé of a difficult subject, and one upon which all the light that can be thrown is needed. The various inconsistencies and errors shown in reports of water-analyses, which makes it frequently necessary to entirely re-calculate the analytical findings of one chemist, in order to bring them to a suitable basis for comparison with another, are dwelt upon in detail. The author condemns the frequently employed method of reporting the substances found in their hypothetical combinations and favors reporting the analysis in ionic form.—R. B. Dole, Sept., 1914, p. 710.

The Effect of Bread Wrapping on the Chemical Composition of the Loaf:—This is an exhaustive study of the subject, showing the results in graphic charts. The conclusions are emphatically in favor of the wrapping of bread, as a needed sanitary measure, which in no way detracts from the nutritive value or the palatability of the product.—H. E. Barnard and H. E. Bishop, Sept., 1914, p. 736.

THE PRACTICAL DRUGGIST.

Camphor and Its Preparations:—This is a continuation of a most interesting and valuable article. In the present instalment the author gives formulas for a number of unofficial

* Read at the Philadelphia Branch of the American Pharmaceutical Association, Oct., 1914.

preparations of the drug, including the following, which are not usually found in American works of reference, but are occasionally called for by foreign practitioners:

Collyrium Astringens Lutenum Violii.

Unguentum Hæmorrhoidale.

Aqua Cosmetica.

Unguentum Ophthalmicum Comp. (P. G.).

Emulsio Camphorata.

The paper concludes with a consideration of some difficult combinations of camphor to be dispensed in pill form.—J. Leon Lascoff, Sept., 1914, p. 382.

Figuring the Selling Price:—The perennial topic of the calculation of net profits and the method of obtaining the proper figure for the selling price is graphically illustrated in this article, which includes tables so simple and yet so comprehensive that any desired net profit may be estimated almost at a glance.—A. G. Houston, Sept., 1914, p. 384.

AMERICAN JOURNAL OF PHARMACY.

Rhamnus Purshiana:—A very interesting and comprehensive article upon the subject, well illustrated. It is interesting to note that the original specimens which served as the type for the classification and naming of the plant were collected by Lewis and Clark on their famous expedition to the Northwest in 1805 and 1806 and sent to Frederick Pursh, the well-known Philadelphia botanist. Pursh named the plant *Rhamnus alnifolia*, but De Candolle, a contemporary botanist, in 1825, changed the name to *R. Purshiana* in honor of Pursh. A specimen was growing in Bartram's Gardens, Philadelphia, as late as 1838, and served as a basis for Rafinesque's studies of this for his "Silva Telluriana."—C. W. Johnson and Edith Hindman, Sept., 1914, p. 387.

The Insecticidal Value of Fluidextract of Larkspur Seed:—The author made a number of experiments upon the comparative value of the preparation as made with various menstrua and with preliminary treatment of the drug with various solvents. His conclusions are that the preliminary removal of the oil and its rejection, as frequently practiced for the purpose of giving a clear, bright preparation, is inadvisable and that the menstruum which will extract the largest proportion of fixed oil is the proper one to use. The preparations of highest efficiency were those in which petroleum benzin was used to first extract the drug, the residue from the evaporation of the benzin being subsequently taken up with 95% alcohol, in which it seems to be almost completely soluble. The preparation made in this manner proved to be more than six times as strong as a preparation made by simple extraction with diluted alcohol and ten times as strong as one made with 30% alcohol.—J. B. Williams, Sept., 1914, p. 414.

JOURNAL AMERICAN CHEMICAL SOCIETY.

Some Natural Indicators:—The author has made a very interesting study of the indicator value of the natural coloring matter of about 30 varieties of wild flower petals and those of some cultivated plants in which the most interesting feature seems to be the fact that none of the yellow colors of flowers are affected by either acids or alkalies, while whites are changed to yellow by alkalies and reds and purples are changed to some shade of green or blue by alkalies and back to their original color or a brighter shade by acids.—H. W. Brubaker, Sept., 1914, p. 1925.

JOURNAL OF THE FRANKLIN INSTITUTE.

Occurrence of Aldehydes in Garden and Field Soils:—Salicylic aldehyde was found in soils which had been found to be unproductive. The soils examined were from various parts of the U. S. Out of 14 garden soils, 5 contained aldehydes, and of 60 field soils, 19 contained aldehydes. Check experiments made with salicylic aldehyde upon growing plants showed the retardation to amount to from 30 to 40 percent.

The reaction of the soil or the character of the crop seemed to have no bearing upon the occurrence of the aldehyde. No proportions are given. Of 30 productive soils but 3 contained aldehydes, while of 30 unproductive soils, aldehydes were found in 9. It is not known

whether salicylic aldehyde is the only member of that group occurring in soils, but positive reactions were obtained for that one in every instance when aldehydes were found to be present.—Oswald Schreiner and J. J. Skinner, Sept., 1914, p. 329.

JOURNAL AMERICAN MEDICAL ASSOCIATION.

Potassium Permanganate, a Substitute for:—The prohibitive price to which potassium permanganate soared soon after the outbreak of the war in Europe and the fact that large quantities of the article were used in house-disinfection by the Health Department of Pennsylvania, led to an investigation of the subject by Charles H. LaWall at the request of the Commissioner. This investigation showed that Sodium Dichromate can be used for this purpose if the formaldehyde solution be previously acidulated with 15% of its volume of commercial sulphuric acid. The disengagement of gas is more prompt than with the permanganate, and as far as general comparative effects are concerned the reaction seems to be equally effective.—Dr. Samuel G. Dixon, Sept. 19, 1914, p. 1025.

DRUGGISTS CIRCULAR.

Digitalis and Its Preparations:—Dr. Hatcher's article, which is the first instalment only, may without any derogation to the author, be characterized as a most thorough example of scientific iconoclasm.

The pharmacological studies which have been made by competent observers have resulted in overthrowing a number of the earlier beliefs concerning this drug, many of which have persisted and are still current. Among these beliefs that have been contradicted by Hatcher are:—

First, that the wild plant is more valuable than the cultivated.

Second, that the leaves of the second year's growth are superior to those of the first.

Third, that the leaf grown in certain geographical regions is more potent than that grown in others.

Fourth, that the activity of the leaves rapidly deteriorates unless they are kept with unusual precautions.

Fifth, that the infusion and the tincture differ in the character of their therapeutic effect.

The preparation of the infusion from the fluidextract is stated to be productive of a very average infusion made directly from the drug, which is almost impossible to exhaust with unsightly product which, however, is very likely to be more active therapeutically than the boiling water, according to Dr. Hatcher, unless it be ground to No. 60 powder.—Robert A. Hatcher, M. D., Sept., 1914, p. 517.

BULLETIN OF PHARMACY.

Startling Inaccuracy in Scales, Weights and Measures:—This is not a sensational headline from a yellow journal, but a statement of facts relative to the inspection of weights and measures in drug stores in Wisconsin by the official having charge of that department of state work.

In this investigation it was found that 43.6% of prescription weights were inaccurate, 22% of the scales were found to be defective or inaccurate, and 45% of the graduates incorrect.

Similar inspections have been made by inspectors in the States of Massachusetts and Kansas with equally startling results.

Prescription bottles were also inspected in Wisconsin and 23% were found to be undersized and 10% oversized.

The inspector, in commenting upon the causes of inaccuracy in weights and scales, states that much of the trouble is undoubtedly due to improper methods of cleaning with acids, alkalis or polishing compounds.—Sept., 1914, p. 384.

BULLETIN KANSAS BOARD OF HEALTH.

Coinced Word Substitutes for Beauty Drugs:—This article is a most complete review of the many products advertised so cleverly in the newspapers under the caption "Health and

Beauty Hints," or some other similar heading, and in which the information is given in the shape of fictitious answers to mythical correspondents.

Amarol, Epp-o-tone, May-a-tone and Sartoin consist principally of magnesium sulphate with from 8 to 20 percent. of borax or boric acid.

Spurmax is magnesium salts perfumed. Saxolite is magnesium sulphate and alum.

Boric acid, zinc oxide and sodium thiosulphate (Hypo) are the principal ingredients in Almazoin, Borothol, Cerol, Citrox, Flowers of Oxzoin, Luxor and Zintone.

Ammoniated mercury, a dangerous poison for indiscriminate use in a toilet preparation is present in Freckle Cream, Mergolized Wax, Othine and Tanazin. "Antifreckle Lotion" was found to contain soap, water and corrosive sublimate.

A "wrinkle lotion" was found to be composed of alum, glycerin and water.

Eptol consists of soap, water and borax.

Clearola is composed entirely of sulphur.

Cuticle acid is a 2% solution of oxalic acid in alcohol and water.

Among the skin cleaners was Gloriol Glowene, consisting entirely of soft soap.

Kulux Compound contains bismuth, zinc oxide and glycerin and water.

Among the shampoo preparations which contain borax, soap and alkaline carbonates in varying proportions are Am-o-tone, Capthol, Therox and Canthrox.

Capo-oil and Adora Hair Dressing, both used for the hair, were found to contain wood alcohol as a solvent.

Quinzoin and Quinola, for dandruff, consisted of sodium bicarbonate, ground quassia and quinine.

Perfumed vaseline was advised for silky eyebrows under the name Pyroxin.

Delatone and Delol, both depilatories, contain principally barium sulphide.

Quintone contained hyposulphite of soda and borax.

Among the flesh reducers are Parnotis, composed of baking soda and Glauber's salt, and Marnola, containing phenolphthalein and dried thyroid extract.—L. A. Congdon, Sept., 1914, p. 210.

REPORT N. Y. CITY BOARD OF HEALTH.

The Pro and Con of Artificial Flavors and Colors.:—This is an interesting review of the subject, going into details to some extent and citing interesting examples as illustrations of various points. The summary is as follows:

1. Many synthetic flavors and odors are decidedly injurious to the human organism, either through their action, *per se*, or through their decomposition products.

2. With a few exceptions they are merely imitations and not identical with the real substances desired.

3. Only very rarely are these unnatural adjuvants to be classed as foods.

4. None are really vitally necessary since natural flavors and odors are available to everyone.

5. They may be used for fraudulent purposes.

6. At best, they are of doubtful value and wherever there is any doubt the consumer should have the preference.—Sept. 19, 1914.

REPORT OF COMMITTEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the JOURNAL in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, Geo. M. Beringer, 501 Federal St., Camden, N. J.

APPROVED MONOGRAPHS SUBMITTED AS STANDARDS FOR UNOFFICIAL DRUGS AND CHEMICAL PRODUCTS.

ALLIUM.

Allium. Garlic.

1. The bulb of *Allium sativum* Linné (Fam. *Liliaceae*). Bulb subglobular, 4 to 6 cm. broad, compound, consisting of 8 to 15 bulbels (so called "cloves") and surrounded by 1 or 2 dry, whitish, membranaceous scales and attached to a flattened circular base from the lower portion of which arise numerous yellowish-white roots, bulbels more or less ovoid, in transverse section 3 to 4 sided, the outer surface being convex, summit acute and narrowed into a thread-like fibrous portion, base truncate, each bulbel covered by one or two layers of whitish, membranaceous scale-like leaves, beneath which is the light brown and pinkish, thin and coriaceous layer of epidermis, cohering but easily separable from the solid portion of the bulbel; odor of broken or bruised bulbel aromatic, disagreeable; taste intensely pungent and persistent.

Under the microscope, transverse sections show three distinct portions: (a) the large fleshy scale consisting chiefly of parenchyma enclosing scattered vascular bundles, epidermis in both ventral and dorsal surfaces consisting of small tubular cells; (b) the middle layer nearly circular in outline, about 0.750 mm. in diameter, the tissues resembling those of the outer fleshy scale, but the cells containing numerous yellowish-brown plastids; (c) an innermost bright green layer consisting of a single leaf folded lengthwise along the midrib so that the ventral surfaces lie close together.

Garlic should be used in the fresh condition only.

FLORES VERBASI.

Mullein Flowers.

1. The dried corollas, with adhering stamens, of *Verbascum phlomoides* Linné, or of *V. thapsiforme* Schraeder, (Fam. *Scrophulariaceae*).

2. *Verbascum* flowers should be kept in a tight, dry container.

3. Corolla light-yellow, the outer surface grayish with a fine soft woolly indumentum, the inner surface sparsely hairy and finely veined; tube of the corolla only 1 or 2 mm. long and almost equally broad, the limb from 14 to 30 mm. broad, between wheel-shaped and saucer-shaped, obscurely two-lipped, the unequal lobes rounded-obovate. Stamens five, borne on the base of the corolla, shorter than the corolla, two of them longer than the other three, the filaments thick and fleshy, more or less pilose, especially the three shorter, usually orange colored. Stamen-hairs cylindrical, unicellular, non-branching, surface minutely reticulate, apex rounded, frequently enlarged. Pollen grains smooth, triangular and more or less rounded, 0.025 to 0.030 mm. in diameter. Odor peculiar, agreeable; taste mucilaginous, not agreeable. The flowers impart a yellow color when boiled with water, and a rather permanent green with dilute sulphuric acid, which latter color becomes brown upon the addition of alkalis.

HYDRANGEA.

Hydrangea. Seven-barks.

1. The dried rhizome of *Hydrangea arborescens* Linné (Fam. *Saxifragaceae*).

2. Rhizome, cylindrical, usually cut into

pieces 3 to 10 cm. in length, 3 to 20 mm. in diameter; light brown to yellowish-brown with a pinkish tinge, longitudinally wrinkled, marked by few elliptical lenticels and occasional prominent buds, short branches or stem scars, and from the lower surface arise a few coarse fibrous roots; fracture tough, splintery; internally yellowish-white or light brown, bark thin, easily separable from the distinctly radiate wood which surround a prominent whitish pith; inodorous; taste of the bark sweetish, becoming slightly acrid. Roots attaining a length of 25 cm. and a thickness of 2 mm., irregularly bent and branching, otherwise resembling the rhizome with the exception of the pith being wanting.

3. Under the microscope, sections of the rhizome of *Hydrangea* show a gray cork of a few rows of tabular cells, a cortex made up chiefly of parenchyma containing starch, large cells containing raphides and small isolated groups of stone cells or sclerenchymatous fibers; a woody cylinder composed of slender wedges made up of prominent tracheae with reticulate thickenings and tracheids separated by medullary rays 1 to 3 cells wide, the cells of which are filled with small starch grains; pith of large polygonal cells with prominent simple pores.

4. Powder: Light yellowish-brown, containing irregular fragments consisting of strongly lignified tracheae, tracheids and medullary ray cells; stone cells and sclerenchymatous fibers, 0.050 to 0.200 mm. in length, strongly lignified, the walls marked by simple and branching pores; raphides numerous, 0.070 to 0.130 mm. in length; starch grains mostly single, more or less ellipsoidal, occasionally with a prominent central cleft and varying from 0.002 to 0.010 mm. in diameter.

INULA.

Inula. Elecampane.

1. The dried rhizome and roots of *Inula Helenium* Linné (Fam. *Compositae*), with not more than 5 percent. of its stem bases.

2. Rhizome usually split into longitudinal or more or less oblique pieces to which may be attached one or more of the roots; up to 8 cm. in length and 4 cm. in diameter; externally grayish-brown to dark-brown, longitudinally wrinkled with occasional buds or stem scars and surmounted at the crown by a portion of the over ground stem; inner or cut surface somewhat concave, the edges in-

curved with the overlapping bark, yellowish-brown to grayish-brown, longitudinally striate and more or less fibrous near the cambium zone; fracture short and horny; inner surface light brown and marked by numerous circular or elliptical oleo-resinous canals; roots cylindrical and tapering, frequently curved or irregularly curled, up to 13 cm. in length and 1.5 cm. in diameter; odor aromatic; taste acrid, bitter and pungent.

3. Sections under the microscope show a corky layer of 4 to 7 rows of broad tabular cells; a cortex of numerous parenchyma cells containing inulin in irregular or fan-shaped masses and a number of large intercellular oleo-resinous reservoirs arranged in nearly radial rows and forming interrupted circles; woody portion consisting chiefly of parenchyma, a number of tracheae with simple pores or reticulate thickenings and associated occasionally with a few strongly lignified wood fibres, and oleo-resinous reservoirs similar to those occurring in the bark; parenchyma cells in the pith of the rhizome large, containing less inulin than the cells of the wood and bark and separated by large intercellular spaces.

4. Powder: Light brown; consisting chiefly of fragments of parenchyma containing inulin and small irregular separated masses of inulin; tracheae with simple pores and reticular thickenings associated occasionally with strongly lignified wood fibres; occasional reddish-brown fragments of the walls of the oleo-resinous canals.

IRIS.

Orris.

1. The rhizome of *Iris florentina* Linné *Iris Germanica* Linné, and *Iris pallida* Lamarck (Fam. *Irideae*), freed from the roots, peeled and dried.

2. In pieces of various form and size, sometimes branched, 5 to 10 cm. long and 2 to 3 cm. in diameter, usually round and plump or flattened and showing knotty enlargements. The under surface may show numerous round root scars and the upper surface remains of leaf scars; externally white or yellowish-white; fracture rough, showing a narrow cortex, a brown cambium layer and large central stele. Odor fragrant, resembling that of the violet; taste aromatic and bitter. The ash should not exceed 6 percent.

MACIS.

Mace.

1. The arillode of the seed of *Myristica fragrans* Houttuyn (Fam. *Myristicaceae*).

2. In narrow bands, 25 mm. or more long, somewhat branched and lobed above, united into broader bands below; yellowish to brownish-orange; greasy; odor fragrant; taste warm and aromatic.

3. When powdered, orange-buff to orange-brown in color. Mounted in water and examined microscopically the powder exhibits elongated epidermal cells; parenchyma containing very small amyloextrin granules, which are colored red-brown by iodine T. S.; large oil cells the contents of which are not greatly changed in color on the addition of alkali.

4. Powdered false or Bombay mace is yellow-brown to deep-brown in color and deficient in odor and taste. When mounted in water and examined microscopically it exhibits flattened thick-walled epidermal cells and oil cells much more numerous than in true mace and containing an orange-red resinous substance which is dissolved by alkalis to a blood-red liquid.

5. When moistened with hydrochloric acid, no greenish color should be produced (difference from and absence of arillode of *Myristica Malabarica* Lamarck or Bombay Mace).

6. If an alcoholic extract of Mace (1-10) be treated with potassium chromate T. S., the precipitate formed should be yellow, not changing to red on standing, nor should the solution develop a red coloration (difference from and absence of Bombay Mace).

7. If a piece of filter paper be saturated with an alcoholic extract of Mace (1-10), and 1 drop of potassium hydroxide T. S., be added, no blood-red coloration should be produced (difference from and absence of Bombay Mace).

8. The ash should not exceed 3 percent. and this should be almost completely soluble in hydrochloric acid.

9. Mace should yield not less than 8 percent. of volatile ether extract, and not less than 20 percent. nor more than 30 percent. of non-volatile ether extract.

PETROSELINUM.

Parsley Root.

1. The root of *Petroselinum sativum* Hoffmann (Fam. *Umbelliferae*).

2. The entire fusiform root up to 20 cm. in length and up to 2.5 cm. in thickness at the crown, or somewhat broken or cut into pieces; usually cut lengthwise into two or four sections, externally light yellowish wrinkled longitudinally, somewhat annulate, root scars distinct and corky; fracture tough when damp, brittle when dry; internally, cortex whitish and characterized by numerous reddish-brown oleo-resin cells, cambium zone distinct and brownish, wood about the same thickness as the cortex, slightly radiate and light yellowish in color. Odor aromatic; taste sweetish and pungent.

3. The powdered drug shows numerous truncate or somewhat angular starch grains up to .030 mm. in diameter, reticulate tracheae up to .060 mm. in width and thin walled, lignified fibers with simple pores.

4. Ash not more than 6 percent.

PIMPINELLA.

Pimpernel Root.

1. The dried rhizome and roots of *Pimpinella Saxifraga* Linné, or *Pimpinella magna* Linné (Fam. *Umbelliferae*).

2. Cylindrical or slightly tapering, about 10 to 20 cm. in length and from 1 to 1.5 cm. in diameter at the crown, frequently branching, sometimes split longitudinally or broken into pieces; the upper or rhizome portion annulate, with undeveloped stem buds and a few attached stem remains which should not be over 5 cm. in length; roots longitudinally wrinkled, slightly annulate, cortex thin, easily detached; fracture short when dry, tough and flexous when damp; externally light yellowish-brown; internally porous, cortex broad and whitish with numerous groups of projecting radial bast fibers and reddish-brown oleo-resin cells, wood yellowish, usually with a few indistinct fibers, medullary rays interrupted, cambium zone distinct; odor, aromatic; taste sweetish, pungent and acrid.

3. The powdered drug shows numerous simple or 2 to 4 compound starch grains from .004 to .010 mm. in diameter; secretion canals from .050 to .060 mm. in diameter; trachea reticulate or scalariform .035 to .070 mm. broad; fibers, thin walled numerous, thick walled with simple pores few (*P. magna*).

POTASSII FORMAS.

Potassium Formate.

1. It should contain, when dried, not less

than 98 percent. of potassium formate ($\text{KCOOH} = 84.11$). It should be kept in well-stoppered bottles.

2. Very deliquescent, colorless crystals, or white crystalline powder, odorless, taste saline bitter.

3. It is very soluble in water, soluble in alcohol.

4. Its aqueous solution is slightly alkaline to litmus, but should not redden phenolphthalein.

5. When the salt is heated, hydrogen is evolved and a residue is left which effervesces with acid, and imparts to a non-luminous flame a violet color.

6. On adding sodium bitartrate T. S. to the aqueous solution of the salt (1:20) a white crystalline precipitate is slowly formed which dissolves on the addition of ammonia water.

7. When ferric chloride T. S. is added to the aqueous solution of the salt (1:20) a red color is produced which is discharged by strongly acidulating with sulphuric acid.

8. The addition of mercuric chloride T. S. to the warm aqueous solution of the salt (1:20) produces a white precipitate of mercurous chloride, which turns gray on further warming in the presence of an excess of the formate.

9. The aqueous solution of the salt (1:100) should comply with the U. S. P. test for Limit of Heavy Metals.

10. 10 cc. portions of the aqueous solution of the salt (1:20) slightly acidulated with acetic acid should not be rendered turbid within five minutes by the addition of ammonium oxalate T. S., (calcium), or by calcium chloride T. S. (oxalic acid).

11. Weigh accurately about 2 gm. of Potassium Formate, previously dried to constant weight at 120°C . and ignite it thoroughly at a temperature not exceeding a red heat. Dissolve the residue in hot distilled water, filter, if necessary, and wash until washings cease to affect phenolphthalein. Then cool the solution and titrate with normal sulphuric acid V. S., using methyl orange as indicator. The number of cc. of normal sulphuric acid V. S. consumed should indicate not less than 98 percent. of potassium formate. Each cc. of normal sulphuric acid V. S. corresponds to 0.08411 gm. potassium formate.

QUININAE VALERAS.

Quinine Valerate.

1. The Valerate of the alkaloid quinine. It should be kept in well-stoppered amber-colored vials.

2. White lustrous crystals, having an odor of valeric acid and an intensely bitter taste.

3. It is very sparingly soluble in cold water, soluble in hot water, becoming less soluble by age on account of loss of valeric acid; readily soluble in alcohol.

4. Its aqueous solution is neutral or slightly alkaline to litmus.

5. On treating 10 cc. of the aqueous solution of the salt (1:1000) with a few drops of bromine water, then with an excess of ammonia water, an emerald green color will be produced.

6. The aqueous solution acidulated with sulphuric acid exhibits a blue fluorescence and emits the odor of valeric acid.

7. On incinerating 1 gm. of Quinine Valerate, not more than 0.1 percent. of ash should remain.

8. About 0.1 gm. of the salt should dissolve in 5 cc. of sulphuric acid without producing more than a light-yellow color (readily carbonizable impurities).

9. 10 cc. portions of the cold saturated aqueous solution of the salt should not give more than a slight turbidity with barium chloride T. S. when acidulated with hydrochloric acid (sulphate) or with silver nitrate T. S. when acidulated with nitric acid (chloride).

10. The quinine obtained by shaking out the salt with ammonia water and chloroform should comply with the U. S. P. test for absence of excessive amounts of other cinchona alkaloids.

SODII FORMAS.

Sodium Formate.

1. It should contain, when dried, not less than 98 percent. of anhydrous sodium formate ($\text{NaCOOH} = 68.01$). It should be kept in well-stoppered bottles.

2. A white crystalline powder, or colorless crystals, containing one molecule of water; odorless and having a saline bitter taste.

3. It is very soluble in water, sparingly soluble in alcohol.

4. Its aqueous solution is slightly alkaline

to litmus, but should not redden phenolphthalein.

5. When the salt is heated, hydrogen is evolved and a residue is left which effervesces with acid and colors a non-luminous flame intensely yellow.

6. Ferric chloride T. S. added to the aqueous solution of the salt (1:20) produces a red color which is discharged by strongly acidulating with sulphuric acid.

7. The addition of mercuric chloride T. S. to the warm aqueous solution of the salt (1:20) produces a white precipitate of mercurous chloride which turns gray on further warming in the presence of an excess of the formate.

8. The aqueous solution of the salt (1:100) should comply with the U. S. P. test for Limit of Heavy Metals.

9. 10 cc. portions of the aqueous solution (1:20) slightly acidulated with acetic acid should not be rendered turbid within five minutes by ammonium oxalate T. S. (calcium) or by calcium chloride T. S. (oxalic acid).

10. Weigh accurately about 2 gm. of sodium formate, previously dried to constant weight at 120° C. and ignite it thoroughly in a crucible at a temperature not exceeding a red heat. Dissolve the residue in hot distilled water, filter, if necessary, and wash until washings cease to affect phenolphthalein. Then cool the solution and titrate with normal sulphuric acid V. S., using methyl orange as indicator. The number of cc. of normal sulphuric acid V. S. consumed should indicate not less than 98 percent. of anhydrous sodium formate. Each cc. of normal sulphuric acid V. S. corresponds to 0.06801 gm. of anhydrous sodium formate.

STRYCHNINAE VALERAS.

Strychnine Valerate.

1. The Valerate of the alkaloid strychnine. It should be kept in well-stoppered amber-colored vials.

2. A white crystalline powder, having an odor of valeric acid and an intensely bitter taste.

3. It is sparingly soluble in water, becoming less soluble by age on account of loss of valeric acid; soluble in alcohol or chloroform; slightly soluble in ether.

4. Its aqueous solution is neutral or slightly alkaline to litmus.

5. On dissolving about 0.05 gm. of Strychnine Valerate in 2 cc. of sulphuric acid not more than a faint yellowish color should be produced, but on adding a fragment of potassium dichromate a deep violet color will be produced which changes to orange or yellow.

6. When sulphuric acid is added to the salt, the odor of valeric acid is evolved.

7. On incinerating 1 gm. of Strychnine Valerate, the ash should not exceed 0.1 percent.

8. 10 cc. portions of the aqueous solution of the salt (1:100) should not be affected at once by barium chloride T. S. when acidulated with hydrochloric acid (sulphate) or by silver nitrate T. S. when acidulated with nitric acid (chloride).

9. About 0.02 gm. of the salt moistened with nitric acid may be colored yellow, but should not become red or reddish (brucine).

THYMUS.

Thyme.

1. The dried tops of *Thymus vulgaris* Linné (Fam. *Labiatae*) collected when the plant is in flower.

2. Stems quadrangular, about 0.5 mm. in diameter, greyish-brown or purplish in color, pubescent, nodes from 5 to 20 mm. apart, occasionally with the opposite leaves attached; leaves linear, linear lanceolate, or ovate oblong, 0.5 to 4 mm. long and from 0.5 to 2 mm. broad, apex acute, base obtuse tapering into a petiole 0.5 to 2 mm. long, margin revolute, upper surface greyish-green, puberulent, with numerous one-celled thick-walled, non-glandular hairs, lower surface greyish, pubescent, with non-glandular one to four-celled, thick-walled, rough simple hairs, up to 0.135 mm. in length and usually curved at the first joint in the bases, numerous compound glandular secreting hairs with a short one-celled stalk occurring chiefly on the upper surface and depressed in the cuticle give the leaf a glandular-punctate appearance; inflorescence in about twelve-flowered axillary whorls; flowers polygamous, calyx tubular, about 4 mm. long, ovoid or slightly curved on the lower side near the base, 9 to 12 nerved, pubescent, the throat bearded with longitudinally striated straight simple hairs up to 1 mm. in length, bilabiate, upper lip three-toothed,

lower lip with two hairy ascending attenuate divisions, corolla about twice as long as the calyx, purplish, smooth within, slightly pubescent without, upper lip emarginate, lower spreading and three lobed, stamens slightly

didynamous and exerted, stigma bifid; nutlets about 0.5 mm. in diameter, spheroidal and finely tuberculate. Odor agreeable, aromatic; taste aromatic and warming.

3. Ash not more than 10 percent.

X-RAYS SHOW ETHER WAVES.

Professor W. H. Bragg delivered at the British Royal Institution a lecture on X-Rays and crystalline structure. Two years, he said, had gone by since Dr. Laue made his surprising discovery of the interference effects accompanying the passage of X-Rays through crystals. The pioneer experiment had opened the way for many others, and a very large amount of work, practical and theoretical, had now been done. There was work enough in sight to absorb the energies of many experimenters, and there was sure to be far more than we could see. It would scarcely be an over-statement to say that Laue's experiment had led to the development of a new science. The experiment itself, which, to put it briefly, constituted a proof that X-Rays consisted of extremely short ether rays, had already been described and was well known. A fine pencil of X-Rays passed through a thin crystal slip and impressed itself on a photographic plate. Round the central spot were found a large number of other spots, arranged in a symmetrical fashion, their arrangement clearly depending on the crystal structure.

Mr. W. L. Bragg (the lecturer's son) had discovered the "reflection" method, and had shown that it was able to elucidate the position of all the spots on the Laue photograph. This conception led to the construction of the X-Ray spectrometer, which resembled an ordinary spectrometer in general form, except that the grating or prism was replaced by a crystal and the telescope by an ionisation chamber and an electroscope. In use a fine pencil of X-Rays was directed on the crystal, which was steadily turned until a reflection leaped out, and the angle of reflection was then measured. If we used different crystals or different faces of the same crystal, but kept the rays the same, we could compare the geometrical spacings of the various sets of planes. If we used the same crystal always, but varied the source of X-Rays, we could analyze the X-Rays, measuring the relative wave lengths of the various constituents of the radiation.

At this stage a critical point had been reached. If we knew the exact spacings of the planes of some one crystal we could by comparison find the spacings of all other crystals and measure the wave lengths of all X-radiations. Or if we knew the exact value of some one wave length we could find by comparison the values of all other wave lengths and determine the spacings of all crystals. But at this stage there was no absolute value either of wave length or spacings.

Mr. W. L. Bragg appeared to have overcome the difficulty by his comparison of the reflecting effect in the case of rock salt or sodium chloride and sylvine or potassium chloride, and the spectrometer had now become a means of measuring the length of waves of any X-radiation and the actual spacings of the atoms of any crystal.

BETTER DRUGS AS WELL AS FOODS.

MR. FRED WINDOLPH, NORWICH, N. Y.

The following address was delivered by Mr. Windolph at the recent meeting of the Association of Dairy Food and Drug Officials and was highly commended:

I am to speak to you today on behalf of the American Association of Pharmaceutical Chemists and, as I understand it, with reference to the relation which might exist or should exist between your honorable body and the manufacturers of medicinal products. The very able remarks which were made yesterday with reference to food products are applicable in a large measure to the conditions which exist in the manufacture of pharmaceuticals. But in addition to that we, as drug manufacturers, have problems which possibly the food men have not. And in speaking of "drug products" I do not refer to what are ordinarily known as patent medicines.

Our association is the oldest association of manufacturing pharmaceutical chemists. We were the first ones to organize for our mutual benefit and for the advancement of the science of pharmaceutical manufacturing.

I say we are the oldest, but even that does not date our beginning back very many years because it has only been within a few years that the manufacturers have gotten together and discussed the problems which enter into their daily work.

We make the preparations which are used by the physicians and which are prescribed by physicians for the alleviation of human suffering. We make thousands and thousands of pharmaceuticals and these are made in various forms. And, having so many items to handle, so many drugs and constituents to handle, we have many problems which cannot come to the manufacturer who specializes upon but a single thing.

If we were manufacturers of patent medicines it would be a simple matter for us to learn how we should label our goods and then our troubles would be over.

But we have, in the first place, the various medicines which enter into these preparations. They are not only chemical but they are vegetable constituents and they come to us from all corners of the earth in varying conditions. It is necessary for us to standardize our raw materials and we have our own difficulties there, as I am sure those of you who have anything to do with the importation of these chemical and vegetable ingredients will agree. We have our troubles in getting the proper materials to start with and then in the course of manufacture. We find it necessary to have control departments, employing a corps of chemists to assay and analyze the drugs, and then to pass upon the finished product. We have our troubles even after they leave our hands, so that you see the manufacturers' lot is not altogether a happy one. And when, added to these troubles, come questions of interpretations of the laws as to the proper labels for goods, there we are confronted with a condition which makes us welcome very heartily indeed the sentiment—that there should be uniformity in the laws throughout the country so that when we get an answer from one state or federal government as to labeling products we will know that that same answer will suffice.

We are more than glad to see this spirit manifested. And I was very much pleased to hear the discussion in reference to the net weights and measures law, the disposition that was shown by the state commissioner to wait for the national government to lay down its regulations for tolerance and so on before they make them in the states, so that when we do have them they will be uniform everywhere.

Then there is another matter which has been brought up here which gives us great hope and faith to believe that there is balm in Gilead. That is your constructive work for helping the manufacturers not only in the decision on technical questions in reference to labels, but also as to processes and in the conservation of waste products and other matters which enter in the practical manufacture of goods. In that you are undertaking a grand work, and it is one which will not only redound to the benefit of the manufacturer but to the country at

large. The most excellent paper by Dr. Barnard was a wonderful contribution along those lines. Dr. Kebler has done a great work for the manufacturers of pharmaceuticals in his very efficient investigation into the manufacture of tablets. He has written a wonderful paper on that subject which has been published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION and which will undoubtedly be of great benefit to every manufacturer of tablets in the country. I also wish to thank you gentlemen for the most excellent information which you put into these bulletins which you send out from time to time. My only regret is that we don't get more of them from more of the states.

The association which I represent was formed for this purpose of bettering the production of the articles of the manufacturers who belong to that association and, really, for the improvement of all who are engaged in the manufacture of medicinal products. Our aim is to get better raw materials, to eliminate waste, to improve methods of manufacture, and to make better goods where we can raise our standards—and we have found that all this has been of great benefit to us individually. We are all competitors, of course, and in days gone by we did not meet with one another, we did not consult one another. We felt that we could not associate very much with our competitors, but we find now that there is a great deal we can do for each other, and if in the constructive work which you contemplate we can coöperate with you gentlemen, the work will be magnified and redound not only to your good and to our good but to the good of the people of the country at large. And, feeling, as I do, that there is a light breaking which helps to guide our pathway, I wish to thank you for permitting us as manufacturers of one particular line, to appear before you, and I wish to join in all the good words which have been said by the manufacturers here, and I wish also to say that I think we are all disposed to work in harmony with the known wishes of the gentlemen who are in charge of the administration of these laws. We, who were present this morning at the musical concert, had a manifestation of the beauties of harmony. Those of us who listened to that magnificent concert, had a manifestation of a true symphony. Those of us who listened to that magnificent concert could not help but be impressed with the great harmony of that wonderful organ. When the magnificent instrument responded to the touch of the organist I think we all felt lifted out of ourselves; we thought a little better of ourselves even, and certainly we thought more of our fellow-men. And so in the operation of the pure food laws as they apply to the manufacturers of this country, if we can have a spirit of harmony and coöperation I believe that we will all be better men, better executives, and better manufacturers, and in that way we will be doing much better and greater service for our country and for those who depend upon the industries represented here to-day.

NEW PHARMACY REGULATIONS.

A recent presidential decree establishes new pharmacy regulations governing the composition, labeling, sale, etc., of patent and other medicines in Venezuela. Pharmaceutical specialties of a determined formula must bear labels showing the quantity of active substances contained in each dose and the names of these substances. Such preparations will be subject to analysis by the Department of Public Health of Venezuela, and those failing to correspond to the declared formula will be considered fraudulent. The unauthorized use of containers peculiar to food or other medicinal preparations or mineral waters, as well as of labels which are imitations of those on the corresponding genuine products, or which tend to deceive in respect to place of origin, shall also be held to be fraudulent. Poisonous preparations and products must bear labels on which shall appear, on a black background, the word "Veneno" (poison), in white letters not less than 2 centimeters high, together with the customary sign of the skull and crossbones, also in white.—Gaceta Oficial, June 3, 1914.

FOOD IN PACKETS—A PHENOMENAL DEVELOPMENT IN RECENT YEARS—FOOD IN THE BULK ALMOST A THING OF THE PAST.

The impression one gets on entering the grocery department of any large store, that it is possible to obtain the great bulk of our food supplies in packets or tins, is to a very large extent a correct one. Within the past twenty years the amount of food of various kinds done up and placed on the market in packets and tins has increased enormously. It may surprise many, however, to know that in the middle of the eighteenth century even cereal foods in packets were already being used to a considerable extent in Great Britain.

The phenomenal expansion of advertisement in recent years has been the means of establishing the proprietary article as an important factor in the people's food supplies, and, of course, a large proportion of food supplied in packets and tins comes within the category of proprietary. Each manufacturer of a specialty means to make the public conversant with the fact and to realize when it gets his product. Consequently he serves it up in packets or tins, which, of course, bear his name. In this way he certainly secures an advantage as compared with his predecessor, who sold his produce in bulk, and of whose name the consumer was seldom aware.

The more scientific preparation of many articles of food tends to further developments in the trade in food in packets and tins. Even were it possible to estimate the value of the produce packed in the United Kingdom we should still be a long way off the total, for great quantities of food in packets and tins are imported; the United States is a leading exporter. Some of our oversea Dominions, moreover, are making rapid strides in the trade.

Just as it is impossible to estimate the value of the trade, so is it impossible in the space available to detail the various articles of food obtainable in packets and tins. Tea, coffee, cocoa, spices, cereals, salt, fruit, fish; these are but a few in a seemingly endless list. The fact remains, however, that the purchaser has become so accustomed to getting various articles in packets or tins that the variety has ceased to interest, or at least to be fully realized.

On the point of cleanliness the consumer can, in general, rely upon foods in packets or tins being quite satisfactory. Their hygienic status is indeed often one of their chief recommendations. And to-day they are more hygienic than ever before on account of the supersession of hand-packing by mechanical means. As an illustration, the case of tea in packets may be quoted. In one continuous operation the tea is blended, automatically weighed, and packed without being handled once. As with tea so with many other commodities. Of course, there are many more which do not lend themselves to packing by machinery, and which have, therefore, to be handpacked. The conditions under which this is now done would, in the greater number of cases, reassure even the most fastidious. Though the bulk of the packing is done at the factories of the numerous manufacturers, there are now fewer stores of any importance in our leading cities where a very considerable amount of packing is not done.

Many of the commodities sold in packets and tins are also obtainable loose—that is, they are kept in bulk until a buyer places an order. Rolled oats are an

example. With regard to certain commodities, and perhaps more especially certain cereals, there are those who contend that a higher quality is retained in bulk than when done up in small packets. On the other hand, when kept for a long time contamination is more to be feared in bulk than in packets. Again, in regard to certain articles which are put up in tins, the quicker this is done the better. Coffee is an outstanding example; the quicker it is put in sealed tins after roasting the greater the likelihood of its retaining its flavor.

Whether it be best to pack a certain article in packets or tins depends upon the article. Some articles will keep as long as necessary in the ordinary packet, while others keep better in tins. The introduction of mechanical appliances has, of course, reduced manufacturers' expenses. Even in regard to food packed by machinery there is naturally considerable expense to be borne. Per packet or tin it may work out at a very small figure. The masses, however, are aware of the fractional difference in the article sold in packets and that in bulk—it may only amount to $\frac{1}{2}$ d. per two or three lbs. on cereals—and for that reason they adhere to the old fashion of buying at a store which carries a big supply in bulk.

Still, everything considered, the development of the trade in food in packets and tins has given general satisfaction to the consumer. Indeed the contention is frequently made that but for that development the masses at least would to-day still be without many articles of food which they have come to regard as necessary.—*London Times*.

ELECTRICAL SCIENCE.

ROMANCE OF THE ATOMS—TRANSMUTATION OF THE ELEMENTS.

Speaking at Oxford, Sir J. J. Thomson, Cavendish professor of experimental physics at Cambridge, pointed out that the atomic theory, the theory that matter, in spite of its apparent continuity, is in reality made up of a great number of very small particles, is as old as the science of physics itself; but for two thousand years it made no progress because it had no real connection with physical phenomena. No facts were known by which it could be tested, and it was too vague to suggest for itself effects that could be put to the test for experiment. It was sterile because it was divorced from experience, and it affords a striking proof that a theory can grow only by the coöperation of thought and facts. Facts play such a large part in stimulating imagination and suggesting new ideas that every mechanical improvement in apparatus, every new method that makes it easier to investigate physical phenomena, not merely affects the technique of the science, but may originate ideas that will ultimately revolutionize our philosophy of the universe.

In giving an account of the present state of the atomic theory, the lecturer pointed out that we now know that such things as atoms exist, and that the atoms of an element are all of one kind. We know that all atoms contain electrons—minute particles charged with negative electricity—and that there is only one kind of electron; and this knowledge constitutes the first step towards a knowl-

edge of the structure of the atom and towards the goal towards which since the time of Prout many chemists have been striving—the proof that the atoms of the chemical elements are all built up of simpler or “primordial atoms.” The number of electrons in an atom is also known. From measurements of the scattering of Röntgen rays it follows that the number is not very far from half the atomic weight, so that in the carbon atom there would be six electrons, in the oxygen eight, and so on, while in the lightest atom, hydrogen, there is probably only one.

TRANSMUTATION.

The constant difference between the number of electrons in the atom of one element and that in the atom of the element next in the series is strong evidence in favor of the view that the atoms of the consecutive elements differ from each other by the addition of a primordial atom, which is apparently the atom of helium. The atomic weights of the elements show that in their formation a measurable change of mass has taken place, and the changes of energy involved must be enormous compared with those liberated in any chemical changes with which we are acquainted. For instance, the atomic weight of chlorine being 35.5, which is not a whole number, it follows that in the formation of 355 grammes of chlorine there must have been a change of mass of at least half a gramme, and this involves the absorption or liberation of an amount of energy about equal to that required to keep the Mauretania going at full speed a week. The amount of energy required to break up an atom has a very important bearing on the problem of transmuting the elements by physical means, but the lecturer said that his efforts to split up atoms, though he had succeeded in detaching electrons, had not yielded any evidence he could regard as conclusive that by such means the atom of one element could be changed into an atom of a different kind.

WORK FOR FUTURE SCIENTISTS.

As regards the structure of the atom there is strong evidence that the electrons in it are divided into groups and that some of its properties—those associated with its innermost group—are connected in a very simple way with the total number of electrons in the atom; and that there are other properties, notably the chemical ones, which change in a rhythmical way with the atomic weight and which depend on the electrons near the surface of the atom. Lastly, there are regions in the atom, probably the most interesting of all, about which we know little or nothing, the investigation of which will provide work for many generations of physicists, who will assuredly have no reason to be “mournful that no new wonder may betide.”

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.



CHARLES A. WEST.

The fortieth annual Convention of the National Wholesale Druggists' Association was held at Indianapolis the week of September 22. President George W. Lattimer presided over the Convention.

The address of the President was replete with wise suggestions of the progress made during the past year and of the probable effect upon the trade of its legislation. He thought that the government had shown great capacity in dealing with the perplexing questions presented to them and in satisfying the people without at the same time imposing burdensome restrictions upon the trade.

He referred to the income-tax as one of the fairest and most just methods of financing the government. He urged the members to endeavor to secure uniformity of legislation between the State and National laws. He commended the Stevens bill, condemned a war tax on patent medicines and predicted that the parcel-post would come into more universal use as people became educated to it.

Acting Secretary Thomas F. Main reported a membership of 262 active and 347 associate members.

Treasurer Strong reported a balance of cash on hand of \$10,789.86.

The various reports presented

were most admirable, showing earnest work on the part of the committee chairmen.

Among those worthy of particular commendation were the reports of the Committee on Legislation, of Adulteration, Proprietary Goods and Credits and Collections, Fire Insurance, and Drug Market. The following gentlemen were elected as officers for the ensuing year:

President, Charles A. West, Massachusetts; Vice Presidents, W. J. Mooney, Indiana; John R. Tague, Tennessee; F. E. Bogart, Michigan; John Phinzy, Georgia; John R. Mason, Texas; Secretary, Thomas F. Main, New York; Treasurer, S. E. Strong, Ohio; Board of Control, Charles Gibson, Charles E. Bidwell, James W. Morrison, and George R. Merrell. F. E. Holliday was selected as the Association's General Representative.

On Tuesday evening the visiting ladies were entertained by Mr. and Mrs. J. K. Lilly with a *musical* at their residence on North Meridian Street. Wednesday evening the Convention were the guests of Eli Lilly & Co., and "a most enjoyable occasion" was the verdict rendered by all. The banquet was held on Thursday evening, at the Claypool Hotel, with Mr. J. K. Lilly as toastmaster of the evening. The speakers were President-elect West, President Lattimer, Governor Ralston, Meredith Nicholson and Rev. F. E. Taylor.

Friday, the Convention members were the guests of Hon. Thomas Taggart, at the French Lick Springs Hotel, and a most bountiful hospitality was extended to the Convention. The beautiful hotel and grounds were thrown wide-open to the visitors and their enjoyment of the occasion was enhanced by their inspection of the plant of the famous Pluto Water.

One of the most pleasant features of the Convention was the dinner of the Past Presidents, at the Claypool, on Monday evening, at which Mr. Thomas F. Main, President of the Association in 1894, presided.

Mr. Charles A. West, the newly-elected President, is Vice President of the Eastern Drug Co. of Boston, Mass. The Association is to be congratulated upon its choice for President. "One of Nature's noblemen," courteous in the highest degree, he will bring to the office of President that earnestness of purpose, courage of conviction, that dignity and courtesy which will stimulate the work of the organization and of every officer and member. The Association has cause for thanksgiving in its selection of Charles A. West for its leader for the coming year, and as the successor of a long line of eminent men of the wholesale branch of the profession.

Of General Interest

UNITED STATES CHAMBER OF COMMERCE TO STUDY FOOD AND DRUG QUESTIONS.

The Chamber of Commerce of the United States of America, widely distributed throughout the United States, has taken up the study of the subject of uniform food and drug regulation. For this purpose a special committee was appointed in July, and its first meeting was held at the headquarters of the Chamber in Washington, October 8th. The committee is composed of W. M. McCormick of Baltimore, A. J. Porter of Niagara Falls, John A. Green of Cleveland, B. L. Murray of New York, and Theodore F. Whitmarsh of New York. Mr. Murray is chemist to Merck & Co., and Mr. Whitmarsh is Vice President of Francis H. Leggett & Co.

The following resolution was adopted:

Resolved, That the Chairman be and he hereby is authorized and empowered to appoint two sub-committees to consider, respectively, the problems relating more particularly to food control and to drug control, and to report their findings to the general committee.

As a result of the above resolution, Mr. McCormick appointed Mr. Murray as Chairman of the Sub-Committee on Drug Control, and Mr. Porter as Chairman of the Sub-Committee on Food Control.

The following resolution, commending the efforts of the Department of Agriculture tending towards coöperation and uniformity, was also adopted:

Resolved, That this committee hereby earnestly and heartily endorses the establishment of the bureau in the United States Department of Agriculture, particularly concerned with Federal and State coöperation in the enforcement of the Food and Drug Control Laws, thereby promoting an equal and uniform enforcement of such laws, believing that this work is distinctly in the public interest.

The position taken by the committee on the meaning of uniformity is interesting and will repay close examination. Its views are not confined to a limited horizon, but are intended to grasp the broader and wider

fields. Its efforts will be confined to no organization or class of people. It hopes to cover in its endeavors the position of the wholesaler, the retailer, the consumer, the manufacturer, the official, and all others concerned in the production, handling and consumption of food and drugs. But only the broad, general questions of national character will be considered. After a lengthy discussion the committee at its meeting, by unanimous vote of all present, adopted the following regarding uniformity:

Uniformity, as the committee would define it, involves the highest degree of efficiency in food and drug control which it is possible to have prevail universally and equally in every part of the nation. The Federal, State, and municipal laws and their regulations would, if perfect uniformity were attainable, reach the level of full and complete efficiency—and thereby afford equal protection and a uniform standard of living for all the people. Uniformity accomplished, places merit and the general public interest over local political or geographical divisions. This committee will, therefore, direct its efforts and consideration toward the accomplishment of uniformity. The committee cannot but feel impressed with the magnitude, the importance, and the seriousness of its work. It cannot but feel the need for the closest study of the subject. And again the committee cannot but feel the necessity for the fullest and most cordial coöperation between itself and the officials and all others concerned. The committee will, of necessity, act deliberately and slowly, making certain of each step, considering only the important problems of national character.



COBBLERS, TO YOUR LASTS!!

To the Editor:—With much interest and appreciation the subscriber read and digested the excellent editorial of the October issue, entitled "The Commercialization of Pharmacy." It is my candid opinion that this editorial voiced the opinion of the great mass of the members of the A. Ph. A. and all of that class of pharmacists who believe in Pharmacy as a profession and who revere and honor those who have made it a scientific calling,—one demanding the highest exercise of application, education and skill.

The Chairman of the Commercial Section, in his address at the Detroit Convention, most

certainly exaggerated the commercial side of pharmacy. It is true that, to some extent, commercialism has a place in pharmacy, as well as in other professions. No pharmacist, no physician, no lawyer and, even, no minister, can be successful, if they neglect the commercial part of their profession. Personally, I cannot agree with the statement of the Chairman of the Commercial Section, that it is equally as "ethical" to sell picture post-cards as it is to compound and dispense prescriptions. Besides that, it is not as profitable to sell a penny-picture card as it is to dispense a prescription at fifty cents!

The average druggist of to-day is too apt to follow the ways pursued by the large chain stores. He thinks that his salvation, especially, lays in the adoption of their methods! From *legitimate* side lines, a great many of the druggists, throughout the United States, have drifted into the sale of articles entirely *foreign* to pharmacy. Pharmacy, nay, the drug business, has walked, *and even run*, a downward path by the sale of such articles as umbrellas, hair goods, eggs, and last, but not least, by the establishment of lunch-counters. The writer was more than surprised to find such lunch-counters in a prominent pharmacy at Nashville, when attending the Convention.

As an example of how the degeneration of pharmacy, is making rapid progress, let me state that one of the chain stores in New York City, displays, very prominently, this sign on the main floor: "Drugs in the Basement!" Such signs and the sale of goods foreign to our business cannot but degrade pharmacy, and will surely deprive us of the little respect which the public has at the present time for our profession.

After all, scientific education is the cornerstone of the whole foundation of professional pharmacy! A pharmacist who has the proper scientific training, and, consequently, the real knowledge will *never* have to stoop to the adoption of side-lines which are foreign to

pharmacy. Owing to his training and his knowledge, he is enabled to make a living and more than a living by practising pharmacy.

The writer does not pretend to be the Moses to whom the Acting Editor refers, but he has preached for years that more professional, and less commercial pharmacy is needed, in order to elevate pharmacy to that position where it properly belongs. Discard your side lines, become an expert in your profession, study the U. S. P. and N. F., make your own preparations, become a prescription specialist, get the reputation of being a skillful pharmacist and last, but not least, gain the confidence of the public as well as of the medical profession!

"Cobbler, stick to your last," is the advice which the Acting Editor gives in the editorial in the October issue of the Journal. Practically the same was voiced by the writer in his address as Chairman of the Section of Practical Pharmacy and Dispensing at the Richmond meeting in 1910 in his advice, "Don't be a jack-of-all-trades, but be a master of a profession, namely 'pharmacy'!"

If pharmacists throughout the country would heed such advice, how much better would that be for pharmacy, and how soon would we have a profession of pharmacy of which the United States could be proud.

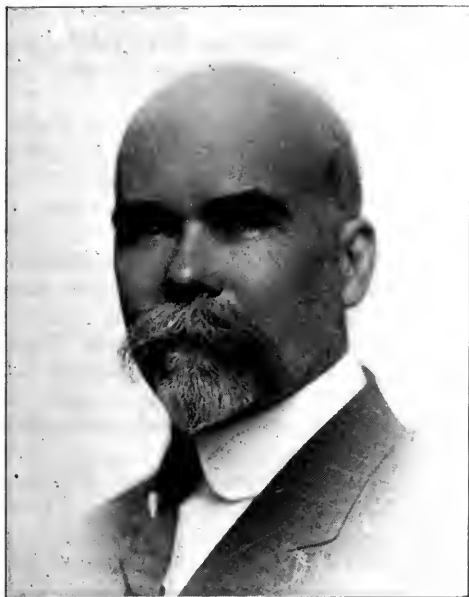
OTTO RAUBENHEIMER.

<>

William Henry Lacey, aged 64 years, for many years in business at Nineteenth and Green streets, Philadelphia, died of a complication of diseases on September 30, 1914. The store came under his management in 1873, and his ownership in 1880, and has been one of the land-marks of that section. Mr. Lacey was prominent in several fraternal organizations. He became a member of the American Pharmaceutical Association in 1907. He was unmarried. A brother survives him.

IN AND OUT OF THE INDIAN TOOLHOUSE.

By Clark McAdams.



DR. H. M. WHELPLEY.

I went down into Albion place a few nights ago to see Dr. H. M. Whelpley's collection of Indian relics. It had been some months since I had seen it. I found it growing, as always, and the house stuffed with it until the walls are beginning to bulge. The doctor's father, who was a physician over in Union County, Illinois, where the Indians at Cahokia quarried the flint for their farm implements, laid the foundation of this tremendous collection years ago. He drove about the country in professional quest of ague and measles, and always brought home a relic or so in the back of the buggy. The son began where the father left off, and he has by this time become the foremost private collector in the United States. The only way to keep him from getting anything that strikes his fancy is to nail it down, exactly as Europe did when the late Mr. Morgan went over collecting art and antiques. Collecting is a disease, the germ of which will be discovered in time. It begins mildly, like whooping cough and housemaid's knee, and reduces the patient in its extreme form to a feverish desire to collect something.

Dr. Whelpley brought out his tray of banner stones, and we all began palming them down and caressing them in the way a lover of fine Indian relics will do. I have seen Indian relics take on a fine luster from the affection

borne them by connoisseurs. Banner stones are as a rule made of rose quartz. They are very rare and very beautiful. The butterfly type is as highly prized as anything the aborigines of this valley made. A banner stone had no more practical use than to serve as an ornament, or a ceremonial. It was art, which requires no explanation of what it is for.

When we had seen the banner stones—some \$2000 worth of them—the doctor brought out his cannel coal relics. Cannel coal is bituminous fuel with something of the hardness and brittleness of anthracite. It takes a very fine polish, and in former times all jet ornaments were made of it. The Indians sometimes made something more than a fire of cannel coal. Such relics are rare, but Dr. Whelpley has them. The rarer all relics are, the more he has of them, as a rule. For instance, there was a man in Mississippi County, Arkansas, in prior times, who made a specialty of effigy pottery. He made bowls shaped like a human head with a hole in the top. Some of these heads were elaborately colored. Of the eighteen known in the country, Dr. Whelpley has two. One of these effigy pots is a very striking thing. It looks like an Indian, and was probably a very faithful portrait of the artist's brother.

We were by this time in a rhapsody of appreciation, and the doctor brought out his big hematite ax. This ax came from Calhoun County, Illinois. It is not only big, but perfect. One loving Indian relics, could fondle it as a woman fondles a baby. It is made of native iron unsmelted, and has a groove in it, indicating that the Indian who made it did so with some thought of how he was to get up his winter's wood. Hematite axes are not uncommon in this vicinity. The Indians made many of them in the iron region of Missouri, and they are fairly abundant in all local collections. They are nevertheless prized, and a good one is as likely to start a general war among collectors of Indian relics as one of the Balkan states is to precipitate an all-around fight in Europe.

Some years ago Dr. W. F. Parks, a local collector, was in California. He asked everybody he met for two or three months if he knew where there were any Indian relics, and learned in that way of two osidian ceremonials up in the mountains of the north end of the State. Osidian is the glass made by the heat of volcanoes. It is found in all volcanic countries more or less. Anyway, Dr. Parks was told that these great osidians, which had served as ceremonials in a California tribe for generations, were in the hands of an old Indian woman, who would sell them. Descending down the line, they were in danger of falling into the hands of her nephew, whom she considered a bad Indian. (He was probably a baseball pitcher.) Dr. Parks bought these blades for Dr. Whelpley. A man went up into the mountains and brought them out, and they are in the collection in Albion place. There is nothing like them in any other collection in the world. They are, moreover, undamaged, despite their long and hazardous journey. Ten thousand Indians have made them lustrous with caresses. They glow like the blarney stone.

And to think that the "Seeing St. Louis" automobile does not even pass the house!

Proceedings of the Local Branches

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association held the first monthly meeting for the season of 1914-15 at the University of Illinois School of Pharmacy Building on the evening of October 20th. In the absence of President James H. Wells, Vice-President W. B. Day presided.

The meeting was addressed by Messrs. Bruun, Morrison, Craig, and Potts.

A. Ph. A. activities were discussed by Professor C. M. Snow. He summarized the interesting features of the many and varied sessions at the Convention in a most attractive way, dwelling especially on the U. S. P. and N. F. work.

A Program Committee was appointed, consisting of Messrs. Craig, Gathercoal, and Becker, with instructions to present a summary of the programs for the meetings of the Branch for the coming season.

E. N. GATHERCOAL, Secretary.



CINCINNATI.

Resuming the monthly meetings of the Cincinnati Branch of the A. Ph. A., the first meeting of October 16th proved to be an agreeable surprise. It was preceded by an elaborate luncheon, after which our new President, E. H. Thiesing, delivered a very inspiring address, during which he outlined a vigorous campaign tending for the increased interest of the members to individual efforts, and also promising to present lectures from prominent educators in the Pharmaceutical world.

A short business session followed, during which the minutes of the first annual meeting of the Branch, May 12, 1914, as read by the Secretary, were approved.

President Thiesing then introduced the speaker of the evening, Dr. A. O. Zwick, who chose for his subject.

POISONERS—ANCIENT AND MODERN.

The lecturer delved into ancient history, proving by historical facts, writings, such as the Eber-Papyrus, legends and other means, that the Ancient Hindoos, the Egyptians, the

Romans and others were well versed, not alone in the knowledge of the poisons by themselves, but also in a surprisingly intimate knowledge of preparing these poisons and using same for sinister and unlawful purposes.

Dr. Zwick has the happy faculty of presenting his lectures interspersed with interesting pictures, holding the attention of his auditors, who feel but one regret; that it is over, all too soon.

Dr. Zwick was given a rising vote of thanks.

The meeting was well attended by the members and their wives, and also by a number of guests, students of the Cincinnati College of Pharmacy and the Eclectic Medical College.

The Cincinnati Branch now has a membership of fifty.

The officers for this year are: President, E. H. Thiesing; First Vice President, F. W. Weissmann; Second Vice-President, I. E. Kutchbauch; Treasurer, Julius Greyer; Secretary, Charles A. Apmeyer; Executive Committee, 3 years, Dr. A. O. Zwick; 2 years, C. T. P. Fennel; 1 year, Charles G. Merrell.

CHARLES A. APMEYER, Secretary.



NORTHWESTERN.

The first of a series of winter meetings of the Northwestern Branch of the American Pharmaceutical Association was held at the College of Pharmacy of the University of Minnesota on Wednesday evening, September 30th, beginning at 8 o'clock. The following program was presented:

The Sixty-second Annual Convention of the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties, and the National Association of Boards of Pharmacy, by Dean F. J. Wulling.

The Sixteenth Annual Convention of the National Association of Retail Druggists, by Mr. Charles H. Huhn.

The U. S. P. and N. F. Propaganda Exhibits at the recent A. Ph. A. and N. A. R. D. Convention, by Prof. E. L. Newcomb.

Experiences in Europe, by Mr. Truman Griffen.

Observations in Europe, by Mr. C. A. Robinson.

The Pharmaceutical Tour of Europe, by Prof. Gustav Bachman.

The latter papers were descriptive of the tour of the German Pharmaceutical Society on the Continent in war-time and were very interesting, being illustrated by means of the Balopticon.

Greetings were received from Mr. A. D. Thompson, President of the Branch, who was unable to attend on account of illness. Upon the suggestion of Dean Wulling the Chair appointed a committee, consisting of Messrs. Frost, Horn, and Parker, to draw up and forward to Mr. Thompson, resolutions expressing our regret of his continued illness and wishing him an early recovery.

Prof. Newcomb described the U. S. P. and N. F. Propaganda Exhibits at Philadelphia and Detroit and stated that more permanent good would come from such exhibits if the number of preparations were limited and the number of different samples of each preparation extended. The interest in the exhibit arranged by the Committee on Pharmacopœias and Formularies confirmed this opinion.

All of the various factors which might cause a variation in the finished product should be demonstrated or exhibited.

EDWIN L. NEWCOMB, Secretary.



PHILADELPHIA.

The first of the regular monthly winter meetings of the Philadelphia Branch of the American Pharmaceutical Association was held on Tuesday evening, October 6th, at the Medico-Chirurgical College. President Cook presided. The minutes of the last meeting were read and approved, as was also the report of the Treasurer. Messrs. J. E. Brewer and J. Atley Dean were unanimously elected to membership in the Branch. Professor J. Edward Brewer was unanimously elected to fill the vacancy caused by the resignation of Secretary-Treasurer R. P. Fischelis.

Professor Cook, in reporting for the Committee on A. Ph. A. Headquarters, stated that this committee had not arrived at any definite plans, owing to the resignation of the Chairman, Howard B. French. It was decided to postpone the appointment of a new Chairman until the next meeting.

The program of the evening consisted of reports of the delegates to the various State and National pharmaceutical meetings held during the summer. The meeting of the American Pharmaceutical Association was interestingly reviewed by Prof. J. W. Sturmer. Mr. Charles Rehfuß gave his impressions of the Philadelphia Convention of the National Association of Retail Druggists, and Dr. R.

P. Fischelis reported the events which took place at the meeting of the Pennsylvania Pharmaceutical Association, held at Buena Vista.

Professor C. H. LaWall gave the monthly summary of current pharmaceutical literature. [Printed on P. 1593.]

The reports of the delegates were discussed by Messrs. F. M. Apple, S. C. Henry and F. E. Stewart.

The next meeting of the Branch will be held on November 3d, and the chief topic for discussion will be the preparations in the new National Formulary.

ROBERT P. FISCHELIS, Secretary.



CITY OF WASHINGTON.

The October meeting was held on the 21st instant, at the National College of Pharmacy, George Washington University, before an unusually large gathering for the first fall meeting.

President Richardson read a report on the annual meeting of the Association and detailed the happenings at Detroit, and their bearing upon pharmacy. Mr. M. I. Wilbert and Dr. S. L. Hilton also spoke on the same subject.

Dr. W. W. Stockberger addressed the meeting on the "Prospects of Commercial Drug Growing in the United States," along the same lines as his address on this subject at Detroit, published in the Journal in last issue.

Unquestionably, Dr. Stockberger's talk was a most able address upon a subject of which he has made a most exhaustive and careful study, and upon which no one else is better versed. He was enthusiastically received and the most careful attention was given to every word he uttered.

HENRY B. FLOYD, Secretary.



ST LOUIS.

The St. Louis Branch held its third Annual Meeting on the evening of October 30, at the College Building. President J. A. Wilkerson presided.

The delegates to the American Pharmaceutical Association meeting, Messrs. G. A.

Burkart and T. C. Hagenow, reported upon their experiences of that meeting.

President Wilkerson, in his retiring address, described the work of the Branch during his administration and made some valuable recommendations as to its future activities.

The following officers were elected: President, Carl T. Buehler; Vice-Presidents, Charles H. Bierman and C. W. Hahn; Secretary, Julius C. Hoester; Treasurer, Theo. C. Hagenow; Advisory Board, Messrs. Wilkerson, Burkart, and Schwerdtmann.

JULIUS C. HOESTER, Secretary.

College and Society

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

The University of Illinois School of Pharmacy has opened its fifty-fifth session with an enrollment of 200 students, of whom 108 are enrolled in the first year and 92 in the second.

The St. Louis College of Pharmacy celebrated its semi-centennial on the 10th and 11th of this month, and the occasion was one long to be remembered by all those who assisted in the celebration of its "Golden Anniversary."

On Tuesday occurred a reunion of the classes from 9 a. m. to 4 p. m. and a luncheon was served.

The formal exercises were held at the Auditorium of the Central High School at 8 p. m., Tuesday. Addresses were made by Professors Joseph P. Remington, Charles Caspari, Jr., James H. Beal and Frederick J. Wulling, and by Ex-President C. P. Waldbridge and Joseph L. Boehm.

There was a trolley excursion to Shaw's Garden on Wednesday, and at 7 p. m. the anniversary banquet was enjoyed by all in attendance.

The celebration was in charge of a most efficient committee, of which Mr. Fred W. Sultan was Chairman.

ILLINOIS PHARMACEUTICAL ASSOCIATION.

The Proceedings of the thirty-fifth annual meeting of the Illinois Pharmaceutical Association have recently been distributed to the members. President Baum has appointed a political committee auxiliary to the legislative committee and which comprises two druggists from each county in the State, 102 members in all. Plans are now being made for amending the pharmacy law. A meeting of the Executive Committee of the Illinois Pharmaceutical Association will be held in Chicago in November to consider these plans and to take action on other Association matters, including the deciding on the place of the next annual meeting.

At the commencement of the Ateneo Rizal of Manila, P. I., and the anniversary celebration of the founding of that University the honorary degree of *Doctor of Pharmacy* was conferred upon Leon M. Guerrero, and the degree of *Master of Pharmacy* was conferred upon Newton C. Comfort, Ph. G., P. D., Pharmacist, U. S. Public Health Service. Both of these pharmacists so distinguished joined the American Pharmaceutical Association in 1904.

Council Business

A. PH. A. COUNCIL LETTER No. 3.

Philadelphia, October 19, 1914.

To the Members of the Council:—

Motions No. 3 (Authorization of Committee on Publication to Effect a Reorganization and to Systematize its Work), and No. 4 (Election of Members; Applications Nos. 3 to 17, inclusive), have each received a majority of affirmative votes.

The following communication has been received since the issuance of the previous Council Letter:—

Detroit, September 16, 1914.

Members of the Council, American Pharmaceutical Association:—

Gentlemen:—We, the undersigned members of the American Pharmaceutical Association, hereby petition the Council to permit us the

privilege of forming a local branch of the Association, to be known as the Detroit Branch:—John H. Webster, William A. Hall, J. G. Hackney, Oscar W. Gorenflo, Charles F. Mann, Harry B. Mason, Frank G. Ryan, J. M. Francis, Oliver A. Farwell, C. H. Briggs, C. F. Ramsay, W. L. Scoville, H. C. Hamilton, E. M. Houghton, L. B. Hayward, Frank O. Taylor, E. Kimmich, A. Alton Wheeler, Joseph J. Von Koss, O. Ivanoff, A. E. Moyer, C. Killingsworth, R. A. Hugill, Nicholas Drugoncin, H. M. Avery, Willard Ohliger, May E. Strawn, Walter H. Blome, R. E. Bell, F. Nagelvoort, A. E. Mallard, F. W. R. Perry, W. P. Doty, Ernest R. Jones, C. Herbert Boldt, William C. Evans, and Leonard A. Selzter.

Do you favor granting the above petition? It will be known as *Motion No. 5 (Petition to form Detroit Branch, A. Ph. A.)*.

Philip Asher reports that the New Orleans Branch has been discontinued, and there is, therefore, no longer any Council representative from this Branch.

Chairman E. G. Eberle writes that:—

"I am in receipt of a letter from Otto F. Claus and Fred W. Sultan stating that they have examined the books of former Acting General Secretary, Mr. Marshall, and have verified the accounts and vouchers and found same correct."

General Secretary Day writes that:—

"I am in receipt of the Treasurer's bond and continuations from Dr. James H. Beal. I have also received the continuation of bond for the year beginning September 27, 1914, for Treasurer Whelpley from the Fidelity and Deposit Company of Maryland. I have certified to the correctness of the Treasurer's accounts and have started a check to pay the premium on the continuation which must be paid not later than October 27th. I suggest that in the next Council Letter mention should be made of the fact that the Treasurer's bond and the continuations therefore are on file in the office of General Secretary. I will place this bond and the continuations in my box in the deposit vault for safekeeping."

General Secretary Day writes that he has received a reply from Dr. James H. Beal to his letter sending a copy of the resolutions adopted by the Association at its recent meeting relative to Dr. Beal and his services on behalf of the Association. Since the Council adopted these resolutions, as well as the general session of the Association, Dr. Beal's reply to Secretary Day is here given, as follows:—

"I have your favor of September 28th, enclosing copy of resolutions adopted by the A.

Ph. A., at its recent meeting. When opportunity offers, please convey to the Association my sincere appreciation of the sentiments expressed by the resolutions and the assurance of my continued interest in all that relates to the prosperity and progress of the American Pharmaceutical Association."

With reference to proposed A. Ph. A. Exhibit at the Panama-Pacific Exposition (Council Letter No. 2) several communications have been received.

Dr. F. E. Stewart writes (October 5th):—

"This is to acknowledge the reception of the letter by Professor Albert Schneider, Chairman of the A. Ph. A. Exhibit Committee, just received. I now desire to move that the American Pharmaceutical Association instruct the Committee to consult with prominent pharmacists and manufacturers engaged in the practice of the pharmacologic arts, with a view of obtaining the necessary funds required for making an exhibit of the kind described in the outline submitted by the Committee, and contained in the letter now before me. My reasons for the motion will be found in the following explanatory statement.

No one will question that the public health is one of the greatest of our national assets, and that it is to the interest of all concerned that certain classes of the community shall be set aside and protected by legal enactment for the purpose of promoting the general welfare in this regard. Hence, we have the medical and pharmaceutical professions, and medical and pharmaceutical laws for their protection from unfair competition by unlicensed practitioners. Hence, we have also medical and pharmaceutical colleges, boards of examiners, and licenses to practice, professional societies and the press, all of which must be supported either directly or indirectly by the public.

Part of the expense of carrying on the work of the medical and pharmaceutical professions is supported by the professions themselves, the members of which devote a large part of their time to original research, contribution of the results of knowledge and experience to science, and the education of those who are entering the professions, and also those who are engaged in their practice, thus promoting progress in the knowledge of disease and the methods for its prevention and cure.

Of late years, there has been a growing tendency to commercialize both medicine and pharmacy until both professions have lost caste and no longer occupy the high position once held in the estimation of the community. Medicine and pharmacy are mutually dependent. Pharmacy, especially, cannot advance except in so far as drug therapeutics is advanced and promoted. It is therefore of vital interest to the pharmaceutical profession that interest shall be created in drugs as therapeutic agents, and in no better way can

this be done than by constantly bringing to the attention of the medical profession and the public the importance of the United States Pharmacopœia, and the standardization of drugs, chemicals and pharmaceutical preparations, to meet the requirements of a rational drug therapeutics.

The attempt to carry on the pharmaceutical vocation as a purely commercial business, in which the demand for drugs is created by misleading methods of advertising, has resulted most disastrously to the interests of the medical and pharmaceutical professions, and the public health. Pharmacy must be practiced as a professional vocation in which financial gain is made subsidiary to the protection of the public health. On the other hand, financial gain is absolutely necessary for the continuance of pharmaceutical practice, and the business should be made sufficiently remunerative to attract the best brains of the country.

The Panama-Pacific International Exposition offers an opportunity for bringing the American Pharmaceutical Association and the United States Pharmacopœia prominently before the great American public. Owing to the commercialism of pharmacy, the public has lost sight of the true object of pharmaceutical practice. The public is also unacquainted with the amount of knowledge and skill necessary to practice pharmacy in a professional manner. Consequently, it is not generally realized that medicines if prepared in accordance with the standards of the Pharmacopœia should command a price commensurate with the amount of knowledge and skill required. This applies to the medical profession as well as to the public at large. The demands on the part of both are for cheap medicines rather than for standardized medicines.

The production of standardized medicines in turn requires knowledge and skill on the part of those engaged in their preparation and dispensing, whether the vocation is carried on by the retail druggist or the great manufacturing house. This knowledge and skill can only be obtained by the education and training given by our colleges of pharmacy. The amount of money necessary to maintain and foster these educational institutions is more than can be obtained by fees from students. State funds and endowments are necessary for promoting our colleges of pharmacy and such funds cannot be secured unless the public is educated to appreciate this necessity. Therefore, the advantage of bringing before the public exhibitions of the kind now under consideration is apparent.

At the present time, the pharmaceutical profession is threatened with extinction by impractical legislation—legislation largely resulting from suspicion on the part of the public, engendered by dishonest commercialism in pharmaceutical practice. Much of this suspicion can be overcome by persistently bringing before the public in properly displayed

exhibitions the scientific and professional side of the pharmaceutical vocation.

Finally, in no better way can the great commercial houses engaged in this practice of the pharmacologic arts promote their commercial interests than by coöperating with the American Pharmaceutical Association in this presentation. What we need is coöperation between the medical and pharmaceutical professions and the manufacturing houses for the promotion of legitimate pharmaceutical practice and the education of the professions and the public in regard to what is meant by legitimate practice, namely, a practice, which will in truth promote the public health, and protect the sick from dishonest commercial exploitation.

I had in mind these objects when I presented my motion resulting in the appointment of the committee for considering an exhibit by the American Pharmaceutical Association at the Panama-Pacific International Exposition, and I believe that the outline placed before us by Professor Albert Schneider, Chairman of the A. Ph. A. Exposition Committee, is eminently suitable for aiding these objects. Standardization is the keynote to pharmaceutical progress from every possible point of view, Standardization means better drugs, better pharmaceutical preparations, better success on the part of the physician and pharmacist, better public health, better prices for medicines, and a better standing for both medicine and pharmacy in the estimation of the American people.

I, therefore, move that the Committee on the Proposed Exhibit at the Panama-Pacific International Exposition be instructed to consult with the leading pharmacists and manufacturers engaged in the medicinal, chemical and pharmaceutical industries of the country, with the view of determining the extent of coöperation and financial assistance that could be expected of them, the Committee to report to the Council later."

Frederick J. Wulling writes (October 5th) that:—

"Concerning the matter of an exhibit at San Francisco, I have already expressed myself to the Chairman of the Committee and to others that, unless the exhibit can be adequately representative of American pharmacy we should not have any, and that to make the exhibit sufficiently representative would require both more time and more money than we could command. It would be far better to refrain from doing anything in the matter than to install an exhibit that would not be sufficiently inclusive in scope. A floor space of 30 x 21 feet would be entirely too small for a proper exhibit and five thousand dollars estimated as the cost of installation and operation is far too low an estimate

In case the Council decides upon an exhibit, it would be necessary for me to resign from the Committee, as I positively cannot add to my present work."

Under date of October 8th, General Secretary Day expresses the following opinion:—

"With regard to the proposed exhibit at the Panama-Pacific International Exposition, the time is now so short that I do not believe it would be wise of our Association to assume the financial responsibility for making and maintaining such an exhibit. Dr. Schneider estimates the expense at five thousand dollars, which is probably a fairly close estimate. I doubt whether the Association can secure this through personal subscriptions, and if it is not so secured the Association would need to advance this amount from its funds which at the present time it is scarcely in a position to do. Under the circumstances, I believe that the idea of making an exhibit for the Association should be given up."

Albert Schneider submits a second report as Chairman of the A. Ph. A. Exposition Exhibit Committee, stating that:—

"I am submitting a second report as Chairman of the A. Ph. A. Exposition Exhibit Committee. I hope I may be pardoned for submitting a report without consulting with my associates. As stated press of time is my only excuse. If anything is to be done in the way of installing an exhibit it must be done at once. I believe that the recommendations which I am submitting cover the entire situation quite fully and that there is nothing more for me to do until the Council has taken action.

I will endeavor to hold the tentative space reservation in the Liberal Arts Building until the Council may have taken action regarding the proposed exhibit."

The report is as follows:—

Members of the Council, American Pharmaceutical Association:—

Gentlemen:—I note that Prof. E. Fullerton Cook asks to be relieved from serving on the A. Ph. A. Exposition Committee and take it for granted that his request will be granted by the Council. The present committee is, therefore, composed of Dr. F. J. Wulling and myself. Because of the press of time as set forth in my letter of September 26, 1914, I am submitting the following final suggestions on the proposed A. Ph. A. Exposition Exhibit. Although this must be considered in the nature of a minority report I am submitting a copy of this report to Dr. Wulling with the request that he either approve or make such other report as he may deem desirable, and to submit such changes to the Council for action.

I.

STILL EXHIBIT.

1. Complete set of U. S. Pharmacopœias.
2. Foreign Pharmacopœias.

3. Photographs of prominent American Pharmacists.

4. Photographs and Prints illustrating the history of American Pharmacy.

5. Crude and Powdered Vegetable Drugs.

6. Chemicals.

7. Pharmaceuticals.

8. Maps, charts and photographs illustrating the source of American Drugs.

9. Apparatus used in pharmaceutical operations, ancient, colonial and modern.

10. Rare books and prints.

11. Medicaments used by American Indians.

12. Medicaments used by early settlers, etc.

II.

WORKING OR STILL EXHIBIT.

1. Equipment for making chemical tests and assays of U. S. P. drugs and preparations.

2. Equipment for making microscopical analysis of drugs and pharmaceutical preparations.

3. Equipment for bacteriological work, sterilization, etc.

4. Equipment for making physiological assays of drugs and pharmaceutical preparations.

Part II can be made either a working or a still exhibit. The equipment should be complete. As a still exhibit the laboratory equipment should not cost the Association more than \$500.00, my idea being that most of the apparatus should be loaned by colleges and manufacturing houses as suggested in my letter of the 26th of September. Personally, I am in favor of making II a working exhibit to be in full operation during the time of the Exposition. My suggestion is that as much of the exhibit under I and II as may be so secured, be loans by colleges of pharmacy and by manufacturing houses and that such technical assistance as may be required for arranging the exhibits be paid for out of a fund to be secured in a manner to be specified. My suggestion is that the A. Ph. A. indicate the maximum sum that the Association may be willing to subscribe and that the balance be obtained through donations secured from friends of the Association. In order to save time I beg to submit the following recommendations:—

1. That the American Pharmaceutical Association arrange an exhibit to be installed in the Liberal Arts Building of the Panama-Pacific International Exposition to be held in San Francisco, 1915.

2. That the exhibit include parts I and II as above outlined. Part I to be a still exhibit and that part II be a working exhibit to be in full operation during the entire time that the Exposition is open, namely, from February 14, 1915, to December, 1915.

3. That the cost of installing and operating

the exhibits be met by the American Pharmaceutical Association and by private subscriptions.

4. In case it is decided that the cost of installation and operation as suggested under (2) is too great, that both I and II be installed as still exhibits.

5. In case it is decided that the cost of installing an exhibit as indicated in (4) is too great, that an exhibit as outlined under I be installed.

6. In case that it is decided to arrange an exhibit as indicated under 2, 3, 4 or 5, your committee should be authorized to secure the necessary assistance for the purpose of collecting the various parts of such exhibit.

As above stated, press of time in which to arrange an exhibit is my only excuse for submitting the above suggestions without consulting with my associates on the committee.

Yours very truly,

Albert Schneider,

Chairman of A. Ph. A. Exposition Exhibit Committee.

San Francisco, October 8, 1914.

Frederick J. Wulling writes (October 12th) as follows relative to above report:—

"I have just received a letter from Professor Schneider enclosing his final report as Chairman of the Committee to look into the question of a Panama Exhibit. He informs me that he has already sent you the report and asks me to make suggestions or any changes in the report that may occur to me. I will make no changes, but will refer you and the Council to my letter to you of October 5th. The thing to do now is to await the action of the Council."

The question of proposed A. Ph. A. Exhibit at the Panama-Pacific Exposition is before the Council and awaits decision.

Motion No. 6 (Election of Members). The following applications for membership have been received:—

No. 18. William George Beucler, 40th St. and Penn Ave., Pittsburgh, Pa., rec. by F. A. Southard and George F. Payne.

No. 19. Blanche I. Rogers, Solon, Iowa, rec. by Ph. A. Schlumberger and Anna B. Schlumberger.

No. 20. A. Herbert Boldt, 376 Jay Street, Detroit, Mich., rec. by Ernest R. Jones and W. L. Scoville.

No. 21. William C. Evans, 189 E. Grand Blvd., Detroit, Mich., rec. by Ernest R. Jones and Clifton H. Briggs.

No. 22. Rasmus Bartleson, Selby and Western Sts., St. Paul, Minn., rec. by W. A. Frost and F. J. Wulling.

No. 23. James A. Scull, Sergeant 1st Class, Hospital Corps, U. S. A., Fort Meyer, Va., rec. by F. W. Meissner and Wm. B. Day.

J. W. ENGLAND,

Secretary of the Council.

415 N. 33d Street.

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COUNCIL LETTER No. 4.

Philadelphia, October 26, 1914.

To the Members of the Council:—

Motions No. 5 (Petition to form Detroit Branch, A. Ph. A.), and No. 6 (Election of Members; Applications Nos. 18 to 23, inclusive), have received a majority of affirmative votes.

The following petition for the creation of the Morgantown, W. Va., Branch of the American Pharmaceutical Association has been received:—

Morgantown, W. Va., October 5, 1914.

Members of the Council, American Pharmaceutical Association:—

Gentlemen:—Earnestly desiring to advance the science and art of Pharmacy and to improve the condition of pharmaceutical practice in West Virginia:—

By stimulating research and the development of improved methods;

By diffusing scientific-technical knowledge;

By fostering sound pharmaceutical education;

By upholding the dignity of pharmacy and demonstrating to the public its importance, and the necessity, as a matter of public safety, of restricting pharmaceutical service to trained pharmacists;

By extending the field of usefulness of the pharmacist to the people;

By promoting the enforcement of due observance of established standards for the identity, purity, and strength of medicines;

By furthering the suppression of empiricism;

By aiding in the regulation of the use of dangerous and habit-forming drugs and in the protection of the public health;

By maintaining respect for ethical standards in the practice of Pharmacy;

By promoting relations of comity and mutual respect between physicians and pharmacists; and in short, in all proper ways to promote the true welfare of pharmacy and pharmacists.

We, the undersigned, realizing the importance and full significance of affiliation with the national organization, do petition the Council of the American Pharmaceutical Association to grant us permission to establish a branch of the Association at Morgantown,

West Virginia, and be it further understood, that each person hereupon attaching his signature, promises to give his hearty support to the branch and to the National Association and to aid in conducting the branch in accordance with the rules and regulations of the American Pharmaceutical Association:—

Morgantown, W. Va.:—W. H. Moore, T. J. Casey, N. J. Hutchins, A. B. Berry, G. H. Dent, W. H. Sturgiss, J. B. Chipley, R. M. Holroyd, E. E. Harris, C. H. Rogers, F. D. Wood, W. H. Schultz, L. C. Sturgiss, W. A. Ream, George W. Melcher, W. L. Hiland, J. C. McVicker.

Fairmount, W. Va.:—R. W. Hall, Homer Hall, S. O. Connell, Glenn B. Hamilton, C. W. Windsor, W. R. Crane.

Pine Grove, W. Va.:—D. F. Morgan.

Hastings, Pa.:—J. J. Easley.

Keysor, W. Va.:—J. S. Bosley.

Jaeger, W. Va.:—Clifford W. Ray.

Richwood, W. Va.:—William Gillespie.

Clarksburg, W. Va.:—F. B. Haymaker.

Huntington, W. Va.:—W. C. Price.

Sutton, W. Va.:—Alfred Walker.

Piedmont, W. Va.:—R. E. Kimmel.

Welch, W. Va.:—B. E. Downs.

Terra Alta, W. Va.:—S. M. Scott, Jr.

Do you favor granting the above petition? It will be known as *Motion No. 7 (Petition to form Morgantown, W. Va., Branch A. Ph. A.)*.

Motion No. 8 (Appropriation of \$1000 for Journal and \$400 for Printing, Postage and Stationery). Moved by W. B. Day, seconded by H. M. Whelpley, that an additional appropriation of \$1000 be made for the Journal and an additional appropriation of \$400 be made for Printing, Postage and Stationery in order to cover the expenses of these items of the budget for the remainder of the present fiscal year. The appropriation has the approval of the Finance Committee.

The following letter has been received:—

Camden, N. J., October 23, 1914.

Members of the Council, American Pharmaceutical Association:—

On behalf of the Committee on Standards for Unofficial Drugs and Chemical Products. I report that monographs have been adopted covering the following:—

Allium	Pimpinella
Flores Verbasci	Potassii Formas
Hydrangea	Quininæ Valeras
Inula	Sodii Formas
Iris	(Strychninæ Valeras
Macis	Thymus
Petroselinum	

These have been sent to the Journal of the

A. Ph. A. for publication in accordance with the action of the Council.

Yours very truly,
George M. Beringer, Chairman.

Motion No. 9 (Election of Members). The following applications for membership have been received:—

No. 24. J. Edward Kimlel, 1018 Glendale Ave., Peoria, Ill., rec. by Ernest C. Marshall and C. H. Packard.

No. 25. Julian Baker Chipley, 108 High St., Morgantown, W. Va., rec. by J. H. Beal and G. D. Beal.

No. 26. Nicholas John Hutchins, 186 Pleasant St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 27. Alonzo Brun Berry, 186 Pleasant St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 28. W. H. Moore, cor. High and Pleasant St., Morgantown, W. Va., rec. by J. H. Beal and J. W. England.

No. 29. William Arthur Ream, 304 High St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 30. Frank Davidson Wood, 202 Front St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

J. W. ENGLAND,
Secretary of the Council.

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COUNCIL LETTER No. 5.

Philadelphia, Pa., November 4, 1914.

To the Members of the Council:

Motions No. 7 (Petition to form Morgantown, W. Va., Branch, A. Ph. A.), No. 8 (Appropriation of \$1000 for Journal and \$400 for Printing, Postage and Stationery) and No. 9 (Election of Members; Application Nos. 24 to 30 inclusive) have each received a majority of affirmative votes.

Albert Schneider writes that:—

"At a recent meeting of the San Francisco Branch of the American Pharmaceutical Association a local committee was appointed and the writer was made temporary Local Secretary. A special meeting of the local committee was held this A. M. at the California College of Pharmacy. The local committee recommends that the time of holding the sixty-third annual meeting of the American Pharmaceutical Association be set for the week of August 9 to 14, 1915, inclusive.

This recommendation is made after a consultation with Prof. James Barr, Director of Conventions and Societies of the Panama-Pacific International Exposition, who states that the time recommended is favorable to the

unhindered use of the Exposition Memorial Auditorium, one of the buildings of the San Francisco Civic Center, located in the heart of the city and within easy reach of all of the main hotels.

The committee further recommends that the program for the 1915 meeting of the A. Ph. A. be so arranged that the business meetings do not interfere with the entertainments."

Professor Schneider moves that the time of holding the sixty-third annual meeting as recommended above be adopted.

Before this motion is voted upon, it should be stated that the following communication, dated October 28th, has been received by the Secretary from M. I. Wilbert:—

"I had expected to call on you during my recent stay in Philadelphia for the purpose of discussing with you the possibility of a more or less concerted agitation to hold the next meeting of the American Pharmaceutical Association immediately before or after the meeting of the American Medical Association which is also to be held in San Francisco. The American Medical Association is to meet June 21-25, and if it were possible to hold the meeting of the American Pharmaceutical Association either the week before or the week after this date, I am sure that it would be appreciated by many of our members who usually make an effort to attend both meetings. So far as the Section on Pharmacology and Therapeutics is concerned, there is some doubt at the present time as to whether or not this section will develop a program for next year, but in the event that it does, I am sure that the Section would be greatly benefited by having the meeting of the American Pharmaceutical Association held at about the same time, and conversely, the American Pharmaceutical Association would be benefited by the double attraction, which would be an added incentive for members of both Associations to undertake the trip to the Pacific Coast. At all events, there can be no harm in suggesting the proposition for further consideration."

A copy of Mr. Wilbert's letter was sent to Prof. Schneider (on 29th inst.) but he has not had time to receive and reply to the same, so action on his motion will be deferred, for the present.

The question of proposed exhibit at the Panama-Pacific International Exposition is still pending. Dr. Stewart's motion that the Committee on the Proposed Exhibit at the Panama-Pacific International Exposition be instructed to consult with the leading pharmacists and manufacturers engaged in the medicinal, chemical and pharmaceutical industries of the country, with the view of determining the extent of coöperation and

financial assistance that could be expected of them, has not been acted upon by the Council.

In the meanwhile, the following letter under date of October 24, 1914, has been received from Fred. I. Lackenbach, of San Francisco, a copy of which has been sent to Local Secretary protem Schneider:—

"In the matter of the proposed exhibit of pharmaceutical products and processes at the Palace of Liberal Arts, Panama-Pacific International Exposition, I would respectfully advise that April last some forty letters were sent out to all the large pharmaceutical and chemical houses in the United States and abroad with a view of interesting them in the matter of exhibits in the Palace of Liberal Arts. The enclosed correspondence shows the result of this effort.

The main reason for the lack of interest is the fact that only a small proportion of the visitors to the Exposition would be interested in such exhibits. They would be of interest only to the professions of pharmacy and medicine. The cost of maintenance over so long a period would be out of all proportion to the benefits to be derived.

As you no doubt know, the American Medical Association is to meet in San Francisco next year and it is planned to make the 1915 Scientific and commercial exhibit the most elaborate in the Association's history.

It would seem to me much more to the point for the A. Ph. A. to interest itself in the scientific exhibit of the A. M. A. Commercial houses would readily coöperate in such a plan and very likely the materials prepared for exhibition purposes could be used also during the convention of the American Pharmaceutical Association."

No letters from manufacturing houses were enclosed with Mr. Lackenbach's letter, the only reference thereto being in a letter to James A. Barr, Director of Congresses, by Mr. Lackenbach, saying that "the returns on the letters sent out on the matter of exhibits are not at all reassuring, the only favorable response being from the Cutter Laboratory at Berkeley, Cal., which stated that they had reservations on file."

The following letter (October 21st, 1914) to Mr. Lackenbach from Will C. Braun, Advertising Manager of the American Medical Association, is given:—

"Your esteemed favor of October 18, 1914, is at hand. Dr. Jones will be in Chicago the latter part of this week and I will talk the matter over with him regarding exhibits. Then when I come to San Francisco to make definite arrangements, I will get in touch with you. In fact, I am counting on your coöperation in making the San Francisco

Commercial Exhibit of the A. M. A. one of the greatest successes we have ever had in that line."

If the exhibit of the A. M. A. at San Francisco should be held, not only during the week of the A. M. A. Convention, but also during the week of the A. Ph. A. Convention, it would seem to be the logical thing for the A. Ph. A.—if it is decided to have an exhibit—to endeavor to coöperate with the A. M. A., and minimize the expense of the exhibit. This suggestion has been made to Professor Schneider, but he has not had time to reply to it.

Motion No. 10 (Election of Members). You are requested to vote on the following applications for membership:—

No. 31. William Henry Schultz, 128 Willey St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 32. Robert McFerrin Holroyd, 92 Beverly Ave., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 33. Gaylord Hess Dent, 130 Fayette St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 34. George Melcher, Willey St., Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 35. Clifford W. Ray, Jaeger, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 36. Gabriel J. Fajardo, 128 Water St., New York, N. Y., rec. by Jose P. Alacan and Jose Guillermo Diaz.

J. W. ENGLAND,
Secretary of the Council.

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WAR DEPARTMENT.

OFFICE OF THE SURGEON GENERAL,
WASHINGTON.

List of changes of station covering period ending September 30, 1914, in the cases of Sergeants First Class, and Sergeants, Hospital Corps:

PHARMACISTS.

SERGEANTS FIRST CLASS.

Herman Weber, Evacuation Hospital No. 1, to Fort Monroe, Va.

Frederick Thomas, Walter Reed General Hospital, to Vera Cruz, Mexico.

Fred S. Owen, Fort Niagara, N. Y., to Walter Reed General Hospital.

Francis E. Thuney, Walter Reed General Hospital, to sail for P. I., December 5, 1914.

Charles F. Kimball, on furlough from Alaska, to Fort Greble, R. I.

Elmo D. Mathews, Fort Greble, R. I., to Recruit Depot, Fort Logan, Colo.

George W. Hicks, Philippine Department to U. S. for two months' furlough.

Fred C. Baum, San Juan, P. R., to Fort Adams, R. I.

Paul L. Whitmarsh, Fort Adams, R. I., to San Juan, P. R.

Jens Christensen, Rct. Depot, Columbus Barracks, O., to sail for P. I., December 5, 1914.

Samuel J. Koon, Presidio of San Francisco, Cal., to Ft. Canby, Wash.

Nelson Hoberg, Fort Canby, Wash., to Presidio of San Francisco, Cal.

Elmer J. Armstrong, Rct. Dept, Fort Logan, under orders to sail for P. I.

SERGEANTS.

Barnet Glicksburg, Philippine Islands, to Fort Adams, R. I.

Virgil F. Secrest, Philippine Islands, to U. S. for furlough.

Clarence Dodds, Panama, to Fort McKinley, Me.

Ernest F. O'Banion, Walter Reed General Hospital, to Fort Niagara, N. Y.

James D. Rogers, under instruction X-ray work at Army Medical School, to Recruit Depot, Columbus Barracks, Ohio.

James R. Wood, U. S. Military Prison, Ft. Leavenworth, Kan., to Hawaiian Dept.

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STATEMENT OF OWNERSHIP, MANAGEMENT, ETC.,

Of the Journal of the American Pharmaceutical Association, published at Columbus, O.

Acting Editor.—E. C. Marshall, Columbus, Ohio.

Acting Managing Editor.—E. C. Marshall, Columbus, Ohio.

Acting Business Manager.—E. C. Marshall, Columbus, Ohio.

Publisher.—American Pharmaceutical Association, Office at Columbus, Ohio.

Owners.—The American Pharmaceutical Association, Office, Columbus, Ohio.

Is a corporation not for profit, incorporated under U. S. Laws at Washington, D. C., and does not have a capital stock.

Known bondholders, mortgages, and other security holders, holding 1 percent. or more of total amount of bonds, mortgages, or other securities, none.

(Signed) E. C. Marshall, Acting Editor.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.
Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or type-written.



BEAL, J. H.,
From Scio, Ohio,
To 801 W. Nevada St., Urbana, Ill.

CREIGHTON, MARY L.,
From Scio, Ohio,
To 611 Indiana Ave., Urbana, Ill.

HARP, LEWIS D.,
From Sergt. 1st Cl. H. C., U. S. A. Hospital, Columbus Barracks, Columbus, O.,
To Sergt. 1st Cl. H. C., U. S. A. Department Hospital, Honolulu, H. T.

MINEHART, J. R.,
From 4805 Greene St., Germantown, Philadelphia, Pa.,
To 4821 Germantown Ave., Philadelphia, Pa.

COULSON, J. T.,
From 110 N. Beaton St., Corsicana, Texas,
to care Adolphus Pharmacy, Dallas, Texas.

FANCHER, WM. Q.,
From Ft. Frank, Corregidor, P. I.,
To care U. S. A. T. Liscum, Manila, P. I.

GROAT, H. S.,
From Pullman, Wash.,
To Renton, Wash.

RASMUSSEN, NELS,
From Ambulance Co. No. 4, Ft. Wm. McKinley, P. I.,
Care Department Surgeon's office, San Francisco, Cal.

REIN, MISS TANIA,
From 211 Grant St., Portland, Ore.,
To 1321 First St., Seattle, Wash.

BISCHOFF, H. E.,
From 118 Fourth St., Union, N. J.,
To 118 Fourth St., Union Hill, N. J.

FREDERICK T. GORDON, Ph. C.,
From 2115 Medary Ave., Philadelphia, Pa.,
To 3336 N. Broad St., Philadelphia, Pa.

C. B. JORDAN, Ph. C.,
From 212 Wiggins, La Fayette, Ind.,
To 409 Russell St., La Fayette, Ind.

MR. J. MAISEL,
From 866 Kelly St., N. Y.,
To 2278 7th Ave., New York City, N. Y.

MR. WM. H. GANO,
From 1634 Columbia Ave., Philadelphia, Pa.,
To 207 N. 35th St., Philadelphia, Pa.

MR. I. A. FORSTER,
From Johnston Ave.,
To 3129 Lyndale Ave., Chicago, Ill.

MR. BOLIVAR JURADO,
From David, Chirequi, Republic De Panama,
To National Institute, Panama City, Republic of Panama.

MR. H. P. THORN,
From Main St., Medford, N. Y.
To Unknown.

RESIGNED SINCE SEPT. 18, 1914.

GUILFORD, H. B., Rochester, N. Y.
HARVEY, R. B., Ann Arbor, Mich.
FRANKAU, GUST, Manila, P. I.
MORRIS KANTOR, Care Kantor & Kantor,
Cor. 184th St., and Audubon Ave., N. Y.

DROPPED SINCE SEPT. 18, 1914.

DRUEL, L. A. (Mrs.), Chicago, Ill.
OGLESBY, GEO. D., Chicago, Ill.

DECEASED SINCE SEPT. 18, 1914.

SAUNDERS, WILLIAM, Ontario, Can.

DR. WILLIAM SAUNDERS, C. M. G.

President American Pharmaceutical Association, 1877-8.

President of the Fellows of the Royal Society, 1906.

Mantua Gold Medallist.

Fellow, American Association for the Advancement of Science.

Fellow, Entomological Society of London.

Fellow, Royal Microscopical Society.

L. L. D., Queens University; University of Toronto.

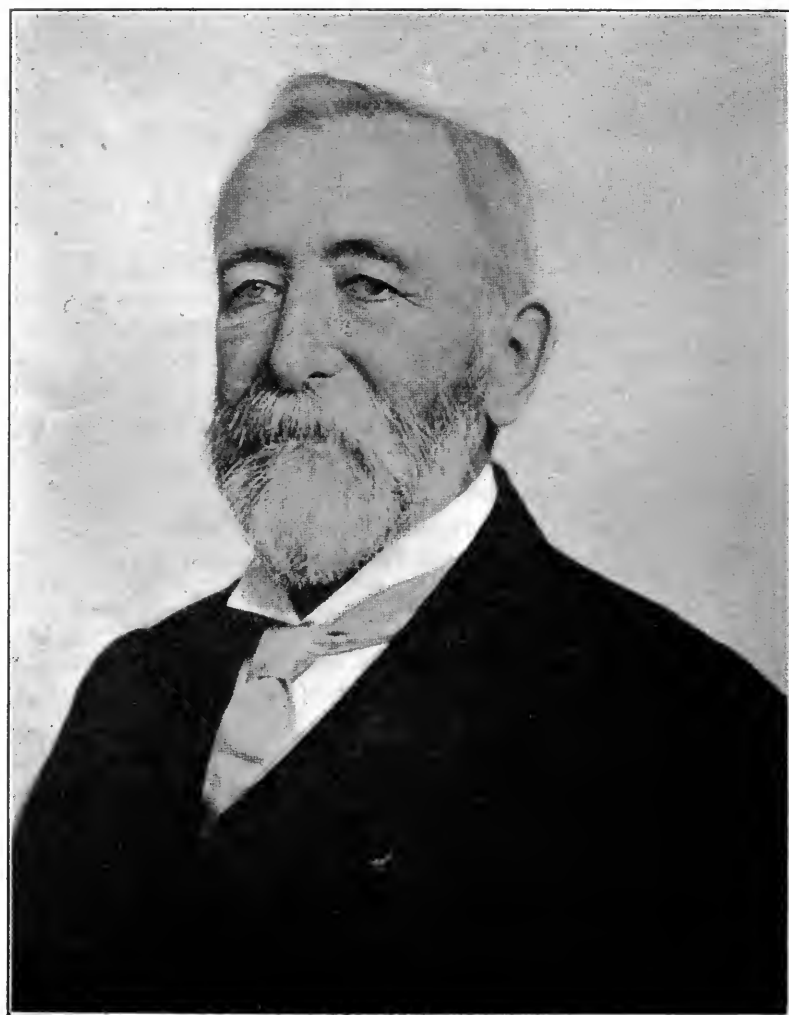
Director, Experimental Farms of the Dominion.

HONORARY MEMBER:

Pharmaceutical Society of Great Britain.

Highland Agricultural Society of Scotland.

Passed into Light, thirteenth of September, 1914



The Journal of the American Pharmaceutical Association

Volume III

DECEMBER, 1914

No. 12

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HISTORY OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. SECOND DECADE—1860-1870.

WILLIAM C. ALPERS, SC. D.

The second decade of the American Pharmaceutical Association began under the most trying and discouraging conditions. The Civil War had rent our great country asunder and men who a year before parted as friends were now ready to fight each other on the bloody field of battle. Business was demoralized and the hearts of many, even the bravest, were filled with anguish and apprehension for the future.

The tenth annual meeting, which should have been held at St. Louis, was abandoned, but the following year in 1862, the old guard of the Association, mostly its founders, convened at Philadelphia, Henry T. Kiersted, of New York, presiding in the first part, and William Procter, Jr., of Philadelphia, in the second part of the meeting. In his address Mr. Kiersted says:

"Yet, discouraging as the prospect is, and crippled as we are in the compulsory absence of so many of our associates, your Executive Committee had determined that we should yield no longer to the blast. One annual meeting has been omitted; our duty to ourselves, to the profession, and to the community summons us once more to the work."

The attendance was naturally small, only twenty-four being present at the roll call, but these were joined by seventeen more in the course of the meeting. Many were the letters of regret from the friends of Pharmacy, some being unable to attend owing to heavy loss through the inclemency of the times, others having been deprived of their sons and assistants on account of the War, and some had gone themselves to offer their lives for their country.

There was a spirit of sadness and gloom over this meeting, for timid hearts feared that it might be the last of the Association. Many other associations had disbanded, social, scientific and commercial ones, owing to the severity of the times

and it speaks well for the determined spirit of the founders of the Pharmaceutical Association that, in spite of all the gloomy surroundings, they found time and courage to assemble. Another trait that was observable was that no word of complaint was uttered against those who had formerly met with them. It was President Kiersted who, two years ago, had expressed the hope that the threatening clouds might pass by. Now he mentions the fact, "that many of ourselves should soon be personally enrolled in vast hostile armaments, whose every movement should carry death and desolation into regions then smiling with plenty and happy in peace; that the arcana of our own science, consecrated, as it is, to the cause of humanity and to the preservation of health and life should soon be explored to furnish some means of destruction hitherto unknown to the art of war." And from the report of the Executive Committee, the following quotation might be made:

"Joseph Laidley, it will be remembered, attended our last meeting at New York, and was one of the very few Southern members there present. Mr. Laidley was of Irish descent, and was educated in Philadelphia, where he resided until he attained his majority. Having graduated at the College of Pharmacy in Philadelphia in 1850, he soon afterwards moved to Richmond, Va., where he continued to reside until his death in May, 1861, which occurred in a shocking manner, from the premature explosion of a quantity of fulminating mercury, in the preparation of which he voluntarily engaged for the Confederate authorities. Mr. Laidley was formerly an active member of this Association and in 1854-5, was one of its Vice-Presidents. As a pharmacist he was able and energetic and has left on record several papers and essays."

You will see that there was no harsh criticism, no sign of anger against the members who had considered it their duty to fight for the cause of the South; there was nothing but friendship and brotherly feeling. And another quotation from the same report says:

"Charles A. Junghanns, attended our last meeting, having recently before visited his friends in Germany. He was an earnest man, and as a pharmacist stood well with his brethren. When the dark cloud of disunion first threatened the West, Junghanns raised a company in Cincinnati, and as its Captain joined the army of Buell. Naturally not robust, the exposure incident to his new life, affected his lungs. At the battle of Shiloh, his loss of voice having rendered him unable to perform his duty as an officer, he deliberately put his first Lieutenant in command of his company, and taking a rifle fought with great coolness and decision, until he fell from a wound in his head. Mr. Junghanns was an advocate of pharmaceutical education, and in his death our Association has lost a valuable member."

Here we have a brother pharmacist who gave his life willingly for his country. He was one of the many heroes whose names history does not recount, who did his duty without complaint, without hope of reward, without flourish of trumpet, or limelight exhibition. He went, he fought, he died. Can there be anything nobler and finer as a testimonial than the few simple words written probably by Mr. Procter, President of the Committee? Neither great monuments nor flowery speech could do more to show the spirit of devotion and patriotism that prevailed among the pharmacists of those days.

The meeting itself moved in a quiet, mostly scientific way. There were a great many queries, these having accumulated for two years, and many interesting papers were read. It is to be remembered particularly that Professor Maisch at that time emphasized the idea to encourage the wine growers of the United States to save the tartar deposits. We quote him as follows:

"*Resolved*, That we regard the production of tartar from American wine of great importance, on account of the extensive uses in which that product is applied in Pharmacy, domestic economy and the arts; that we believe that crude tartar and purified (cream of)

tartar will always meet with a ready sale, and that the wine growers will advance their own interests and assist in developing the resources of American agriculture, by making the experiment of saving the tartar."

In this one advice, as well as in many others, we see the national spirit trying to encourage domestic industry and enterprise.

Up to this time there had always been a Committee on Adulteration, and it was moved at this meeting, by Dr. Squibb, to discontinue this committee and appoint in its place a committee of five to be called the Committee on Drug Market.

"Resolved, That the Committee on Adulteration be discontinued, and a committee of five be appointed to be called the Committee on the Drug Market, whose duty it shall be to report annually the fluctuations in the supply and demand of drugs, the variations in quality, and adulterations and sophistications coming under their observation, or reported to them by others; and that they be authorized to make a report on any adulterations and sophistications of immediate interest, through the pharmaceutical journals, as soon as practicable after their discovery; and that all members are requested to furnish information of the kind required, without unnecessary delay."

The larger part of the proceedings, was made up of the report of the Progress of Pharmacy, which, owing to the lapse of two years, contained a great deal of interesting and valuable information. It treated particularly of pharmaceutical preparations, materia medica and subjects of historical value; for while most of the investigations and recommendations contained therein have now become familiar facts and rules in Pharmacy, they yet show that, in a great many instances of important chemical and pharmaceutical developments, the first instigation came from the American Pharmaceutical Association.

In spite of the small attendance and the discouraging outlook under which the Association assembled, the spirit for the elevation of Pharmacy and purity in actions and deeds, remained undaunted, as can be seen by the expulsion of a member of the Association, Mr. Hunewell, of Boston. He had used the title and seal of the Association for improper advertising purposes. An effort of this ex-member to be reinstated in 1867 failed, the Association refusing to re-open the case. This is the first expulsion of any member from the American Pharmaceutical Association. The meeting adjourned to meet again in Baltimore, under the presidency of William Procter, Jr.

At the meeting in Baltimore in 1863, there were forty-nine members present. The address of the president was made in a quiet, sober and business like tone. He forecasts a financial difficulty that he thought would befall the Association. According to the Constitution, members who had paid their dues for ten years, became life members and were exempt from further payments. Mr. Procter pointed out that, in a year or two, most of the active members would, according to this clause, cease to pay, and as the increase in membership, owing to political difficulties was not very great, he feared that the Association was approaching financial bankruptcy. This question gave rise to a number of debates in this and following meetings: The president proposed that a life member should pay \$1.00 annually; others proposed that they should pay the cost of the proceedings and so on, but nothing definite was done in this matter for a number of years.

Mr. Procter's remarks on the Pharmacopœia were of particular interest as they show of how little account this valuable book was held at that time. He says:

"It is time that our practitioners of Pharmacy of every grade should know that we have a United States Pharmacopœia, by personal inspection. Hundreds, perhaps thousands, have

never seen the work and know it only through the several commentaries and more particularly that in the U. S. Dispensary, which work is often confounded with the Pharmacopœia."

Before closing this address, he says further :

"I would fain re-impress on you, fellow members, the need we have of more earnestness—I might say enthusiasm—in order to carry forward the several objects of our association with zeal and success. Already our national Association, through the proceedings and manner of organization, is attracting notice abroad, and our co-laborers there are looking to us for fruits proportioned to the profession we make. Let us then individually interest ourselves in the work of progress—each in his own way; and by well directed efforts at home, among our fellow pharmacutists let us increase our members so as eventually, if possible to include all the better qualified and liberally disposed pharmacutists and druggists in the whole country. That our Association has been able to keep up its organization, in the face of the discouraging circumstances which now surround it, is to me, gentlemen, a strong evidence of its vitality, and leads to the assurance that when peace once more smiles upon us, our Society will, with a due amount of esprit de corps, become an honor to American pharmacutists, and command the respect of our brethren everywhere."

Acting on the recommendation of the president, in reference to the Pharmacopœia, resolutions were afterwards proposed by Dr. Squibb, and also by Mr. Parrish, recommending the use and study of the Pharmacopœia to pharmacutists and physicians and establishing a permanent committee on the Pharmacopœia, consisting of three members, to keep a current commentary on the Pharmacopœia and a record of all useful criticisms and suggestions. The president appointed for such a committee, Dr. Squibb, William Procter, Jr., and Alfred B. Taylor, probably the ablest men who could be found for this purpose in the Association.

Among the queries and articles presented to the Association we notice a great many in which the desire is expressed to develop the cultivation and exploitation of indigenous plants for pharmaceutical purposes. Of interest is also the thirtieth query: "What course should be adopted by Pharmacutists in view of the present state of the liquor market, as regards factitious Brandies and Wines?" It will therefore be seen that this vexed question, that agitates us still to-day, is as old as the Association.

The Association at that time was aware of its important influence and at the time entertained a friendly spirit for our co-workers in other countries, as seen by the resolution offered by Mr. Parrish, which is well worth producing at the present time; and is as follows:

"WHEREAS, The mutual cultivation of science tends to break down sectional and national distinctions, and to unite all of kindred objects and pursuits in a common bond of friendship and good will, and whereas, we have learned with satisfaction of the Druggists and Chemists of Great Britain having been summoned near the same time as our present meeting, and as we believe for purposes similar to our own; therefore,

"Resolved, That we view this movement on the part of our brethren of the mother country with feelings of satisfaction and encouragement, and invite their friendly coöperation and correspondence in advancing a knowledge of the science and the art of Pharmacy, and in promoting the elevation of the profession to a position commensurate with the importance and dignity of its objects.

"Resolved, That a copy of these resolutions, signed by the proper officers of the Association, be transmitted to the President of said Conference of Druggists and Chemists of Great Britain by our corresponding secretary, who is also directed to solicit an exchange of their published proceedings for those issued by this Association."

From the Report on the Progress of Pharmacy, we learn that of all the pharmaceutical journals that had existed in the United States before the beginning of the Civil War, only two had been able to survive, namely the American Journal of Pharmacy and the American Druggists Circular. All others had succumbed. A

timid effort is made in the report to condemn proprietary medicines, although no action was taken. The Committee says:

"Several of our German contemporaries have undertaken the task to clear up the mysteries or mystifications of some proprietary medicines sold in Germany and elsewhere at extravagant rates, to the great detriment of legitimate pharmacy. An undertaking of this kind in our country might be attended with benefit; at the same time, however, it is to be feared, that the very opposite of the interests of science and humanity, would almost to a certainty be the gainers, as it would only add to their notoriety."

Of considerable interest are some data given in the report of the Committee on the Drug Market, that had been created the previous year, and presented its first report. It gives us some idea of the value of the drugs in those days, for instance:

"Alcohol: Among the articles of primary importance which have fluctuated largely in price, alcohol holds a prominent place. Of the various grades of alcohol, that called 95 percent, or the *Alcohol Fortius* of the present Pharmacopœia, may be taken to represent the whole. At the commencement of the Association's year, namely September, 1862, it sold at 65 cents per gallon. From this it rose, with occasional fluctuations, during the remainder of 1862 to 81 cents, being once as high as 90 cents. By the end of January, however, it reached \$1.10, and early in February, brought \$1.25. Thence it gradually declined to 95 cents without much fluctuation till the present time, when it varies with the price of whiskey, between 90 cents and 95 cents."

"Ether: The price paid for ether varied from 35 cents to 37 cents, at one time being as high as 68 cents, there being no relation whatsoever between the price and quality, nor even between the price and strength."

"Chloroform: Ten specimens were examined. Nine of the ten were of full official density, and, judging from the bottle, label and quality, seven of these were from the same manufactory. Not one of the ten was up to the standard, in freedom from foreign compounds, though five of them were so nearly up to it as to be considered very good chloroform. The remainder were less clean though, with one exception, not very unclean. One specimen was very bad, unfit even for external use. The price paid for these were 90 cents to \$1.50 per pound."

Most interesting is the report on Tincture Opii, which says:

"An accurate morphia assay is, however, one of the most difficult in the whole domain of ordinary chemical research, requiring more time and skill than was at the command of the Committee. It was therefore determined, by experiment, that a uniform process for precipitating all the alkaloids could be adopted and relied upon, as giving a tolerably close comparison of the narcotic value of the specimens to which it was applied. Fifty cubic centimeters of the Standard Tincture of the Pharmacopœia, yielded 0.604 grammes of mixed alkaloids by the process adopted. Eleven specimens treated precisely in the same way gave the following results, namely: .424, .327, .343, .308, .486, .427, .480, .427, .340, .338, and .357. These figures indicate that one of the specimens is just about half strength. Five are in the neighborhood of 7-12, and the remaining five between eight and ten-twelfths of the official strength. These preparations cost 1.00, 1.00, 1.12, 1.00, .88, 1.06, unknown, unknown, 1.12, and 1.00 per pound."

"Opium, by the case, in the hands of the importers, has brought an average price of, at least, \$8.50 per pound throughout the past year, and this opium in drying loses an average of 20 percent. in weight and there are about 14½ troy ounces in the avoirdupois pound, while each pound of the official Tincture represents 1¼ troy ounces of the dried and powdered opium. Therefore, at the net case price of opium, the quantity represented in a pound of properly-made tincture costs over one dollar. Now, upon the theory that the druggists are generally honest, and are selling their tinctures below net cost of the principal ingredients, regardless of the cost of menstruum, time, labor and general expenses—to say nothing of profits—this preparation may be all right, if the above examination be all wrong. But if this theory be too absurd for general credence, then these druggists and pharmacutists are chargeable in their practice with an amount of dishonesty which, in the shape of a more bold and manly variety of robbery, would be likely to restrict their opportunities of wrongdoing to the narrower sphere of the criminal prisons."

Among the papers presented at this meeting, were two of particular interest, both treating of a still for apothecaries. One was presented by William Procter, Jr., and the other by Thomas Wiegand. Cuts for stills, as they proposed them, were given and we notice that these identical cuts are still used to-day in the various books on pharmacy. The most interesting paper of the meeting, was furnished by Mr. Procter on Fluid-extracts. In a most exhaustive and scientific

way, he again goes over the subjects as he did some years ago. But instead of treating all drugs alike as he did in his essay in 1859, he now divides them into four classes, as follows:

Class I. Alcohol Fluid Extracts, with a number of sub-divisions according to the strength of alcohol of the menstruum.

Class II. Acetic Fluid Extracts, menstruum diluted alcohol, or alcohol, with a portion of acetic acid intended partly for preservation, but mainly for retaining important volatile ingredients.

Class III. Saccharine Fluid Extracts; these fluid extracts are prepared with water or diluted alcohol as a menstruum; but little if any of the alcohol is retained in the preparation when finished, which is preserved by the agency of sugar; also having a number of sub-divisions, according to the strength of the menstruum.

Class IV. Various unclassified fluid extracts.

The paper is too long for reproduction in *toto*, but it would be well worth while for a historian to collect all the various papers on fluid extracts and combine them into a history of these important preparations.

Other papers of interest were, "On the Internal Revenue" by Edward Parrish. Owing to the difficulty of raising revenue, new laws of various kinds were repeatedly passed by Congress, and Mr. Parrish gives some interesting advice and consideration which our law-makers of today might do well to heed.

Frederick Stearns presented a paper on æsthetical pharmacy in which he makes a plea for more accuracy and neatness in the fixtures and arrangement of the stock in the pharmacies of those days. The volume closes with one of the nicest little papers ever written, called a "Plea for the Handmaiden," by Mr. Parrish, in which he compares pharmacy and medicine, and comes out in sweet, gentle and yet strong words for the recognition of Pharmacy as a profession. He closes with the words:

"Let me not be charged with hostility to the medical profession. My earliest recollections and life-long associations have taught me to love and honor the high-minded physician who, with zeal for both science and humanity, devoted his life to the most laborious and responsible of pursuits; but this very respect for the physician as he *should* be, induces me to place a proper estimate upon the Physician as he *often is*, and to protest, in the name of common honesty and fair dealing, against the unprofessional favoritism to which I have alluded, as being notorious, especially in our large cities. And now, entering into the second decade in the history of this Association, let us assert for American Pharmacy the claim, founded on a common origin and kindred objects, but as a modest and docile sister to a place beside the numerous and distinguished branches of the medical family. May we all strive to deserve such a position."

The observant reader of this volume of the Proceedings, in which two of the most prominent teachers of pharmacy in those days, William Procter, Jr., and Edward Parrish, presented a number of papers, cannot but notice the difference of style and expression between these two men. Procter is always quiet, calm and sober. He thinks clearly and sharply, and expresses his thoughts in a simple but convincing manner. Parrish, the greater scholar of the two, and a great reader of history and poetry, likes to use flowery and elegant language; and particularly when his heart enters into the argument, as in the last mentioned article of the Handmaiden, he seems to rise to higher spheres, and his language flows like a refreshing, rippling stream among the fragrant flowers of the forest.

Mr. J. Faris Moore, of Baltimore, was elected to preside over the next meeting of the Association, appointed to be held in Cincinnati, in 1864.

The twelfth annual meeting of the Association convened in Cincinnati, Ohio, 1864, and was in more than one respect, a continuation of the preceding one. There

was the same spirit of apprehension and uncertainty, although hopeful signs had already appeared on the horizon. At the opening of the meeting there were twenty-five members present, and a few more arrived later. A few of the leading men of the Association had died during the year, the principal ones being Franklin Bache, of Philadelphia; John Meekim, of New York, one of the earlier presidents of the Association, and George W. Weyman, of Pittsburgh, Pa.

In the nomination of candidates for the presidency, a small change was instituted by nominating three presidents, the reason being, to do away with the precedent of electing a president from the city in which the Association was to meet, as it might happen that such a course would be inexpedient, and, besides, would always exclude worthy members from being candidates from towns where the Association would not be likely to assemble. In spite of this change, however, the habit of electing a president from the place of meeting continued for a number of years. At Cincinnati W. J. M. Gordon was elected president for the following year.

A great deal of the time of the twelfth meeting was taken up with the discussion of certain changes in the Constitution, the principal one being the permanent election of the Recording Secretary with an annual salary of \$100.00, and his traveling expenses. This innovation caused a great deal of opposition in the beginning, but it was adopted subsequently. Another vexing question was that of admission of new members. There were at that time the names of many men on the roster who had never signed the Constitution and had never paid dues, and it was pointed out that in the selection of new members greater care should be exercised and no one should be considered a member and receive the proceedings, unless he had paid the dues and signed the Constitution. This question occupied the attention of the Association for many years afterwards. Another change of the Constitution was the creation or the establishment of five standing committees, elected annually, instead of two as before, the five committees being, the Executive Committee, the Committee on Progress of Pharmacy, Committee on Drug Market, each to consist of five members, Committee on Scientific Queries and a Business Committee, each to consist of three members. These resolutions were also adopted at the following meeting, so that the Constitution after the thirteenth meeting contained considerable changes from the original draft.

The report of the Committee on the Progress on Pharmacy contained some information of great interest on the education of the young pharmacutists in various countries and a comparison was made between education in these countries and the total absence of any rules or regulations in this respect in our country. Strong recommendations were made to use all possible means of bringing about a better education of the apprentice.

The Committee on Drug Market brought in a report that filled more than twenty pages of the proceedings and which contained accounts and complete price lists of various drugs. Owing to the political difficulties, it can be understood that the cost of some of the drugs had risen to an enormous price, we notice for instance that morphine sulphate cost \$11.00 an ounce, potassium iodide \$7.00 per pound, quinine sulphate \$3.55 per ounce, glycerine \$1.75 per pound for the English, and, for the American, .75 to \$1.50 per pound. The report, written probably by the Chairman, Mr. Maisch, again makes a strong plea for the cultiva-

tion of indigenous plants and the promotion of domestic industry in pharmaceutical and chemical matters. It says:

"Another important and extremely interesting feature, that might be embraced in one of these reports, is the actual supply to our various markets of indigenous plants and drugs. We ought to regard this in connection with the source of this supply as of the utmost importance in order to prevent, if possible, the extermination of medicinal plants in certain localities. We are in the habit of denouncing the short-sightedness of the governments and the population of the South American republics in felling the cinchona trees, for the purpose of obtaining their valuable bark, instead of carefully nursing them, with the view of preserving them until they have yielded the indispensable drug to their utmost capacity; we applaud the Dutch and English governments for their well directed efforts to transplant the cinchonas to the congenial climate of the East Indies, because we hope that if successful, the calamity of an insufficient supply of cinchona bark will be prevented. And yet what are we doing at home? The writer knows that in years gone by, spigelia, senega, serpentaria, ginseng, and probably other drugs used to be collected in the East, but have become almost completely extinct there, so that we had been compelled to look to the South for a sufficient supply, and, since this source has been shut off, to the young and growing states of our great West. It is within the writer's knowledge that, in certain localities in the immediate neighborhood of Philadelphia, cimicifuga, sanguinaria and veratrum viride have almost or entirely disappeared, and it is likely to be so in other places.

"In view of the growing importance of these drugs, does it not become us to pause and reflect upon proper means to be adopted to prevent their complete eradication? Is it perhaps not similar with podophyllum, the use of which appears to have largely increased in late years? With a soil adapted to as large a number of vegetable species as can be found anywhere throughout the world; with a climate reaching almost to the tropics of the South, and extending through the entire fertile part of the temperate zone; with a continent stretching from the shores of the Atlantic to the coast of the great Pacific Ocean, and embracing towering mountains, undulating hills and large plains; we ought never to come under the necessity of seeing our own medicinal plants transferred to other continents in order to prevent an exhaustion of supply."

If we turn to the scientific papers presented at this meeting, we find the first paper presented by our old and highly respected member, C. Lewis Diehl, at that time from New York, on *Oleum Aethereum*. He had joined in the year 1863, as well as another old and highly respected member now deceased, namely, Albert E. Ebert, of Chicago.

Among the papers presented the one by Mr. Gordon, of Cincinnati, on Glycerin, deserves notice. Glycerin was at that time a new article, and Gordon speaks of "its mission as a remedy, as an adjuvant and as a solvent." His paper was in those days a revelation to most of the hearers. Another subject that was new to most of those present was that entitled "Remarks on Dialysis," by William Procter, Jr. While the investigations of both these men, and the information that they gave in their respective subjects, are now common knowledge to every chemist and pharmacist, the appearance of these two papers at this time shows of what strict and keen scientific spirit the early leaders of our Association were possessed and how nothing escaped them that seemed to be of any use or value in their profession. Mr. E. Parrish read a volunteer paper on the "Systematic Course of Study and Manipulation for Students of Pharmacy." He gives in it a complete syllabus for students and pleads in a masterful way for higher education.

The thirteenth meeting of the Association was held in September, 1865, in Boston, and was called to order by Mr. Gordon, of Cincinnati. At this meeting over one hundred members were present and a livelier and more animated spirit seemed to prevail. It certainly was one of the most interesting and spirited meetings, in so far as a full exchange of opinions on many subjects took place, in which the leading men of those days often differed. It is natural that the president should make some reference to the close of the destructive war. He says:

"As members of a scientific Association, having for its main object the advancement of the members of our calling in elevating and useful knowledge, we have as a matter of course nothing whatever to do with politics; our boast is that we meet on the common ground of a brotherhood which interferes not with the religion or politics of any of the members. We feel, therefore, that we have nothing to do as a Convention, assembled for such purposes as I have indicated, with the war (which is now happily closed), other than to deplore its necessity, to mourn over the separation it has caused us for the time being, from many of our brethren; to regret the hindrance it has been to the advancement of our cause, and to rejoice (which we heartily do), in its termination. Many of our members, particularly in the Southern States, have been practically cut off from connection with our Association during the last four years, and their vacant places have been the cause of no little sorrow for those of us who were enabled to meet. I think I express the sentiments of every member of the Association, now met in our annual conclave, when I say that our doors stand open to all those who have been hindered from meeting with us, and a hearty welcome awaits them."

The president also dwells on the many taxes that had been levied during the war and which brought about an increase in the prices of many pharmaceutical and chemical preparations, and he there makes his first plea for free alcohol used as a medicine and in the arts. After nearly fifty years of agitation this same desire still exists.

At this meeting the first mention of an International Congress of Pharmacy is made and while no delegates were appointed it was yet resolved to send a greeting to this meeting, which took place in Brunswick, Germany. It was also resolved, and this is very noteworthy, that the minutes of the first meeting held in 1851, as well as the proceedings of the Association of 1852 and 1855, should be reprinted, as no more copies were available.

The report on the Drug Market, which in previous years had been of such interest, was this year missing. A difference of opinion, as to the value of the U. S. Pharmacopœia, brought out some very interesting remarks from Prof. Parrish, Mr. Procter, Dr. Squibb and Mr. Maisch, as well as others. The question at issue was, whether a pharmacist should be allowed to differ from the methods and strength of certain preparations as laid down in the Pharmacopœia, and the general opinion seemed to be that, while the Pharmacopœia was a valuable and useful book, nobody should be bound by it because a certain man or some men who had written the Pharmacopœia had advocated certain formulas. The lengthy debate by the leading men of the time was cut short however, by the stern veteran, who always showed a clear judgment and the greatest common sense, S. M. Colcord, of Mass. He said in a quiet way:

"One great object to be attained in the strength of preparations is uniformity. This we cannot get if we differ. There must be some standard; and as long as you adopt the Pharmacopœia, you must adhere to it."

Another interesting discussion took place at the beginning of the meeting. It will be remembered that there were a great many of the earlier members who had the idea that the American Pharmaceutical Association should be an Association of delegates and should derive its strength from local associations and colleges of pharmacy. Although this opinion had been defeated at the previous meeting, there were many signs that it still prevailed in the minds of the leading men, and when at the thirteenth meeting delegates from the Alumni Association of the Philadelphia College of Pharmacy presented their credentials, Dr. Squibb objected, on the grounds that the Alumni Association was not a local association, and that the American Pharmaceutical Association could not recognize any society whose mem-

bers were scattered all over the United States. This opinion was shared by many, with Mr. Parrish leading the opposition. President Gordon sustained the objection and ruled the Alumni Association out. An appeal from this decision was made and the ruling of the Chair was not sustained. While this incident may appear of little significance to some, it must yet be considered one of the greatest victories for the Association; for it again emphasized its national character and absolutely independent position.

It was remarkable that at this meeting a great many new members were added to the roster, the most coming from Chicago, about 25 in all. Here also joined our beloved friend and treasurer for many years, S. A. D. Sheppard, of Salem, Mass.

The various propositions for changes in the Constitution as mentioned previously, were adopted at this meeting and the Committee on Nominations brought in a full list of candidates for all the offices and committees. H. W. Lincoln, of Boston, was elected president. At this meeting the office of Local Secretary was discussed and at the next meeting added to the list of offices. Mr. Ebert, of Chicago, read at this meeting his first paper on "Oil of Amber." He also took part in all the debates with that youthful impulsiveness and enthusiastic courage which characterized him to his death.

Among the queries the one on Opium and its cultivation in the United States, was of particular interest. Dr. Squibb said:

"I hold in my hand a specimen of opium, made from poppy grown in Virginia, in the neighborhood of Lynchburg, by Powhatan Robertson. It is understood that large quantities were made and used in the medical practice of the Southern armies, when they were prevented from procuring from abroad a sufficient supply of the drug. I would like to have the Association receive it, and refer it to Israel J. Grahame for examination; if he is willing to undertake that matter, it would doubtless be very acceptable to the Association. There is no doubt about its authenticity; it came directly without passing through second hands. I have heard it said that we could cultivate opium in this country; it would be a great advantage."

And again

"I have heard that the culture of opium was attempted in Alabama and in Florida, in the neighborhood of Apalachicola, to a considerable extent. It was found to be deleterious to the field hands, and was abandoned on that account in some localities. That large quantities were produced seems to be indisputable."

This brought forth the remark from Mr. Henchman, of New Hampshire, that:

"During the war of 1812, when opium was very scarce, some parties produced it in New Hampshire, and it sold from ten to twelve dollars a pound. It was then of very good quality. After he had established a market, the producer manufactured a very good looking article but much inferior."

Mr. Parrish read an interesting paper on "Filtering and Filtering Apparatus"; while Mr. Maisch read at this meeting a lengthy treatise on "Rhus Toxicodendron," showing that the poisonous principle in this plant is an acid and not, as was supposed a number of alkaloids.

Thomas S. Wiegand, of Boston, read a paper on "The Obligations of Pharmacutists in Respect to the Instruction of Those in Their Employ," and made a strong plea for the proprietors to instruct their apprentices better, closing with the words:

"In concluding these hasty thoughts upon so important a subject, I would suggest the propriety of the Association urging, with all its influence, the adoption of some scheme

calculated to render the practical instruction of pharmaceutical students a leading feature among our members."

It will be seen from these remarks how feebly and how slowly the demand for higher education arose, and how it took from four to five decades to bring it to the present height. Another paper along the same line, was that called "Fidelity to the Pharmacopœia," by James W. Mill, in which he uses a beautiful simile, and says:

"Guided by no such acknowledged standard of authority, the preparation and dispensing of medicines would be involved in extreme confusion and uncertainty. Like a ship at sea without chart or compass, Pharmacy would drift helplessly on the turbid waters of empiricism, and, finally, despite the utmost efforts of its crew, be lost amid the rocks and breakers of quackish pretention, or the sordidness and selfishness of mere trade and traffic. As the compass is to the mariner, so is the Pharmacopœia to the pharmacist, pointing out to him the course by which to steer his pharmaceutical ship, so as to safely guide it into the haven of professional integrity and material prosperity. Itself, indeed, the creature of Pharmacy, it yet in turn aids greatly in its advancement. A standard for the guidance of pharmacutists themselves, it also furnishes a medium by means of which the physician and pharmacist can understand each other in the writing and dispensing of prescriptions. Compiled by able and conservative minds, it is a safe and trustworthy guide, containing within its pages, as it were in a nut-shell, the concentrated results of many previous years of observation and research, thus supplying to all pharmacutists alike, in a cheap and compact form, the most reliable formulas for the preparation of its various products that science and practical experience have yet devised; fallible, of course, like all human productions, it is none the less entitled to full confidence and support. The Pharmacopœia should, however, be regarded as not simply advisory or recommendatory, but as authoritative."

A number of papers at this meeting dealt with the question of economizing and saving alcohol. Owing to the enactment of new internal revenue laws, the price of a gallon of alcohol had risen from 75c to nearly \$3.00 and the question of saving, was of course of great importance. New processes of making tinctures and fluid extracts were recommended and stills of all kinds were presented at this meeting for the recovery of the alcohol used in their manufacture.

The fourteenth annual meeting of the Association was held in Detroit, Michigan, H. W. Lincoln, of Boston, presiding at the first half of the meeting, and the newly elected president, Frederick Stearns, during the second half.

The amendment of the Constitution offered the previous year, to establish the office of "Local Secretary," was adopted in the course of the meeting. Mr. P. W. Bedford, of New York, was elected the first Local Secretary of the Association.

In his address President Lincoln reviewed the activities, the work and the gradual growth of the Association, and attached to it a tabulated statement of the number of members of each state. From this table, in which thirty-two States, one territory, the Dominion of Canada, New Brunswick, and Bermuda were represented, it appears that the number of members had increased since 1853 from forty-four to six hundred and seventy-one, showing a continuous increase with every year with the exception of the last one. This was owing to the fact that a great many members were dropped on account of non-payment of dues.

In the course of the meeting Professor Parrish took occasion to make a few remarks on the facilities of education of pharmacists in the United States, from which we quote the following:—

"There is not a city of the first class in the United States that might not, from the apothecaries residing in it, furnish a sufficient class to sustain a College of Pharmacy."

He then reviews shortly the work of the various colleges and records that the

attendance is proportionally small particularly in the large cities such as New York and Philadelphia. He then continues:

"Now the question for us to consider is this:—Cannot this Association exert its influence to improve the conditions, and extend the appreciation of the colleges in the United States and to establish others when practicable? In Cincinnati they have not for a number of years had any successful teaching. In none of the cities but New York, Philadelphia, Baltimore and St. Louis are there any colleges attempting to get along and keep up the instruction. I don't know that we could do anything, but I think the weight and influence of the Association should be thrown in this direction. That is the way in which we are to raise the status of pharmacy in the United States. It is through generations to come. We that have got ahead, and feel like relinquishing our connection with business, cannot do a great deal except to use our influence in that direction; but the young men themselves, who are to be educated in pharmacy, will raise the American Pharmaceutical Association hereafter to be a body of far greater efficiency than it has ever been, judging from those we have among us who have recently availed themselves of the advantages of pharmaceutical instruction. I hope it will rest in the minds of members of the Association whether we cannot do something to wake up the very large constituency we have to the importance of sending their apprentices and those over whom they have influence, to obtain a systematic instruction in pharmacy."

Frederick L. Stearns took occasion to follow with these words:

"The remarks that have been made by Prof. Parrish, lead me to say a word in regard to the influence of this Association in the respect of the formation of local Associations, not merely educational ones, but societies for mutual improvement other than educational, for social influence and trade influence. We need to get the druggists together in the towns and let them become acquainted with one another, let them know each other better, so as to rub off the corners, trade-jealousy and antagonisms, which are very apt to exist between members of the same profession. I think the influence of the Association can be brought to bear in this direction with great benefit. Throughout the country the druggists who are not members of this Association, and who do not understand its object look upon it with askant eye. They think that by joining the Association they may involve themselves in some way—they don't exactly understand how—but the very moment they become informed as to the objects, advantages and influences of the Association they are ready to join. I can say for myself that I have been a member of this association for fourteen years and have spent considerable amount of money in attending its meetings, but I know it has paid me ten-fold in a pecuniary sense alone, to say nothing of the many other advantages I have reaped from my connection with it. I am very glad, therefore, that the remarks of Prof. Parrish were made and I cordially endorse them."

The remarks of these gentlemen were not followed by any particular action and it might appear unnecessary to record them in a history of the Association. But deeds and actions are very often the result of long and quiet agitation and the men in whose minds the first instigation originated are sometimes forgotten as others take up their work and, often, bring it out as their own. It is the office of the true historian to trace the development of the spirit that underlies all great actions back to the originator; and remarks of the kind recorded above, are more apt to act as a leaven and produce great results than strong, impetuous and radical motions of reform. In these few and gentle words, expressed spontaneously in the midst of the meeting, the beautiful spirit of fraternity that characterized the actions of our Association in those days, comes out in a wonderful way and they show how the leading men of those times cast their eyes and thoughts forward and saw in the future that greatness of the Association to which it has grown at the present time.

When we look over the list of the newly-elected officers of the Association, we cannot but be struck with the galaxy of important and great names that we see this year. Many of them were selected for office for the first time, others had

been working in the interests of the Association since it began. Where could a finer array of great names be found than the following:

Frederick Stearns.....	Detroit, Mich.
Prof. E. Parrish.....	Philadelphia, Pa.
Charles A. Tufts.....	Dover, N. H.
T. S. Wiegand.....	Philadelphia, Pa.
Albert E. Ebert.....	Chicago, Ill.
W. J. M. Gordon.....	Cincinnati, Ohio
Prof. J. M. Maisch.....	Philadelphia, Pa.
C. Lewis Diehl.....	Louisville, Ky.
Prof. F. F. Mayer.....	New York, N. Y.
Prof. P. W. Bedford.....	New York, N. Y.
Samuel Colcord.....	Boston, Mass.
Prof. W. Procter, Jr.....	Philadelphia, Pa.
Dr. E. R. Squibb.....	Brooklyn, New York
Robert J. Brown.....	Leavenworth, Kansas

An interesting debate took place when the special committee on the Internal Revenue Law, Dr. E. R. Squibb, Chairman, presented their report. It was again Prof. Parrish, who objected to the number of laws enacted by Congress and he showed how absurd it was to classify all preparations under the same heading. As the Pharmacopœia was no authority at that time, there were, for instance, a great many formulas for Citrate of Magnesia in use, and according to Prof. Parrish's understanding of the law, all of these required a revenue stamp, except the one made by the formula of the Pharmacopœia, which he claimed to be the worst of all. His own preparations, that were prescribed by physicians all over the country, came under the same class, simply because in some of them he deviated slightly from the formulas of the Pharmacopœia. Dr. Squibb defended the action of Congress and the committee, and a careful perusal of the whole debate shows that the difficulty actually arose from the fact that there was no established standard or authority for any preparation whatsoever.

The Treasurer's report caused lengthy remarks. It had been necessary to levy a special assessment in order to avoid a deficiency, and the treasurer again called attention to the fact that the life members who were exempt from payment were increasing at a rate greater than new members could be procured and earnestly urged relief in this respect.

A number of amendments to the Constitution were proposed. It took however another year until final relief on this vexing question was found.

Delegates were also appointed for the next International Congress held in Paris in 1867.

The report on the Progress of Pharmacy, presented by the Chairman, Enno Sander, comprising about sixty pages of the proceedings, was a very exhaustive treatise on everything that had happened in the previous years in the line of pharmaceutical development. As a peculiarity, it might be mentioned that in nearly every report at those times, the formulas for Syrup of Copaiba and Syrup of Cubebs are given, preparations that have long since disappeared from general use. The Chairman pointed out the difficulty of compiling this report and makes the remark:

"It occurred to my mind that all these difficulties might be obviated to a great extent by appointing a permanent reporter on the Progress of Pharmacy."

This is the first mention of a "permanent reporter on the Progress of Pharmacy."

Interesting papers were presented on the production of wines in various parts of the United States. Albert E. Ebert, from Chicago, presented specimens of Essence of Beef, the first made in this country. From the scientific papers, we notice a great many in this year that contained reports on the improvement of the processes in Pharmacy, as for instance:—William Procter on Sassafras; James W. Mill on Granular Salts; Thomas Doliber on Benzoinated Lard and Valerian; Wilson Pile on Acetate of Ammonia; C. Lewis Diehl on Chemical Processes; Notes on Liquor Bismuth by George F. H. Markoe; and John M. Maisch on Chloroform, on Brandy and on Sherry Wine.

A paper of some historical value was that by Prof. E. Parrish entitled, "A Discourse on Titles." As has been stated, the general name for the members of our profession was PHARMACEUTIST. In this paper, Mr. Parrish proposes the name PHARMACIST, and the word "Pharmaceutical" instead of "Pharmaceuti-cal."

Dr. Squibb agreed with Prof. Parrish and said: "I consider the term Pharmacist a decided improvement on Pharmaceutist." No action was taken on this point however, and the proceedings continued for a number of years to speak of "Druggist and Pharmaceutist."

The following meeting, the fifteenth, was held in New York in 1867. Owing to the sickness of President Stearns, the Vice-President, Mr. Parrish, presided at the first half of the meeting. This meeting was a note-worthy one in more than one respect. There were nearly 100 members present. As new members at this meeting, mention should be made of Joseph P. Remington, of Brooklyn, and Dr. C. F. Chandler, of New York. Important changes in the Constitution were made so as, finally, to relieve the strain on the treasury. They all tended to raise more funds and an admission fee of \$3.00 was required. The annual contribution was to be increased to \$3.00; life membership abolished for the future. The fee for the certificate of membership was made \$5.00. After long debates on these propositions, they were finally all passed. A great number of the old members resigned their life-membership and continued to contribute like ordinary members. When the Nominating Committee brought in their report, they named Dr. E. R. Squibb, of Brooklyn, for President. Dr. Squibb, however, declined, stating that stress of business prevented him from accepting the office. He asked the Association to substitute the name of J. Milhau, of New York, in place of his own. After a lengthy debate this was finally done, and Milhau was elected President for the following year.

The report of the Committee on Drug Market, which comprised thirty pages of the proceedings, gives a general review and has tabulated statistics of imports in the different ports of entry, giving the amount of importation and the values. This gave rise to a lengthy debate, in which all the leading men of the time participated. The pictures that were revealed of the status of the drug market in the United States were not pleasant ones. Adulteration and sophistication were the rule, and articles intended to sell as adulterants for staple goods were openly advertised as such, as, for instance, Cream of Tartar was adulterated with a series of articles, one called terra-alba and claimed to be "the best and most reliable adulterant of Cream of Tartar." Dr. Squibb stated that in the United States, there was "pure Cream of Tartar;" next "Cream of Tartar," then came "Cream

of Tartar No. 1," "Cream of Tartar No. 2," and so on. No. 1 contained about ten percent. of adulteration, while the lowest grade contained nearly 80%.

Complaints were also made about the varying price of Alcohol, which fluctuated between three and four dollars per gallon.

At this meeting, for the first time, delegates to the International Pharmaceutical Congress made a report to the Association, which in many respects is of great interest. The two delegates who had attended the Congress were William Procter, Jr., and John Faber. Mr. Procter received the honor of being elected one of the Vice-Presidents for the next Congress. At the deliberations of this Congress the delegates from America were as a rule on the negative, voting on all questions alone and against the delegates from Europe. Some of the questions discussed were the following:

"Shall there be unlimited liberty as in ordinary mercantile business? Shall there be a free practise with the guarantee of a diploma and personal responsibility under the common law? Shall there be a wise regulation by law, designed to insure the public interests and protect the pharmacutists?"

All the delegates voted against the first query; on the second, all voted on the negative except those from the United States. When the third was voted upon, all the votes were cast in the affirmative, excepting those of the United States, which were for the negative.

The second question was: "Is it proper to limit the indefinite multiplication of pharmaceutical shops?" It was referred to a Committee consisting of one member of each country. All reported in favor of limiting the trade except Mr. Faber, of New York, who alone voted in the negative.

The third question was: "Is it proper to demand the creation of institutions of a disciplinary character, destined to maintain the 'honorability' of the profession of Pharmacy, by insuring its correct practise, and to represent and protect it in all its exterior relations?" The committee to whom this was referred reported in the affirmative, which view was adopted by the Congress. The delegates' report then stated:

"As some of the speakers had alluded to pharmacy in America in a way that was calculated to give a wrong impression,—a short statement was prepared by one of us, and permission was obtained to read it in English, so that it might go on record. The origin of the colleges was referred to, and the rise of scientific pharmacy, in the United States, to the separation of dispensing from the practice of medicine. A general view was given of our progress and allusion was made to the subjects of the Pharmacopœia, and to weights and measures."

The report of the Committee on Internal Revenue Law was also of great interest, as it gave the details of a suit by the government against an illicit distiller. In the course of the testimony, two witnesses stated the proportions and yield of the process.

"A quantity of twenty bushels of grain for making a mash, generally consists of fourteen bushels of Indian corn, four bushels of rye, and two bushels of malt, though a much larger proportion of rye is preferred where a fine quality of whiskey is aimed at. The proportion of water used in making the mash, was the subject of investigation, as affecting the issue of a case on trial. According to the evidence for the United States, thirty-four gallons of water were usually added to each bushel of grain in the mash, while the beer, after dilution with cold water, usually contains forty to fifty gallons to a bushel. The best temperature for 'mashing' was stated to be from 158° F. to 190° F."

The methods adopted by the Government to prevent improper manufacture of

alcohol and whiskey, were discussed at length in this report, but no action of any kind was taken.

The report of the Reporter on the Progress of Pharmacy comprised 144 pages, more than one-third of the whole book, and it gives an idea of the enormous amount of work that the Reporter, C. Lewis Diehl undertook in the interest of Pharmacy. Among the many interesting new articles that this report contained we notice Liquid Soap mentioned for the first time and the method of its manufacture from glycerine, oleine and solution of potash. Also "Liquor Carbonis Detergens," a new form of antiseptic for local application, "was said to be an alcoholic solution of coal tar, containing probably carbolic acid and other acids, with dark tarry matter. It forms a permanent emulsion with water." The Solution of Citrate of Magnesia continued to be a puzzling question and four different formulas for this preparation are given.

A good idea of the amount of care that the leading pharmacists took in those days in the preparing of prescriptions, is given in the discussion of a paper, in answer to Query 16, by James W. Mill on Ergot. Mr. Maisch stated that he only powdered two drachms at a time, which took about an hour. He said:

"I will cheerfully add my testimony to the fact of the efficacy of ergot when freshly powdered. I disagree with Mr. Wiegand of the necessity of powdering it for immediate use. As I powder it, it would take me about an hour to powder two drachms. I have a practise of never keeping on hand more than two or three drachms. Powdered ergot is never kept more than two or three weeks—when that time has elapsed, it is thrown away and another portion is powdered and kept on hand; two drachms being about enough to use for one or two prescriptions. The physicians who have used it have been very well satisfied with it. I pass my powder through a sieve of sixty, and that is why it takes a good deal of trouble."

A remarkable resolution was offered by William A. Brewer, of New York.

"Resolved, That while we hold to a high appreciation of the beneficial influence of the accustomed social entertainments tendered to the members of this Association and their friends, by the members of the drug trade in the various cities where the Association meets from time to time, and while we cherish with gratitude and thankfulness the good feeling which prompts these munificent exhibitions of generosity, we cannot but hope that, hereafter, the solicitors of the contributions for such purposes, may get permission from the donors to devote a moiety of said contributions to the endowment of a central library and a cabinet of materia medica and collateral matters for the purposes and use of the Association."

This resolution was later on discussed but not accepted. It is the first crude idea of creating a permanent home central library and museum for the American Pharmaceutical Association.

A communication from the East River Medical Association of the City of New York, signed by Dr. J. Shrady, condemning the renewing of prescriptions, did not meet with the approval of the Association and a somewhat evasive reply was given.

In the report of the Committee of Queries which was read by Mr. Squibb, it is noticed that in the seventeenth query the word "Pharmacist" is used. This is the first time that this form is used in an official paper of the Association.

"What is the best scheme of practical instruction for young men preparing for the business of PHARMACISTS, aside from the necessary service in the shop, with especial view to those who are unable to attend a College of Pharmacy?"

This query was answered by Mr. E. Parrish the following year.

(To be continued.)

THE MINUTES OF THE SESSIONS OF THE SCIENTIFIC SECTION.

The first session of the Scientific Section was held Tuesday afternoon, August 25th, 1914, in Room D, of the Convention Floor of the Hotel Pontchartrain.

The meeting was called to order by Chairman Ruddiman, at 2:00 p. m., who said:

"Conservation seems to be the word of the times. At this meeting several changes are being inaugurated for the purpose of conserving time, and that is one reason why the present Chairman has broken away from the time honored custom of giving a formal address. The present officers of the Section believe that much of the good to be derived from the meeting is to be found in discussions. In the past many a good paper has been passed by, perhaps, because it was not taken in by the members, or they were not prepared to discuss it. To get the good out of the discussion we must have it at the meeting. I presume that some of you are somewhat like myself; when I see a paper printed, followed by a discussion, I look at the discussion first. I think that the discussion is one of the interesting parts of the paper.

"Then, again, where the writer of a paper is not present to read his paper, it has been the custom to read that paper by title. I think that is not fair to the writer. He has put time and labor into a paper full of good ideas and I think it should be given due consideration.

"I have gone over the papers which have been sent in, particularly those where I knew the writer would not be present, and have made a very brief abstract of the papers with the idea of presenting that brief abstract in case the writer is not present. Then if the members of the Section wish the paper read in full, they may have it read.

"I regret to say that the members of the Association have not coöperated with the officers quite as well as I had hoped for. Up to yesterday morning, only about half of the papers announced on the program had been turned in, consequently the officers have not been in a position to arrange the program to the best advantage, or to select papers for discussion. My idea was to have these papers on hand, and to get some one or two members of the Association to read them over beforehand, in order to be prepared to discuss them in a few words and to the point. That is what we want, I think, in the discussions.

"A resolution introduced at the Nashville meeting will be called up for action some time during the meeting, and this resolution provides or requires that all papers be handed in to the Chairman at least one week before the meeting. I understand there will be a discussion of a similar topic before the Council tonight, and it is proposed to require papers handed in to all sections of the Association, to be handed in one month before the meeting. Probably this will be decided upon at the Council and later at the General Session.

"With these few explanations we will proceed at once to the business.

"The first thing in the order of business, as printed in the by-laws, is the Secretary's report.

"SECRETARY SCOVILLE: I have no report to make, Mr. Chairman.

"CHAIRMAN RUDDIMAN: The next order of business is the report of standing committees, and Committees of the Association which report to this Section. Some of these reports are rather lengthy, and with the consent of the Section we will postpone these reports until a later session unless there be some objection.

"MR. PHILIP ASHER: I move that the reports be disposed of in that way."

Motion seconded and carried.

"CHAIRMAN RUDDIMAN: The next order of business is the appointing of a nominating committee, which committee will present two names for each office for the coming year. This Committee is to report before the adjournment of this

section. On this Committee, I will appoint: Wm. B. Day, of Chicago; Martin I. Wilbert, of Washington; Prof. Jordan.

"The Committee will please report before the adjournment of this Session two names for each of the offices, which are Chairman, First Vice-Chairman, Second Vice-Chairman and Secretary. The election of these will be at the last session of the Section.

"The next order of business is miscellaneous business, and under this, I presume, would come the resolution which was presented at the Nashville meeting at the last session too late to be acted upon. I have already referred to this resolution. It is to change the by-laws requiring the papers to be handed in one week before the meeting. As this subject is to be discussed before the Council to-night, I would suggest that we defer action on this resolution until a later session and see what is best to do to keep in harmony with the General Session.

"Is there any other business to come before the Section? (No response.)

"We will proceed at once to the reading of the papers. The first paper on the program is on the subject of 'Uniformity in Dosage of Radium Emanation,' by Dr. Wm. Jay Schieffelin."

MR. SCHIEFFELIN:—Mr. Chairman and Gentlemen of the Section: I feel that it is a presumption for me to address a gathering of so many scientists and teachers of science; what I have to say is for the men who studied chemistry and physics twenty-five years ago, rather than for those who graduated last spring.

In case I tell you things that many of you know, it will be simply because in speaking of this wonderful subject of radium and its emanation from the point of view of pharmacy, it seems important to refer not only to its properties, but to say a word about its occurrence, and the theory of its existence.

CHAIRMAN RUDDIMAN: Dr. Schieffelin's paper, if there are no objections, will take the usual course. The next paper on the program is "The New Science of Immunology," by Dr. F. E. Stewart, of Philadelphia. (Printed in *September* issue.)

M. I. Wilbert then read a paper entitled, "Official and Other Tinctures," which was referred for publication.

C. F. Ramsey then read a paper on, "Difficulties in the Manufacture of Certain Fluid Extracts."

Mr. Scoville presented a paper on, "Glycerite of Bismuth." (Printed in *September* issue.)

Dr. Stockberger read a paper entitled, "Comparison of the Physical Properties of Some Volatile Oils, with Special Reference to the Requirements of the U. S. P., 1910."

A paper was then presented entitled, "A New Method for the Distinction of True From Synthetic Oil of Wintergreen," by G. H. Watson.

CHAIRMAN RUDDIMAN: The next paper on the program is "Laboratory Notes," by George E. E'We, and C. E. Vanderkleed.

Mr. Vanderkleed then read the above paper in abstract.

The Nominating Committee then presented the following nominations for officers for the ensuing year: For Chairman, H. Englehardt, H. C. Hamilton; for First Vice-Chairman: W. L. Scoville, J. H. Turner; for Second Vice-Chairman: L. E. Brown, F. E. Bibbins; for Secretary: Wm. Mansfield, Azor Thurston.

On motion of Mr. Mansfield the Section adjourned to meet Wednesday afternoon, August 26th, at 2 o'clock.

SECOND SESSION.

The second session of the Scientific Section was called to order Wednesday afternoon, August 26th, 1914, in Room D, of the Convention Floor, of the Hotel Pontchartrain, by Chairman Ruddiman.

On motion, the minutes of the Secretary were approved.

The following papers were presented:—"The Assay of Opium," by A. R. L. Dohme. (Paper read in abstract by Dr. Englehardt.) And "The Lime Assay of Opium," by A. B. Lyons; which two papers were presented for discussion together by Chairman Ruddiman. "A New Method for the Estimation of Glycerin in Pharmaceutical Preparations," by C. H. Briggs, and "On the Estimation of the Assay of Glycerin," by F. T. Bradt. These two papers were also discussed together. "The Determination of Glycerin in Tablets and in Confections," by LeRoy Forman; "Notes on the Assay of Hydrastis and Fluid Extract of Hydrastis," by H. W. Jones; "What is the Best End-Point of the Reaction in the Frog Heart Method of Digitalis Assay," by L. W. Rowe; "Preliminary Notes on a New Pharmacodynamic Method of Assay," by Paul S. Pittinger; "Medicinal Plant Gardens," by Dr. Stockberger, (printed in October issue); "A Third Alkaloid from Gelsemium," by A. E. Stevenson and L. E. Sayre; "The Necessity of a Method of Estimating the Intrinsic Value of Essential Qualities of Coffee," by Prof. L. E. Sayre. On motion of Mr. Gordon the Section then adjourned to meet on Thursday morning.

THIRD SESSION.

The third session was convened at Room D, Hotel Pontchartrain, Thursday at 9:30 a. m.

On motion of Mr. Asher the reading of the minutes of the last session was dispensed with.

Papers were read as follows:—

"Morphine Nitrate and Morphine Acetate," by H. Englehardt and O. E. Winters; "Elementary Phosphorus," by the same authors; the "Estimation of Calomel," by R. I. Grantham.

The Section then elected the following officers for the ensuing year:—Chairman, H. Englehardt; First Vice-Chairman, W. L. Scoville; Second Vice-Chairman, Linwood E. Brown; Secretary, William Mansfield. The report of the Committee on Medicinal Products was presented and on motion of Mr. Gordon it was accepted to take the usual course. (Report printed in September issue.)

The report of the Committee on Ebert Prize was accepted and referred for publication. (Printed in October issue.)

The report of the Committee on Physiological Testing was received and referred for publication. (Printed in October.)

It was voted to approve the publication of the Digest of Comments on the Pharmacopœia of the United States, published by the Public Health Service of the United States and that a resolution be sent to the Surgeon General to that effect.

The following papers were read in abstract:—"The Glands of Internal Secretion and Their Importance as Therapeutic Agents," by Dr. Cary P. McCord;

"The Composition and Assay of Diacetyl-Morphine Chloride and Heroin Chloride," by R. T. Harris and A. M. Clover; "The Analysis of Cigarettes, Cigars and Tobacco, and the Use of Lloyd's Reagent in the Determination of Nicotine," by Azor Thurston; "The Structural Variation of Allspice," by Dr. William Mansfield; "Cannabis Sativa, Is the Medicinal Value Found Only in the Indian-Grown Drug?" by H. G. Hamilton; "The Pharmacognosy of the Medicinal Rhamnus Barks," by Prof. E. N. Gathercoal; "Notes on the Estimation of Morphine and on Lloyd's Reagent," by H. M. Gordin and J. Kaplan; "Notes on a Glycerin Substitute," by Joseph Feil; "Notes on a New Alkaloid found in Nux Vomica," by Hugo H. Schaefer.

The hour being late it was voted that the remaining papers be considered as read by title and that they be referred for publication.

On motion of Mr. Kirschgessner it was voted to dispense with the formal installation of officers, and that they be considered as installed in office.

Voted to adjourn.

THE DETERMINATION OF GLYCERIN IN TABLETS AND CONFECTIONS.

LEROY FORMAN.

At the present time the use of glycerin tablets and confections is very great. Upon consulting a number of journals, as well as chemical literature, we find no work of any kind reported upon this class of preparations, which are sold largely through the drug trade.

It is a well recognized fact that glycerin taken in this form has a very soothing effect for irritations of the throat and bronchial tubes.

This investigation was entered upon because there is no available literature on this class of tablets, and, secondly, it was considered as necessary for tablets sold as "Glycerin tablets," to contain an appreciable amount of glycerin, as it is for any medicated tablet to contain an appreciable amount of the chief active constituent for which it is named.

Samples of six different popular brands of such tablets, were purchased in drug stores, two of these samples being plain glycerin tablets, one, honey and glycerin, and three, menthol and glycerin.

The official method of the A. O. A. C. was tried for the estimation of glycerin, but in evaporating the solution, obtained by dissolving the tablets in water, to such a small volume as the A. O. A. C. directs, some glycerin was probably lost, due to the very slow evaporation after the solution had obtained a syrupy consistency, which results when the volume is about 25-30 cc. But if milk of lime is added at this time, the resulting mixture can be evaporated to a stiff paste, which can then be carried through the regular A. O. A. C. procedure. The complete method used is as follows:

Enough tablets were taken to weigh about 5 grammes, these were dissolved in water, evaporated to syrupy consistency, 15 cc. of milk of lime added and the

mixture evaporated to a thick paste, stirring frequently to prevent it from drying hard on sides of dish. This mass was then rubbed in smooth paste with 5 cc. of water, 45 cc. absolute alcohol was added, heated to incipient boiling, and heavy particles allowed to settle. The supernatant liquid was then transferred to filter, and dish and filter washed with 95% alcohol until filtrate measured 150 cc. This was evaporated on a water bath at 85° to a syrupy consistency. This residue was taken up with 10 cc. absolute alcohol, transferred to 50 cc. graduated cylinder and the dish washed with two 5 cc. portions of absolute alcohol and transferred to the cylinder; then 30 cc. of anhydrous ether were added in 10 cc. portions and shaken thoroughly after each addition.

This was allowed to stand until perfectly clear, then decanted through a dry filter, and the cylinder and filter washed with 25 cc. of alcohol-ether mixture in above proportions. This was then evaporated to 5 cc., 20 cc. of water added and evaporated to 5 cc., 10 cc. water added and again evaporated to 5 cc. This was transferred to a 50 cc. volumetric flask, the beaker washed with hot water, then freshly precipitated silver carbonate (0.1 gm. silver sulphate, plus excess sodium carbonate), was added. The mixture shaken frequently during ten minutes, then 0.5 cc. basic lead acetate was added and again shaken frequently during ten minutes and made up to mark.

Twenty-five cc. of the filtrate was placed in a 250 cc. flask, 1 cc. concentrated sulphuric acid added, to precipitate excess of lead, then 30-40 cc. strong bichromate solution (7.5 gm. potassium bichromate and 15 cc. concentrated sulphuric acid per 100 cc.), and 24 cc. concentrated sulphuric acid, and the mixture placed in boiling water bath for 25 minutes. Make up to mark, cool, take aliquot of 20 cc., dilute with 50-70 cc. water and titrate excess of bichromate with ferrous ammonium sulphate solution (30 gm. per liter and 50 cc. sulphuric acid).

Standardize ferrous ammonium sulphate solution against a 1-20 dilution of bichromate solution, then calculate glycerin, by finding excess of bichromate in oxidized glycerin solution. The number of cubic centimetres of strong bichromate added, minus excess found after oxidization, multiplied by 0.01 gm. equals weight of glycerin in the 25 cc. purified solution used. This multiplied by two gives total weight of glycerin. Then percentage is then calculated as usual. The following table shows results of the examination:

Kind of Tablet	Wt. each Tablet	% Glycerin	Wt. Glycerin per Tablet
1. Plain Glycerin	5.46 gm.	3.13	0.1708 gm.
2. Menthol and Glycerin	1.50 gm.	1.00	0.015 gm.
3. Menthol and Glycerin	1.44 gm.	1.09	0.0156 gm.
4. Menthol and Glycerin	1.48 gm.	0.98	0.0146 gm.
5. Plain Glycerin	2.33 gm.	13.60	0.3168 gm.
6. Honey and Glycerin	3.29 gm.	12.07	0.397 gm.

The above results indicate that of the six samples examined, but two (numbers 5 and 6) are really entitled to the use of the word "Glycerin" in an unqualified form in the title.

THE MANUFACTURE OF FLUID EXTRACTS.

BY C. F. RAMSAY.

Those unfamiliar with the manufacture of Fluid Extracts little realize how necessary it is to have a particular knowledge of each drug, especially in making large quantities of these extracts. It is possible to make a pint, or two, of a Fluid Extract without trouble, but in the manufacture of five hundred or a thousand pints, in many cases difficulties will be encountered. Some drugs require to be finely powdered, while others are extracted better in a coarse condition. Drugs must be run in copper, iron, or tin percolators according to their nature. Even after a proper menstruum is found for a given drug, working on a small scale, when large quantities are handled, that menstruum does not always prove satisfactory. In making Fluid Extracts, the object is to have each c.c. represent one gram of drug and in order to do this it is often necessary to continue percolation. Some drugs may be extracted in a week, while others require three or four weeks.

Knowing the best menstruum for a given drug on a small scale, it is then necessary to adapt it to manufacturing conditions on a large scale. The drug may be of a mucilaginous nature and will swell so that percolation is impossible.

In such a case it is necessary to mix the drug with shavings or with sawdust. For instance in the manufacture of Fluid Extract of Squill (hydro-alcoholic), we are dealing with a drug that contains about 22% of sugar and a mucilaginous principle, resembling dextrin, known as *sinistrin*. If Squill is ground and macerated with dilute alcohol, it will swell so that percolation is impossible. Even after mixing the cut bulb with shavings, percolation is very slow. After the percolate has been obtained, in some cases two distinct layers will be found, the sugar layer being at the bottom. It is impossible to remove this sugar layer without losing some activity. The best results are obtained by using an 80% alcoholic menstruum and operating on the cut bulb. The writer speaks of the alcoholic extraction of Squill, because a better product is obtained with that menstruum than by the U. S. P. method, as was pointed out by Hamilton in the American Journal of Pharmacy.

Another drug difficult to extract, because of its mucilaginous character is *Cereus Grandiflorus*. This drug is obtained in the green condition and has to be treated with alcohol immediately. Although 95% alcohol is used as a menstruum, there is a large amount of moisture in the drug which dilutes the alcohol sufficiently to produce a sticky mass. This is a case where it is better to wash the drug with a little alcohol, concentrate this portion in the still, and then percolate the washed drug with more alcohol. In the case of Bladder-wrack, we have another drug difficult to extract because it is so mucilaginous. It is also very difficult to thoroughly extract *Calumba*, even after mixing with shavings. This drug contains about 35% starch and 5% of gum which accounts for the trouble. *Lappa* and *Squaw Vine* are also in this class. The writer would suggest that a strong alcoholic menstruum be used on drugs of this nature.

Some drugs are of a very light nature and, if not properly packed, they will

not give full strength "fluids" as the menstruum will pass through too quickly. In dealing with drugs of this kind, it is best to have them packed in as many percolators as possible, so that a given amount of menstruum will be in contact with the drug a longer time. Otherwise it would be necessary, in most cases, to use so much menstruum to flood the drug, that more than a pint to the pound would be drawn off. Arnica Flowers often rises to the top of the percolator, leaving considerable menstruum at the bottom, which of course is not in contact with the drug. Other drugs in this class, which often give trouble, are Colocynth, Quassia, Red Clover Blossoms, Sourwood Leaves and Marrubium.

Very often drugs are difficult to extract because of their hard structure, as for instance, Physostigma, Podophyllum, and Stone Root. In handling these drugs it is advisable to have them in a fine powder. Physostigma contains about 48% of starch, 23% of proteids, gum and fat which add to the difficulty of extraction. Using a coarse powder of Physostigma, the writer was able to obtain only from 40% to 60% of the alkaloid.

The addition of glycerin to a menstruum often retards percolation. This is especially noted when the drug contains considerable extractive matter, as the glycerin serves to make it more viscous and sticky, thus making percolation slow and difficult. The writer has experienced trouble in this respect with Uva Ursi, Geranium, Hydrastis, Rose, Hamamelis and Cinchona. Percolation proceeds much easier without glycerin, but of course such fluid-extracts would not be in accordance with the U. S. P.

Some drugs contain considerable extractive matter and, if not properly percolated, are bound to give trouble. With these it is best to divide the drug into as many percolators as possible and reserve a portion of the first percolate from each percolator. Otherwise the menstruum keeps getting heavier and so saturated that it is almost impossible to get it through the last portion of drug. In this class are such drugs as Poplar Buds, Black Willow Bark, Elder Flowers, Helonias, Digitalis, and Mistletoe.

In extracting drugs containing considerable oil, such as Sabal and Sandalwood, it will be observed that the first portion of percolate is milky, due to the separation of oil. In this case the 95% alcohol used as menstruum, is diluted by the moisture of the drug, so that it will not dissolve the oil. This portion should be concentrated in the still and percolation continued with 95% alcohol.

The writer has experienced considerable trouble with the Fluid Extracts of Convallaria and Digitalis. Using the menstruums indicated in the U. S. P., it was impossible to get the full activity from the drug. With Convallaria at times only 50% of the activity was obtained. Many experiments were carried out, on a manufacturing scale, to ascertain the best way of extracting these drugs. It was found that 80% alcohol was the best menstruum for both.

With alkaloidal drugs, it is always necessary to continue percolation, in order to obtain all of the alkaloid. Even then there are some drugs that give trouble. For example, with Cinchona Calisaya, many experiments were made to find out why it was impossible to get the full activity. The writer found that by not adding the glycerin to the menstruum and reserving the first portion of percolate from each percolator very good results were obtained. There is considerable

extractive matter in Cinchona and when glycerin is used in the menstruum percolation is difficult. Sanguinaria (hydro-alcoholic) causes much trouble. The writer tried menstruums of different strengths and also additions of a little hydrochloric, acetic, and nitric acids. If the drug is fine, it packs so that percolation is impossible. The best results were obtained by using 71% alcohol, with about 2% of hydrochloric acid, and having the drug coarsely powdered. Gelsemium is hard to extract, which may be due to the starch and gum which it contains. Nux Vomica also gives trouble. This drug contains about 11% proteid, 6% of sugar, and gum, which may account for the difficulty. Pilocarpus is also troublesome.

Without long-continued percolation, it is sometimes difficult to thoroughly exhaust Sundew, Echinacea, Fringe Tree, Gravel Plant, Adonis, Arbor Vitæ, and Caulophyllum.

As the primary object of Fluid Extracts is concentration, a suitable menstruum should in each case be selected with the object of dissolving and retaining permanently the active constituents of the drug, and in order to do this, each drug must be separately and individually studied. Many experiments are necessary, to determine which is the most suitable menstruum and the best conditions on a manufacturing basis.

NOTES ON A GLYCERINE SUBSTITUTE.

JOSEPH FEIL, PH. G., PH D.

Two years ago, when Glycerine doubled in price, there appeared on the market two very similar substances, under coined names, at about half the price of this article, and for which the following claims were made: "Mixes readily with water, keeps indefinitely, never becomes rancid or ferments, contains no acids, in many respects and for many purposes is far superior to glycerine; made from cane sugar; especially adapted for use where soft, moist results are desired and for which purpose it is being employed successfully in place of C. P. Glycerine, also as a sweetener for food products, and, finally, for all purposes for which C. P. Glycerine is used." The above statements are misleading in almost every respect, especially in reference to its use in U. S. P. preparations, where on trial I did not find a single successful case, except in one instance, viz.: it could be used to keep solid extracts from becoming hard.

A physical examination showed a slightly yellowish color, no odor, an adhesiveness or viscosity resembling commercial glucose, taste much sweeter than glycerine, not cloying or repulsive, sp. gr. 1.402 at 25° C., soluble in water and alcohol, but not in a mixture of three parts of alcohol and one part ether.

Chemically the substance responds to every test for "Glucose" sugars, abundantly and quickly. It seems therefore, that the substance is a reduced cane sugar as claimed, of complex nature and considerable purity, but it is certainly not a synthetic, or near-synthetic Glycerine, and at best might be a substitute for commercial glucose, however, the price, four times that of the last named substance, would prohibit such use.

UNIFORMITY IN DOSAGE OF RADIUM EMANATION.

WM. JAY SCHIEFFELIN, PH. D.

Radium emanation is assuming importance as a therapeutic agent. The Council on Pharmacy of the American Medical Association, has listed radium and its emanation among New and Non-Official Remedies; an increasing number of physicians are using the emanation in their practice, and articles and advertisements on the subject, are appearing in the medical journals. Since radium and its emanation, are becoming recognized as belonging in the *Materia Medica*, their production and properties and the standardization of their preparations, come within the scope of Pharmacy.

Radium is prepared from carnotite (vanadate of uranium and potassium), uraninite or pitchblende (uranium oxide), and samarskite (columbate and tantalate of uranium and yttrium). Radium has an atomic weight of 226, and resembles barium in its chemical properties.

In its characteristic property of radio-activity, radium is sublimely superior to its environment: whether in its natural minerals or isolated from them, and in all of its chemical compounds, it is constantly emitting alpha rays and emanation, at a uniform rate, and there is no known way of influencing or halting this activity, which is not affected by the extremes of heat and cold, by pressure or the strongest re-agents. This radio-activity shows the energy which results from the disintegration or transmutation of radium into elements of lower atomic weights. The energy resulting from the resolution of an element into its constituent parts, is vastly greater than that resulting from chemical combination.

The largest amount of energy released in any known chemical reaction, is from the combination of an equal volume of hydrogen and oxygen to form water, but the emanation of radium, in its successive transformations, accompanied by the expulsion of alpha rays, yields more than ten million times as much energy. Ninety-five percent. of the energy in the radiation from radium and its subsequent products, is in the form of the alpha radiation, a corpuscular radiation in which the corpuscles or alpha particles are positively charged helium ions.

The statement that there are one hundred and thirty-six million alpha particles, emitted by one milligram of radium each second, to one who studied chemistry twenty-five years ago, seems almost humorous, but the description of the apparatus for counting the alpha radiations is so simple that a fourteen year old child can understand it.

Counting the number of particles per second, is possible, because physicists have been able to determine, exactly, the diameter of the sphere, on whose surface the particles are far enough apart to count them.

They place a fraction of a gram of radium in a tube, some thirteen feet long, from which the air is exhausted, which tube has a small orifice at the end, to prevent more than a certain number of alpha particles from coming through, and on the other side of the orifice, is a delicate electrometer with a silvered quartz-fibre mirror, by which a point of light is reflected. Each atom of helium,

charged with positive electricity, causes a tremor in the quartz-fibre, which is magnified by the reflected point of light and recorded on a photograph film. They then have the data required for their calculation,—the weight of the radium, the length of the radius and the area of the orifice through which the little particles went, and as they know this is taking place in every direction; that this amount of radium is shooting out these little particles, (actual, visible, corpuscular particles) in every direction all the time, it is a simple calculation to determine what the number of radiations on the surface of the sphere is. You know radium is magnetic, and they adjust the distance by moving the fragment of radium backward and forward, by use of a magnet outside of the glass tube. By means of this apparatus, Rutherford found that there are one hundred and thirty-six million separate alpha particles radiated from one milligram per second. The spinthariscopes renders a confirmation of this calculation possible.

I have here a modified spinthariscopes, called the radiosmitoscope, which is adjusted so the zinc sulphide screen can be moved out so you can see the radium particles emanating from other bodies outside. I suppose you know how the spinthariscopes is made.

A needle point is touched to the inside surface of the tube which has contained radium; enough radium adheres to the point of that needle to radiate sparks for 1800 years. Seen through a low-power microscope they are like sparks from a blacksmith's anvil radiating continuously.

A milligram of radium expels one hundred and thirty-six million separate alpha particles per second, which are made visible in a spinthariscopes. The alpha rays emitted from one three thousand-millionth of a grain of radium, can be detected by the gold leaf electroscope. The rays are given out uniformly, in all directions, in the form of continuous volleys of tiny projectiles travelling at a rate of 12,000 miles per second. Their range is nearly three inches in air and many yards in a vacuum. They are but slightly penetrating,—being absorbed by thin sheets of aluminum, paper or glass—but pass through a film of glass exceedingly thin. It has been shown that they are atoms of helium charged with positive electricity.

Now, here is a very important thing from a pharmaceutical point of view. Only a fraction of the rays, are set free from solid radium compounds; only a fraction of them come out. The bulk of them are not set free, but are occluded in the salt of radium, or the mineral in which the radium is contained. In order to obtain the largest yield, you must have the largest possible surface. If you have a crystal of chloride of radium, not nearly as many of these little alpha radiations come out as if you dissolved that crystal and spread it out as widely as possible on a surface. If that is done, the number will be very much increased.

Now, the same thing applies to insoluble salts. If you have sulphate of radium, you will not get the greatest amount of emanation from it unless you powder it to the finest degree and spread it out as far as possible. Otherwise, you may get two percent. only, instead of possibly ten percent. of the total emanation available.

The emanation is a gas which, in turn, steadily disintegrates into alpha parti-

cles and radium *A*, from which, in the same way, come Radium *B*, *C*, *D*, *E*, and *F*, in succession. It is from these products, especially Radium *C*, that the beta and gamma rays are given off. The beta rays are electrons of negative electricity, the same as the cathode rays, except that the velocity of the beta particles is much greater, approaching the velocity of light, 186,000 miles a second.

The gamma rays are not considered to be particles of matter, but are waves in the ether, similar to the X-rays. They are far more penetrating than the alpha and beta rays, and are used in the external application of radium in cancer, the others being easily excluded by thin metal filters.

The emanation has an atomic weight of 222 and a characteristic bright line spectrum. It belongs in the group of inert monatomic gases with helium and argon. It is not absorbed by any known re-agent and shows no power of chemical combination. The emanation is one hundred thousand times as active, weight for weight, as radium. Like other gases, it can be collected, confined, and handled, in ordinary glass containers. This is usually done only when it is mixed with enormously greater volumes of air or other gases. Like other gases, the radium-emanation is somewhat soluble in water. It disintegrates at the rate of one-half in about four days, and since the radio-active products, into which the emanation disintegrates, decay at the rate of one-half in a few minutes, it follows that the total radiation from the emanation and the subsequent disintegration-products, decreases at the same rate as the emanation, namely one-half in about four days.

When water with emanation in solution, is left in an open bottle, the emanation diffuses out, and, if the water is shaken up or otherwise disturbed, the process of diffusion of the emanation is accelerated. From ten to thirty percent. of the emanation, in solution in water, may be lost by pouring from one vessel to another.

The strength of radio-active water, is usually expressed in Mache Units per liter. Radio-active water of 2700 Mache Units contains, per liter, as much emanation as is emitted in thirty days by one microgram of radium (1 Mache Unit equals 0.001 electro-static units, one of which equals 3.33×10^{-10} amperes). The radio-activity of water is measured by a fontactoscope, which is an electro-scope with a chamber for ionized air and a scale for measuring and timing the discharge. The instrument is standardized by first testing a solution of a known amount of radium chloride which has been sealed thirty days. Great care must be used in sampling the water.

Water is charged, either by dissolving the soluble bromide or chloride of radium or by submerging the insoluble sulphate. The latter is more economical, but the sulphate must be in a minute state of subdivision and must present the largest possible surface.

There are several ways of accomplishing this:

1. Precipitating the sulphate on asbestos and placing it in a porous cell.
2. Mixing it with charcoal and forming into slabs.
3. Mixing it with cement and forming balls.
4. Mixing it with clay and firing it, forming terra cotta.

Most of these processes are protected by patents. The advantage of using

an insoluble salt is, that it can be employed repeatedly and its use continued indefinitely. The terra cotta rods can be used eighteen hundred years and still have half their radium content available.

Moreover they avoid introducing into the organism a permanent radio-active body, as is done if a soluble salt is administered.

While a given amount of radium always emits a constant and uniform amount of emanation, the proportion given out by an insoluble salt depends upon its state of sub-division.

In the insoluble salts, most of the emanation is occluded by the salt itself; in compact form, the sulphate will only yield two and a half percent., while if it is finely powdered and divided, so that it presents a large surface, ten percent. can be obtained.

A uniform strength of emanation, is obtained when the same amount of radium sulphate, is held in the same state of sub-division, submerged in the same volume of water, for the same length of time.

If it is desired to prepare doses of one hundred Mache Units, and the sulphate can be held in such a state that ten percent. of its emanation is available (as is the case when distributed through porous terra cotta) it will be convenient to use an amount of radium which would yield two thousand Mache Units and submerge for four days in tightly closed containers, when one half of ten percent. or one hundred Mache Units will be obtained.

The stronger natural springs contain from one to two hundred Mache Units per liter, with which they are charged while flowing over radio-active minerals or passing through cavities where the emanation has collected. The reason why many mineral waters, when drunk at the springs, give therapeutic results unattainable when they are bottled and transported, is the speedy dissipation of the fugitive emanation, which is reduced to one half in four days unless there is a source for its renewal. The means of renewing the radio-activity of bottled waters or of charging any water with emanation, are afforded by the above-mentioned devices, and the physician may thus prescribe a course of treatment which can be carried out with precision in the patient's home.

The chief effect of the radiations from radium and its disintegration products, is to produce an ionization of the atoms of whatever substance the rays penetrate. Chemical effects follow as a secondary result of the ionization. Von Noorden and Falta say that, "in contradistinction to all other forms of electro-therapy, we possess in the radio-active substances a means of carrying electrical energy into the depths of the body, and there subjecting the juices, protoplasm and nuclei of the cells, to an immediate bombardment by explosions of electrical atoms. We may therefore designate this internal treatment with radio-active substances, internal electro-therapy.

DISCUSSION.

PROF. SAYRE:—What have been the therapeutical results obtained from the use of these radio-mineral waters; have they been of a very reliable character?

DR. SCHIEFFELIN:—I do not feel competent to answer that, but whenever sufficient results have been obtained to make a demand from physicians of standing, it is well for the pharmacists to be in a position to supply it. All kinds of claims are made, and a great many cases which have been treated have been brought to my attention, but not being a physician I hesitate to express an opinion. I am willing to mention if I may, some of the extraordinary

things not connected with medicine, that have come to my attention, in regard to the effects of this weakly charged radium water, upon plants, for example. They have tried the experiment of taking two plants of exactly the same kind, age, and size, with the same number of leaves, etc., and watering them with the same amount of water, and in the same kind of soil, etc., the only difference being that the water applied to one plant was charged with radium emanations, and at the end of ten days, the plant so treated was four times as big as the other one. There have been a great many experiments along this line, which have given some very interesting results. If you use a thousand Mache Units, you will wither the plant; if you give a man 10,000 Mache Units you do not seem to hurt him.

DR. RUSBY:—It may be interesting to you to know, that ever since last October I have been engaged in a systematic study of the effects of radium on crop production. I have charge of the observation of a farm of 130 acres at Northfield, near Cleveland. There we have five plots of each crop, and these plots receive different quantities of radium, one of the plots receiving no radium whatever. At the same time I am in direct charge of a small plot of an acre and a half at Nutley, New Jersey, near my home, and there I have had all these crops for experimentation. The results have been of the greatest interest and of the greatest importance. In the case of radishes I have secured an increase of 70 per cent. in the weight of the crops. One of the most interesting things was the result obtained with radishes grown under glass in the winter time, during February, when the amount of sunlight was very slight, because it was stormy during the whole month and there was snow on the glass during a large part of the time, excluding the sunlight. While the roots, the radishes themselves, increased 20 per cent. in weight, the tops, or the green parts, decreased 17 per cent., showing that the plant produced more food with less action of sunlight on leaf tissues.

A European investigator has shown that the amount of the starch in the plant in the morning was greater than it was the night before, under the influence of radium; the supposition has heretofore been that starch can form only in sunlight and is consumed in darkness. The experiment shows that radium causes starch production during the night, when the plant can not receive the rays of the sun.

Furthermore, in the same soil from which a crop has been taken, if a new crop is planted, without any additional amount of radium, the results are greater even than they were before, instead of being less.

As Dr. Schieffelin says, an excessive amount of radium emanation is injurious. Take, for instance, the amount of radium which produced an increase of 22 per cent. If that amount be increased four-fold, the crop is stunted, and will not grow at all; the plant will grow up two or three inches and has the appearance of having been poisoned, and a crop cannot be produced.

I have made an arrangement with the New York Times to publish in their paper about the first of October, an illustrated account of these operations, and if any of you want to watch for that, you can get it.

The experiments show that radium not only results in the practical improvement of agriculture, but that it acts on the protoplasm of animals in the same way that it does upon the protoplasm of plants.

I also want to say if any of you will write to the Standard Chemical Company of Pittsburgh they will send you a little pamphlet on terms used in the measurement of radium. It is a very good one and it shows how through a misunderstanding of terms, a lot of errors have crept in.

DR. SCHIEFFELIN:—I want to speak of one other thing, in the hope that somebody else will testify, Prof. Rusby himself, perhaps, and that is reported by the man who invented these terra cotta rods. They are just as good for charging the air with radium emanation as for charging water with it. One experiment was made of taking a couple hundred eggs, which were all supposed to be fertile, and putting one hundred in one incubator and one hundred in another; the air in one incubator was kept charged with radium emanation during the period of incubation. Otherwise both incubators were kept under ordinary conditions. Eighty of the eggs hatched in the radium-charged incubator, while only thirty-two of the eggs hatched in the other, and the chickens hatched in the incubator which was not charged with radium, were a half ounce lighter in weight than the chickens hatched in the other.

MR. RUSBY:—It is certainly true that the air can be charged with emanation, because it is on that principle that the electroscope, for measuring radium emanation, is based. It is because the air in the measuring instrument, is charged with radium emanation, that it becomes capable of conducting electricity and by such conduction the electroscope works.

DR. SCHIEFFELIN:—What the pharmacist should prepare for is to meet the demand on the part of the physicians. Since I have been interested in this subject a number of physicians have used these different emanators, and the demand appears greater at the present moment than the different companies are able to supply; as least, that is what I am informed. Now, that is going to be the real test. I have always said that anything that has to be sold, as a remedy, by advertising, does not belong in the *Materia Medica*, but the moment that physicians continue to repeat orders for a preparation, without it being constantly advertised,

it begins to look as though it had a permanent place in the *Materia Medica*. I think it is a little too soon to say anything definite about radio-active water, except that for centuries people have been taking treatment at Wildbad-Gastein springs, which contain radium emanation, with beneficial results, which ought to be an eloquent argument in favor of the treatment, with radium emanations, of gout, rheumatism, etc.

Baron Liebig, over 70 years ago, went to Gastein and took the treatment of the waters and was cured, and he said, "I am going to find out what is in that water that cured me," and he analyzed it, and took great pains in investigating it, but when he had finished, he said there was nothing in the water that chemistry at that time could detect, but that there must be something, some influence, some magnetic, or electrical influence, which causes this wonderful power in the water. And he was right, because this power is not chemical, it is electric. These little alpha particles have two positive charges of electricity to each helium atom, and they are volleyed out like volleys from a battleship, constantly at the rate of 136 millions per second from a milligram of radium. We cannot get around that; that has been shown, and if you get some of them inside of you, it is not surprising if they produce some effect.

MR. JOSEPH WEINSTEIN, of New York:—How do the European mineral waters compare with the domestic mineral waters, as to being charged with emanation, say Saratoga Springs?

DR. SCHIEFFELIN:—They have a little, but have not been found to be very strongly radio-active.

MR. WEINSTEIN:—So that they do not compare at all with the European springs?

DR. SCHIEFFELIN:—A lot of them are very weak. I think Saratoga Springs are only faintly radio-active. The Hot Springs of Arkansas are radio-active. All springs are more or less radio-active, but most of them are very weak.

MR. WEINSTEIN:—Are the Hot Springs, of Virginia, radio-active?

DR. SCHIEFFELIN:—Yes.

DR. WOLFF:—The Bureau of Standards will soon be ready to provide a standard radium content. That matter is receiving attention now, and we have also been considering radium preparations, and the Bureau has some of the official copies of the radium standards which have gained international recognition.

DR. SCHIEFFELIN:—Will we be able to get these?

DR. WOLFF:—I think so, shortly.

DR. SCHIEFFELIN:—I am glad to hear that. These emanators have been loaned by the manufacturers in the porous earthenware cups (indicating) and within that are the holders that contain the sulphate of radium. I am sorry to have to take this away, but I have another appointment in the evening and I will soon have to leave.

MR. JOSEPH FEIL, of Cleveland:—I would like to get a description of that arrangement again. You say the radium is kept in a tube, which has an opening at the end, or how is that arranged?

DR. SCHIEFFELIN:—There is another tube beyond the orifice, with vacuum too. The other tube is a brass tube, and that is where the electrical connection occurs; you know if you connect two conductors with an electrical battery and bring them together a spark will jump across. That is the principle upon which that works. The little helium atom, charged with two charges of electricity closes the circuit and makes a very delicate electrometer give a little jerk.

MR. JOHN K. THUM, of Philadelphia:—Dr. Schieffelin says there are some things which he would rather not talk about, which I think should be talked about. His remarks about the statement made by the physician who claims that the taking of the soluble radium salt may produce cancer, as he said the experiments have shown, show that there is a great possibility of this being true, and if so, it would be a great danger to the public.

There seems to be a strange silence on the part of the leaders of surgical science as to the value of radium in the treatment of cancer. And from private conversations with physicians one is led to believe that in some cases where radium has been applied to cancer patients, there seemed to have been at first an improvement, but that subsequently the patients died, three, six months, or a year later, with a diffused carcinomatous condition. So therefore there is a possibility that the application of radium may be dangerous, not only in applying it to the carcinoma, but by drinking it in water. If these radium waters are to become matters of commerce, there should be some regulation or control. It seems to me that radium ought to be more thoroughly understood, and there should be something done to see that the emanations alone are in the water, and not soluble salts. The public should be protected at all costs.

A MEMBER:—The theory that radium might cause cancer has been experimentally disproved. There is no longer any ground for devoting any attention to that. The British Medical Association at its meeting decided that it was time the medical profession and the public should know that in cases of superficial cancer, where the cancers are in places where they can be reached, the only appropriate treatment is the radium treatment. Furthermore

the British Medical Association decided that the use of surgery in fighting cancer was a thing of the past. That is the last announcement which has been made.

DR. SCHIEFFELIN:—I will pass around some of these things for your inspection. These are the earthenware rods, and this is a sample of pitchblende, an extremely handsome sample. You can determine it from its looks, and also from its weight. Uranium is one of the heaviest of all the elements, and for millions of years this uranium has been breaking down to form radium, and this radium is breaking down to form a new element. It is something that we never dreamed of. It is really a transmutation.

This little terra cotta rod does not contain the radium as a little lump, but the radium is distributed all the way through it. Before the rod is made the radium is dispersed through a powder and mixed with the clay, and then the rod is baked.

I wanted to speak about the best authors on radio-activity at the present time. These books (indicating) are very recent. This book is by Paul Lazarus, and is a collection of the best papers on the therapeutic effect of radium.

This book is Soddy's "Interpretation of Radium," which was printed a year ago; and of course, the classic book is Madam Curie's work in two large volumes, which I do not have here.

The last book of all is "Radio-active Substances and their Radiations" by Sir Ernest Rutherford, who did much of his work at McGill University, Canada. This book has gone through a number of editions, and this is the 1913 Edition, and every page is full of important data and reasoning, and there are 664 pages in the book. It is only since 1901, that they have been doing much on this subject. These gases and elements are very recent ones, and yet we know as much, if not more, about their properties, as we do of some of the elements that have been known for a hundred years.

I neglected to call your attention to these tables (indicating charts on wall). The Curie is the regular standard, and that is the amount of emanation that is given off by a gram of radium. Now, this table shows how very small a Mache unit is because it takes 2700 mache units to make a microcurie.

(Table above referred to.)

Curie	Millicurie	Microcurie	Mache Units
1	1000	1000000	2700 millions
0.001	1	1000	2700000
0.000001	0.001	1	2700
0.00000000037	0.00000037	0.00037	1

DR. SCHIEFFELIN:—I would also like to call your attention to this table, showing the strength of various springs in Europe:

RADIO-ACTIVE STRENGTH OF NATURAL SPRING WATERS MEASURED IN MACHE UNITS PER LITER.

Place.	Name of Spring.	M. U.	Author.
Gastein	Rudolph Stollen	24.7	H. Mache
Gastein	Elisabetquelle, N. Q.	26.8	H. Mache
Gastein	Doctorquelle	31.5	H. Mache
Gastein	Fledermausstollen	32.8	H. Mache
Gastein	Chirurgenquelle	54.5	H. Mache
Gastein	Franz Joseph Stollen, V. Q.	61.7	H. Mache
Gastein	Franz Joseph Stollen, H. Q.	64.5	H. Mache
Gastein	Elisabet Stollen, S. Q.	73.7	H. Mache
Gastein	Chorinsky Quelle	83.4	H. Mache
Gastein	Wasserfall Quelle	106.	H. Mache
Gastein	Elisabet Stollen, H. Q.	133.	H. Mache
Gastein	Grabenbecker Quelle	155.	H. Mache
Baden-Baden	Murquelle	24.	C. Engler
Baden-Baden	Buettquelle	82.	C. Engler
Carlsbad	Muehlbrunnen	31.5	H. Mache and S. Meyer
Carlsbad	Eisenquelle	38.4	H. Mache and S. Meyer
Nauheim	Kurbrennen	25.4	P. Lazarus
Nauheim	Karlsbrunnen	28.6	P. Lazarus
Aix-Les-Bains	Alun	47.3	P. Lazarus
Wiesbaden	Kurzquelle	11.95	P. Lazarus
Landeck	Marienquelle	19.7	K. Reichau
Landeck	Friedrichsquelle	34.1	K. Reichau
Landeck	Georgenquelle	98.6	K. Reichau
Joachimsthal Springs	Wasser Stollen	33.	H. Mache and S. Meyer
Joachimsthal Springs	Barbara Stollen	49.5	H. Mache and S. Meyer
Joachimsthal Springs	Nordort am Schweizergang II.	185.	H. Mache and S. Meyer

NOTES ON THE ESTIMATION OF MORPHINE AND ON LLOYD'S REAGENT.

H. M. GORDIN AND J. KAPLAN.

1. *Attempt to shake out morphine with a mixture of alcohol and chloroform from a saturated solution of potassium carbonate.*

When a saturated solution of potassium carbonate is shaken with alcohol or a mixture of equal volumes of alcohol and chloroform, most of the alcoholic solvent very quickly separates out on the surface of the heavier aqueous layer. This was proved by adding a definite volume of the alcoholic liquid to an equal volume of the saturated solution of potassium carbonate, shaking the mixture vigorously, and reading off the volume of the upper layer after the liquid has separated in two layers. In all cases the volume of the alcoholic layer was only a little less than the volume of the alcoholic liquid originally taken.

Owing to there being no good immiscible solvent for the extraction of morphine from the solution of its salts in water, an attempt was made to saturate such a solution with potassium carbonate, and to use a mixture of equal volumes of alcohol and chloroform as an immiscible solvent. The aqueous liquid, after being shaken once with an equal volume of the alcoholic liquid, using about 40 cc. of each for about 0.1 g. of morphine in the form of salt, gave no test, in acidified solution, with Mayer's or Wagner's reagent, while, on the other hand, the alcoholic liquid was found to contain, besides morphine, small amounts of potassium carbonate, together with small amounts of other substances, coming either from impurities in the carbonate, or from a partial decomposition of morphine by the latter, or from both sources. Even when the potassium carbonate was previously washed with alcohol and dried, the alcohol-chloroform-solution of the morphine contained small amounts of other substances.

It was thought that by washing the residue left, (after distilling off the alcoholic liquid from the morphine), with a saturated solution of the alkaloid, the impurities could be eliminated, so that the morphine could be determined alkalimetrically. For this purpose, definite amounts of morphine were dissolved in acidified water, the solution saturated with potassium carbonate, (either ordinary or previously washed with alcohol), and then shaken with a definite volume of a mixture of equal volumes of alcohol and chloroform. After the complete separation of the liquid into two layers, an aliquot portion of the upper alcoholic layer was drawn off and evaporated to dryness. The residue was washed, with a saturated solution of morphine in water, until the washings gave no test for potassium carbonate with phenolphthalein, and the morphine determined alkalimetrically, using N/25, H_2SO_4 and N/50, KOH. The indicator was methyl-red.

The experiments showed that, in all cases, the amount of morphine found, ex-

ceeded the amount originally taken, the variation being from two to fifteen percent. Hence the method, at least in the form here described, is not reliable.

2. *Extraction of alkaloids by means of Lloyd's reagent.*

Owing to the facility and completeness of precipitation of alkaloids by Lloyd's reagent, it was thought that this reagent could be advantageously used for the quantitative extraction of alkaloids from their original sources or from the solution of their salts in water.

It is evident that, in order to attain this aim, it is necessary to prove that the alkaloids, once precipitated by Lloyd's reagent, can be readily and completely recovered from the precipitate containing alkaloid and reagent. With a view of determining this point, the following experiments were carried out:

A definite amount of morphine was dissolved in an excess of dilute sulfuric acid, the alkaloid completely precipitated with an excess of Lloyd's reagent, and the precipitate then washed with water until the washings gave no test for sulfuric acid. The precipitate was dried at 60° and then repeatedly extracted with boiling methyl alcohol, which is a very fair solvent for morphine. The solution was evaporated to dryness, and the residue weighed. This residue was free of sulfuric acid, showing it to contain probably free morphine, but its amount was less than 4 percent. of the morphine originally taken.

The precipitate was again extracted with methyl alcohol to which a small amount of ammonia had been added, and after again evaporating the solvent the residue was weighed. The total amount of alkaloid recovered by the two successive extractions, was about 90 percent. of the morphine taken.

Another experiment was made with strychnine, using chloroform which is an exceptionally good solvent for this alkaloid. A dilute solution of strychnine in water acidified with sulfuric acid, was completely precipitated with an excess of Lloyd's reagent, and the precipitate, after thorough washing with water, dried at 60°. A portion of the precipitate containing about 0.2 g. of strychnine was suspended in a little water containing an excess of ammonia, and then repeatedly shaken out with successive portions of chloroform, using 20 cc. of the latter for the first shaking and 15 cc. each time afterwards. It was found that, even after ten consecutive operations, the chloroform did not remove all of the alkaloid, as was shown by evaporating some of the chloroformic extract to dryness, taking up the residue with acidified water, and testing the resulting solution with Mayer's and Wagner's reagents, both of which continued to give a heavy precipitate. Hence, by this method, it is extremely difficult, quantitatively, to recover the strychnine from a solution of its salts in water. Whether other methods would be more successful, will have to be determined by further experimentation.

3. *Attempt to facilitate the removal of strychnine from the precipitate obtained by adding Lloyd's reagent to a solution of a salt of the alkaloid in water.*

The precipitate obtained by adding an excess of Lloyd's reagent to an aqueous solution of a salt of strychnine, is almost perfectly tasteless, though it contains all of the alkaloid of the original solution. This seems to suggest the view that the reagent forms with the alkaloid, an exceptionally stable combination, and this

view is further strengthened by the fact that, as was shown above, it is extremely difficult to completely recover the alkaloid from the precipitate.

On the other hand, as will be reported later by Dr. McGuigan, the precipitate acts physiologically very much like strychnine diluted with an inactive substance, showing that, in the living digestive apparatus, the union of alkaloid and reagent is readily disrupted. Since it was reasonable to ascribe this disrupting effect to the digestive enzymes of the animal body, experiments were made, in order to determine whether some of these enzymes would show the same disrupting effect *in vitro*. If this were so, dilute hydrochloric acid in presence of pepsin, or chloroform in presence of alkali and either ptyalin or trypsin, readily ought to extract the strychnine from the precipitate. The following experiments were, therefore, carried out with these enzymes:

Pepsin. The thoroughly washed and dried precipitate obtained by adding an excess of Lloyd's reagent to an aqueous solution of strychnine sulphate, was digested with very dilute hydrochloric acid containing a little pepsin, shaking the mixture for an hour and then filtering. The filtrate was tested with Mayer's and Wagner's reagents. Neither of these gave any indication of the presence of an alkaloid. Hence *in vitro* pepsin has no disrupting effect on the precipitate.

Ptyalin and trypsin. The precipitate was suspended in a very dilute solution of ammonia containing either ptyalin or trypsin, and the mixture repeatedly shaken out with chloroform. It was found that, even after ten successive treatments with chloroform, the precipitate still retained some of the strychnine. Hence these enzymes, too, have no disrupting effect on the precipitate.

Northwestern University Schools of Pharmacy and Dentistry.

OIL OF BIRCH AND METHYL SALICYLATE,—SOME NEW COLOR-REACTIONS FOR THE DIFFERENTIATION OF OIL OF WINTERGREEN.

BY G. N. WATSON AND L. E. SAYRE.

Anyone who has had experience with oil of wintergreen and the synthetic oil, knows of the uncertainty connected with their identification and differentiation. The physical constants, with one exception, appear to be of little value in distinguishing the true from the artificial oil. We have the authority of C. L. Alsberg that at present, except for the one test—the presence or absence of optical activity,—there has been nothing published which would enable one to make the differentiation, and that this polarization method is only a very important factor to this end. During the past winter, at the drug laboratory, we have had occasion to examine several samples of oil of wintergreen, which brought to our attention the desirability of confirmatory tests. After numerous attempts to fix upon one, it was finally decided that rotatory power of the natural oil was perhaps the only distinguishing characteristic. Admixture with corresponding oils, such as betula and methyl salicylate, being suspected by any great digression of optical activity. Recently I have used some color-reactions which seems to promise excellent re-

sults. These reactions (color-tests) are presented at this section for critical discussion:

An excess of sulphuric acid gives, with the natural oil, a dark red color. The reagent produces no color with the synthetic oil. With oil of birch, a yellow or light shade of red is produced.*

For a confirmatory test, an alcoholic solution of heliotropin and sulphuric acid makes a good reagent. To a few drops of the oil add 2 cc. of concentrated sulphuric acid and two drops of a saturated alcoholic solution of heliotropin. This reagent gives, with the natural oil, a crimson color, changing to deep violet upon dilution with alcohol. Oil of birch gives practically the same color, but not so pronounced. With the synthetic oil the reagent produces a bright yellow color, due, however, to the action of the acid on the heliotropin and not to any action on the oil.

A second confirmatory reagent, and one superior to heliotropin, since it differentiates the oil of wintergreen and oil of birch, is an aqueous solution of chloral hydrate and sulphuric acid. To 1 cc. of the oil in a test tube add 2 cc. of concentrated sulphuric acid, then 1 cc. of a saturated aqueous solution of chloral hydrate. With the natural oil a green color develops, a dark green oil-layer above a lighter green aqueous zone. The addition of 2 or 3 cc. of water aids in bringing out these shades. Oil of birch gives a deep violet oil-layer. The synthetic produces no color except after long standing, when a faint violet color may develop.

DISCUSSION.

DR. ENGLEHARDT: I would like to ask a question. What percentage of synthetic oil of wintergreen in natural oil can be detected by this method?

A method said to be used by the Government for distinguishing synthetic oil of wintergreen from natural oil or detecting adulterations of the latter with the former, seems to be a process similar to that which has already been used for distinguishing synthetic camphor from natural camphor. The method depends on the presence of mechanical admixtures in natural camphor by which a certain color reaction is produced. It was interesting to know whether or not the reaction with natural oil of wintergreen is also due to certain admixtures in the oil which cannot be eliminated in the usual process of rectifying. In order to find this out I began the following experiments. Eight ounces of synthetic oil of wintergreen were mixed with one pound of wintergreen leaves in the one case, and in another case with one pound of birch bark. The mixtures were then distilled with steam and the resulting oil, which should amount to about 8.1 ounces I expect to subject to the vanillin hydrochloric acid or vanillin sulphuric acid tests. On account of lack of time I have not been able to complete these tests. If the tests for natural oil should prove to be positive, the test is without doubt fallacious, since the material taken for preparing the oil consisted almost altogether of synthetic oil.

MR. ASHER:—I would like to say in this connection that Professor LaWall, two or three years ago in the American Journal of Pharmacy endeavored to give the points of distinction between natural oil and synthetic oil. He made quite an exhaustive investigation of that subject.

MR. RAUBENHEIMER:—Besides the optical rotation and the slight difference in color, there is a very simple test to distinguish between the natural Oil of Wintergreen and the synthetic methyl salicylate. It is a physical test and depends upon the peculiarity that, when oil of wintergreen is agitated in a bottle it will produce a foam which will be retained for some time. If on the other hand, methyl salicylate is agitated the same way, it will produce no froth. Nevertheless it should be remembered that even this test can be "faked up" very easily (laughter).

MR. BRIGGS:—These two oils can be tested very easily, by odor. Any one who is accustomed to examining the natural oil, and comparing it, with the artificial oil, will detect a fine delicate aroma in the natural oil that it is almost impossible to put in the artificial oil.

*Some authorities have referred to sulphuric acid as a reagent which increases temperature with the true oil, not so with artificial oil.

OFFICIAL AND OTHER TINCTURES.

M. I. WILBERT, PH. D.

Tinctures have been variously defined, but all attempts to differentiate them, clearly, from other galenical preparations, by a concise restrictive description have failed, because of the necessary exceptions that are involved in any now-available list of official tinctures.

Broadly speaking, they may be designated as hydro-alcoholic solutions of organic, or of inorganic, principles used as medicine or, perhaps even better, as alcohol containing solutions of medicinal substances.

For many years tinctures held the leading place in galenical pharmacy, because of the fact that they represented perhaps the most efficient and most acceptable mode for the administration of the medicinally active constituents of vegetable drugs. It is safe to say, however, that tinctures no longer occupy the preponderating position accorded them two or three decades since, despite the fact that they may be made to represent, in rather a fairly concentrated form, all of the active principles of the drugs from which they are made and are, on the whole, the most stable and most reliable of all fluid preparations of vegetable drugs.

The reasons for the gradual disuse of tinctures are, no doubt, many and varied. Not the least important of these reasons, however, is the fact that, as dispensed at the present time, they are far from being uniformly reliable and, very frequently indeed, physicians using them fail to obtain the desired results.

This failure of a tincture to induce the medicinal action expected of it, or, as sometimes happens, its causation of a secondary or untoward action, may be due to a number of factors, of which I desire to call your attention to but two:—the variability of tinctures of potent drugs, owing to the menstruum employed in their manufacture and the generally objectionable nature of tinctures in which alcohol is the preponderating active ingredient.

Up to the time of the publication of the eighth decennial revision of the Pharmacopœia of the United States, less than a decade ago, no concerted attempt had ever been made on the part of the pharmacopœial revision committees of different countries, to bring about any degree of uniformity in the drug-strength of tinctures, or in the composition of other medicinal substances.

Continued agitation, for a period of half a century or more, by men interested in the improvement of galenical pharmacy, has finally resulted in the development of a marked degree of uniformity in the tinctures of widely-used potent drugs, so that with the publication of the new British Pharmacopœia, these preparations will be practically uniform in every country of the civilized world.

The first International Pharmaceutical Congress held in Brunswick, Germany, in 1865, was called together at the instigation of French and of German pharmacists, who, in 1864, just 50 years ago, began to discuss the practicability of securing some manner of agreement to bring about greater uniformity in the strength of pharmaceutical preparations of potent drugs. In some more or less modified form, the same problem was the basis for discussions at succeeding International Congresses and at the Fifth Congress, held in London in 1881,

Peter Squire outlined a definite and reasonable proposition, for the equalization of the strength of pharmaceutical preparations included in the pharmacopœias of the different countries. He specifically called attention to the very marked differences in the strength of potent tinctures in the several pharmacopœias, and suggested the desirability of making them uniform.

It was not, however, until 1901, that a definite plan of action was found acceptable to the majority of representatives of the different countries, and this plan was later developed at the Brussels Conference held in 1902, and finally put into operation through the international treaty signed by representatives of the several powers, in Brussels in 1906.

Unfortunately, the revisers of our own Pharmacopœia of the United States, because of the inherent conservatism of American pharmacists, have failed to take advantage of perhaps the most important suggestion made in connection with the tinctures included in the Brussels Conference Protocol; that is, the suggestion to use approximately 70 percent. alcohol, in place of the 45 or 50 percent. alcohol as a menstruum.

In a paper reporting a series of experiments on the practicability of adopting the suggestions embodied in the Brussels Conference Protocol, reported in the American Journal of Pharmacy for 1903 (p. 2027), I called attention to the desirability of using the higher strength alcohol and enumerated among other advantages of the international standard menstruum:

That the menstruum used would be uniform in strength for all extractive tinctures of potent drugs.

That the 70 percent. alcohol readily extracts all of the active properties of the drug, while the total extract-content of the resulting preparation is distinctly lower.

That the keeping qualities of the preparation would be greatly improved by the increase in alcohol-content.

That the resulting preparations were elegant in appearance and promised to be quite permanent.

In a discussion on the relative compliance of the various pharmacopœias with the protocol of the Brussels Conference, read at the Richmond meeting of the American Pharmaceutical Association, (Proc. Am. Pharm. Assoc., 1910, v. 58, p. 1145), I reported that the tinctures made in 1902 were still clear and evidently satisfactory, while corresponding preparations made with the U. S. P. VII menstruum of diluted alcohol had generally precipitated badly. I also called attention to the fact that, approximately, 70 percent. of alcohol was then recognized as being a much more efficient antiseptic and preservative than either the more dilute or more concentrated mixtures of alcohol and water and that this one property of 70 percent. alcohol alone, should warrant its careful consideration on the part of the U. S. P. Committee of Revision for adoption as a routine menstruum in place of the diluted alcohol now generally prescribed.

What was said of the preparations four years ago still holds good, with the addition that both the color and odor of the tinctures made with 70 percent. alcohol are as characteristic of the drug now as then. This is particularly true of the tinctures of the leaf drugs, which still retain their original green color, while the

preparations made with 50 percent. alcohol long since became muddy, dark and brown.

The economic reasons that have induced American pharmacists to adopt and to adhere so tenaciously to the use of the weaker alcoholic menstruum are not of sufficient importance to warrant the continuance of the use of the weaker menstruum when the medicinal activity of a preparation is at stake.

Uniformity in the activity of the heart tonic group of drugs, particularly, is a matter of considerable importance because of the fact that, in connection with these drugs, we have no active principles that adequately serve as substitutes for the galenical preparation. Digitalis, more especially, is a drug that offers difficulties in this direction and a recently published paper by H. C. Hamilton (*Am. J. Pharm.*, 1914, v. 86, p. 56-61) emphasizes the desirability of materially increasing the alcohol-content of the menstruum used for extracting this drug and presents data that shows the imperative need for an increase in the alcoholic strength of the menstruum. A preparation reported on by Worth Hale in 1911, (*Hyg. Lab. Bull.*, No. 74) bears out the same contention.

What is true of digitalis is also true of belladonna, hyoscyamus, nux vomica, colchicum and other potent drugs. The tinctures made with 70 percent. alcohol have uniformly demonstrated better-keeping qualities than have the preparations made with dilute alcohol and while, at this late date, it may be impractical to reverse any decision made by the Committee of Revision, it is to be hoped that a sufficient number of pharmacists will interest themselves in the subject to at once prepare a line of international standard tinctures with 70 percent. alcohol, and to preserve them for a decade, in comparison with the preparations made according to pharmacopœial directions and report on them in time for the succeeding revision.

One other feature of considerable importance to pharmacists who expect to practice their profession in years to come, is the retention in the Pharmacopœia of preparations that can be or are being used in prohibition-territory as "tipples." The existing Federal statutes and the regulations based on the internal revenue tax laws, adequately define the limitations of the use of alcohol for medicinal purposes, and recent Treasury decisions clearly indicate that, in the course of time, preparations included in the Pharmacopœia and in the National Formulary, must be subjected to the same critical scrutiny that is now accorded to proprietary remedies marketed for sale as medicines.

Of the 58 tinctures now official in the Pharmacopœia of the United States, not more than 25 are at all widely used and of these 25, at least 4 could be spared. One of the more objectionable of these preparations is Tincture of Ginger, which has acquired a very widespread reputation as a "tipple" and has few or no legitimate uses as a medicine.

One other factor in connection with tinctures, that should be taken into consideration at this time, is the possibility of developing a line of simple extractive preparations of opium that cannot be used in place of smoking-opium. A recent Treasury decision even now classifies the formerly official aqueous extract of opium as smoking-opium and it is quite probable that it will presently be found necessary to include in this classification, the now widely used simple tinctures

of that drug, unless ways and means can be found to restrict the sale of these preparations for use as legitimate medicine.

In conclusion I wish to reiterate the statement that the international standard menstruum of 70 percent. alcohol, is more satisfactory as a solvent for the active constituents of potent drugs than is 50 percent. alcohol. The resulting tinctures retain their appearance and activity for a much longer period of time. So that quite apart from the question of efficiency, they are in reality more economical.

Alcohol-containing preparations that can be or are used as substitutes for alcoholic beverages, should be deleted from future revisions of the Pharmacopœia and the sale and distribution of preparations that are in any way subject to misuse or abuse should be safeguarded in a thoroughly efficient manner.

DISCUSSION.

MR. GORDON: In support of Mr. Wilbert's suggestion that a stronger alcohol would be better for extracting and preserving the active principles of plant drugs, I would cite the practice of the Homeopathic Pharmacopœia, which uses strong alcohol menstrua for extracting the active principles of plants and a weaker alcohol for dilutions. Experience has proven in this school, that strong alcohol is most efficient for preserving the strong tinctures of vegetable drugs, the dilutions of the strong, or "mother tinctures" being made with an alcohol of weaker strength. The so-called "strong alcohol" corresponds with the 95 per cent. alcohol of the U. S. P., the "dispensing alcohol" is about 88 per cent. absolute alcohol, weaker alcoholic dilutions are used for special preparations. In making tinctures of fresh vegetable drugs the normal amount, or proportion, of moisture is always considered as a part of the menstruum used for extraction.

MR. WM. P. KIRCHGESSNER, of Grand Rapids, Michigan:—Do I understand that by this method the content of moisture of a plant is taken as being 25 per cent.?

MR. GORDON:—Oh, no, the content of moisture in the fresh, green plant from which many homeopathic preparations are made is carefully determined in the following manner: A weighed quantity of the drug is carefully dried, powdering it if necessary at the latter stage, and the amount of plant moisture contained is then determined by the difference between the weight of the fresh drug taken and the dried product. This moisture is, of course, the natural water in the juices of the fresh drug, and it is taken as part of the menstruum used for extracting the active principles of the plant. For example, suppose we were making the "mother tincture" of aconite, the term "mother tincture" being used to denote the strongest tincture made from the drug for further dilution as required. The directions of the Homeopathic Pharmacopœia, we will say, call for a menstruum consisting of 700 parts of alcohol and 300 parts of water. If the fresh, succulent plant is used, the amount of water contained in the fresh leaves would be estimated as just mentioned and that water taken as part of the menstruum used for extraction. Say the leaves contained 20 per cent. of moisture, then to make a tincture of aconite the following proportion would be observed: Alcohol—700 parts, water—100 parts, plant moisture—200 parts, to make 1000 parts of tincture. It must be understood that more of such menstruum will be required to make the final product an exact ten per cent. tincture, but little menstruum is wasted if the drug is exhausted slowly and the marc expressed. Of course in case of a dried drug, the proportion of water does not amount to much and is usually disregarded, unless in cases where it exceeds a certain percentage, I think it is about five per cent., but for tinctures of fresh drugs the moisture is invariably calculated.

MR. KIRCHGESSNER:—I understand the homeopathic school has two pharmacopœias. Which is used?

MR. GORDON:—There is only one official homeopathic Pharmacopœia, that issued under the auspices of the American Institute of Homeopathy, an association of homeopathic physicians which corresponds to the American Medical Association in relation to the two schools of medical practice. However, several different pharmacopœias have been published, just as have different Dispensatories, but all are based on the homeopathic list of drugs recognized by this school. I have prepared a brief history of the evolution of the homeopathic pharmacopœia of the present day which I have presented to the Historical Section, in which I hope the answer to this question will be found. In the early history of homeopathy in this country many of the text books were translations of foreign works, the firm of Boericke and Taefel leading in this enterprise. That is where the confusion may arise, just as if you were to ask me which is the official Dispensatory. Now, the official pharmacopœia is the "Homeopathic Pharmacopœia of the United States," issued under the sanction of the American Institute of Homeopathy, but any physician is of course privileged to use any book of reference and to prescribe as he sees fit. The last edition was published in 1914.

after revision by a committee of physicians and pharmacists of the homeopathic school. Radium emanations just spoken of as being effective in such small doses remind me of being near akin to homeopathy.

MR. W. JAY SCHIEFFELIN, JR., of New York:—Referring to radium, it seems to me that when we are considering minute doses, that radium water, or emanation water, ought to be put in the homeopathic pharmacopoeia.

MR. GORDON:—The use of radium in homeopathic hospitals is common. I know of one that has at least \$50,000.00 worth.

MR. SCHIEFFELIN:—I remember years ago hearing a receipt for homeopathic punch. You take a little rum, the less you take the better, drop it in the lakes of Wenner and of Wetter. You stir the mixture well, lest it prove inferior, and put one drop of it into Lake Superior. Stir again and then lest it makes you groggy, you place one drop of it into Lake Winnepe-saukee, and then every other day you take a drop of that in water. That will make you well, or at least it ought to. (Laughter.)

When you take the mother tincture and make it up to a sixtieth or one hundred and twentieth potency, you actually dilute it as much as the punch. An atom of helium is very minute. An atom of helium is to a drop of water as is a walnut in size to the globe. So you can see what there is in small doses.

MR. GORDON:—I can beat that. One of the old tests as to the truth of Homeopathy was the following: Put one teaspoonful of whiskey into a bucket full of water and give an old sailor teaspoonful doses of the dilution until you got him drunk. I have seen it tried, but there was too much water to suit the sailor. (Laughter.) He takes his straight. But to be serious, I have had the privilege of studying a little into the doctrines of Hahnemann, and I am surprised how near he came to our own modern doctrines. We boast of our vaccines and prophylactic serums; what are they but an exemplification of Hahnemann's famous doctrine "Like cures like"? We give the same germs that caused the disease, to cure it. Take the theory of dilution of drugs. It is but the ionic theory in embryo. The homeopathic school does not teach that the weaker a drug is the more powerful it is, just the contrary. The basis of its teachings is that a drug in a finely divided state, dilutions or triturations, is more active than when in mass. Is not that the ionic theory? Does sodium chloride as NaCl exert any chemical action until it is disassociated by solution in water into sodium and chlorine ions?

PROF. L. E. SAYRE, of Lawrence, Kansas:—How about those substances which do not ionize? Do they act?

MR. GORDON:—Not to be ironical I answer yes, just as a flatiron does when applied to the head. How, I don't know from experience.

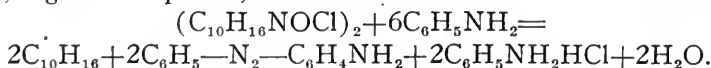
NOTES ON THE ANALYSIS OF SOME ESSENTIAL OILS.

FRANCIS D. DODGE.

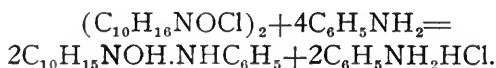
1. *Detection of Pinene in Oil of Lemon.*

To demonstrate the presence of pinene among the terpenes of oil of lemon, or of similar oils, reliance is generally placed on the well-known nitroso-chloride reaction, the crystalline product being identified by its melting point, or the melting point of nitrolamine derivative. As a rule, however, a mixture of nitroso-chlorides is obtained, and the recognition of the pinene derivative is attended with some uncertainty. We have found it convenient, for this purpose, to utilize the reaction of the nitroso-chloride with anilin.

Wallach (Ann. 252, 132) has shown that pinene nitroso-chloride, on heating with anilin, regenerates pinene, with formation of amido-azo-benzene:



whereas limonene nitroso-chloride passes under similar conditions, into a nitrol-anilide:



The reaction thus effects a most satisfactory separation of these terpenes, pinene being isolated as such, in convenient shape for further tests if necessary.

Unfortunately, the method, like all based on the nitroso-chloride reaction, has only a qualitative value, for the yield of nitroso-chloride depends largely on the rotation of the pinene, being greatest from the inactive variety, and little, if any, being obtainable from pinene of high rotation, whether dextro- or lævo; and in cases where turpentine oil may have been added to oil of lemon, it is reasonable to suppose that a highly dextro variety would be selected.

In many cases, however, we have obtained positive results by operating as follows:

100 cc. of oil are fractioned very slowly from a three-bulb Ladenburg flask, collecting the first 10 cc. This distillate is then mixed with 10 cc. glacial acetic acid and 10 cc. ethyl nitrite, in a freezing-mixture. 3 cc. 25% hydrochloric acid is now slowly added, and the mixture allowed to crystallize for several hours in the cold. The nitroso-chloride is then filtered off, washed with cold methyl alcohol, and dried. The crystals are now mixed with three times their weight of re-distilled, colorless aniline, and eight times their weight of 95% alcohol, in a small flask, and heated gently on the water-bath. A rather vigorous reaction generally ensues. In the absence of pinene, the solution remains light colored: with pinene, it darkens very noticeably.

After one half-hour, 25 cc. water are added, and steam is passed through the flask. Pinene, if present, distils with a little aniline: the latter is dissolved by addition of a little dilute acetic or hydrochloric acid, and the pinene remains as insoluble light oil, recognizable by its odor.

The limit of sensibility of this method, appears to be at about 10% turpentine in lemon or orange oil. By more careful fractionation of larger amounts of oil, the delicacy of the test could no doubt be increased.

2. *Detection of Chlorine in Benzaldehyde and Oil Bitter Almond.*

The occurrence of *minute* traces of chlorinated compounds in commercial benzaldehyde, can hardly be considered of much importance, but in the case of oil of bitter almond, natural or freed from hydrocyanic acid, the detection of *any* chlorine is *prima facie* evidence of the presence of artificial benzaldehyde. Hence, any method of increasing the delicacy and certainty of the test becomes of interest.

We have obtained very satisfactory results by the following modification of the well known combustion process.

A circular filter paper, about four inches in diameter (as free from chlorides as possible), is placed in a suitable funnel, and washed completely chlorine-free with distilled water. 25 cc. of this filtrate are set aside as *Blank No. 1*. Fifteen drops of an oil, known to be chlorine-free, are then placed on a small, folded, chlorine-free filter, ignited (as in the U. S. P. method) and covered with the wet filter and funnel. The combustion is regulated by raising or lowering the funnel, as may be necessary.

When all the oil has been burnt, the funnel is inverted, and carefully washed with distilled water until about 25 cc. have run through.

This is *Blank No. 2*. The combustion is then repeated with the sample of oil in question, using the same filter and funnel, which then, on washing, yield 25 cc. of test filtrate. The three filtrates are then treated with five drops of n/10 silver nitrate, and the presence or absence of turbidity or opalescence noted.

By making two blank experiments in this way, a possible accidental contamination with chlorides, would be immediately noticed.

In doubtful cases, we have found that the delicacy of the reaction, is increased by exposing the tubes to direct sunlight, when the presence of a trace of chloride, is shown by a brown coloration. This is evidently due to a "photo-reduction" of the silver chloride by some organic product of combustion.

We have noticed that samples of benzaldehyde which show chlorine by the combustion test, will, also often, give indications of the chlorine *ion* by simple washing with water, and addition of silver nitrate to the clear aqueous extract. For example, a sample, supposed to be the natural oil, freed from hydrocyanic acid, (S. G. 1.0433 at 25°), showed chlorine on combustion, and by the sodium-reduction assay, contained 0.03% Cl.

25 cc. were washed with 25 cc. water; the latter, decanted, and warmed until clear, gave a decided opalescence with a few drop of silver solution.

The washing was repeated until no further chlorine *ion* could be detected, but, by combustion, the oil still showed unmistakable traces of chlorine. It was thought that this water-soluble chlorine, might be due to traces of salt, derived possibly from sodium sulphate, used for drying the oil. This appeared, however, not to be the case, for, on washing the oil with water, and evaporating the latter to dryness, a very slight residue, apparently benzoic acid, was left, in which *no* chlorine *ion* could be detected.

A portion of the same oil, was then shaken with an excess of dilute caustic soda, and carefully distilled with steam. The distilled oil showed chlorine by combustion, but *not* by simple washing. It was allowed to stand for nine months, with an equal volume of water, in a closed bottle, exposed to diffused light. The aqueous solution showed now the presence of chlorine *ions*.

It is evident that the chlorinated derivatives, contaminating benzaldehyde made from benzyl or benzal chloride, undergo a gradual decomposition, with liberation of hydrochloric acid. A similar behavior has been observed with various benzyl ethers and esters, which are not readily obtained free from chlorine.

For the quantitative determination of chlorine, we have employed the sodium-reduction method, in the following form:

10 grams oil are dissolved in 50 cc. absolute alcohol, and 2.5 grams clean sodium added, in small pieces. When the mixture becomes pasty, 25 cc. more alcohol are gradually added. When all the sodium is dissolved 100 cc. water are added, and the mixture evaporated to about 50 cc. A slight excess of *pure* dilute sulphuric acid is run in, the solution chilled, filtered through a wet filter, and the crystalline residue washed free from chlorine. The combined filtrate and washings are now exactly neutralized with $n/2$ potassium hydroxide, noting the amount used and titrated with $n/10$ silver nitrate, applying a correction for chlorine in the potassium hydroxide, if necessary.

Examples. Sample A. S. G. 1.0433 @ 25°, 10.046 gms., req. 0.8 cc. AgNO_3 (0.03% Cl).
Sample B, S. G. 1.044 10.04 gms. req. 1.22 cc. AgNO_3 (0.04%).
Sample C, S. G. 1.043 10.03 gms. req. 0.53 cc. AgNO_3 (0.02%).
Sample D, S. G. 1.046 10.50 gms. req. 11.9 cc. AgNO_3 (0.39%).
Sample E, (Natural oil, freed from hydrocyanic acid, old). 10.00 gms. req. 0.1 cc. AgNO_3 (0.0035%).

This sample contained about 8% benzoic acid; the amount of chlorine found is probably within the limits of error of the method.

3. *Examination of Oil of Lavender.*

The determination of the amount of ester was early suggested as a means of valuation for this oil, though it is evident that linalyl acetate cannot be considered as the only valuable constituent. The method of quantitative saponification, however, gives us, really, only the amount of combined acid, which is assumed to be acetic acid in combination with linalool. Other esters, if present, would give quite erroneous results, and this fact has stimulated the ingenuity of some chemists to provide a variety of synthetic esters, for the express purpose of supplying a fictitious high ester-value to inferior oils. Of these products, the most frequently observed appear to have been glyceryl acetate, or acetin, and terpinyl acetate. The former is especially objectionable by reason of its high saponification value; one percent. of tri-acetin, for example, increases the apparent lialyl acetate content by 2.69%.

Esters of citric, succinic, tartaric, phthalic, salicylic acids, and the mixed esters derived from cocoa-nut oil, have also been found in sophisticated oils, and methods for the detection of some of these have been proposed by Schimmel and Co., and others.

As a rule, these esters are less volatile than lavender oil, and remain as residue, when the oil is redistilled with steam. This test is often useful, and is easily performed.

100 cc. oil are boiled with 150 cc. water in a 250 cc. Ladenburg flask, and the distillate is collected in a "cassia" flask, with the neck graduated for 10 cc. Good oils are readily volatile with this amount of water, and the yield is easily ascertained. The ester-content of the distilled oil should not be more than two percent. lower than that of the original oil, linalyl acetate being not appreciably hydrolyzed under these conditions. The residue can be examined for foreign acids.

For the estimation of acetin, this process is unsatisfactory, acetic acid being found in the distillate, although the greater part remains in the aqueous residue.

We have found that acetin can be determined very conveniently, and with accuracy sufficient for technical purposes, by direct titration in aqueous solution, as follows:

3 grams oil are shaken with 75 cc. water, in a 100 cc. flask. The free acid is then titrated with aqueous $n/2$ KOH, and phenolphthalein. 0.5 cc. more alkali is added, and the flask is heated at about 80° , with frequent shaking. If the color disappears, another 0.5 cc. is added, and the heating continued, with similar addition of alkali, if necessary, until the solution is permanently alkaline, after one hour's heating. The flask is then cooled, and titrated back with $n/2$ acid. The alkali used for saponification is calculated over to acetin (1 cc. $n/2$ KOH = 0.0363 tri-acetin).

Most oils will show a slight amount of water-soluble ester, up to about 0.3%; calculated as acetin, which may be considered as the allowable limit for this method.

No process appears to be available for the determination of terpinyl acetate. Schimmel and Co.'s test (Berichte, Oct., 1911) based on the relatively slow saponification of this ester, seems, however, to be a fairly reliable indication of its presence. In our experience, good oils should not show a difference greater than

0.75% between the ester-values obtained by half hour, and one and one half-hour saponifications.

Fractional distillation with steam, is often of value, the solubility and rotation of the sections being noted. The first 20% fraction should be soluble in three volumes of 70% alcohol; if not, an excess of terpenes is indicated. The rotation will generally increase steadily throughout.

The Specific Gravity of good lavender oil ranges from 0.882 to .892 at 25°, and the rotation from -4° to -7°.

A few examples, from a large number examined, may be of interest.

Sample A. S. G. .8913 @ 25° O. R. -3.20°.
 Ester, (½ hour sapon.) 22.90%.
 " (1 hour sapon.) 23.10%.
 " (1½ hour sapon.) 23.40%.

Distillation test.

10 cc. yielded 9.8 cc., containing 22.1% ester.

Acetin titration, 0.4%.

Fractional distillation:

Section 1. 20%. O. R. —.88°.
 2. 20%. O. R. —2.35.
 3. 20%. O. R. —2.95.
 4. 20%. O. R. —2.95.
 5. 15%. O. R. —4.70.

The first section contained about 30% cineol, indicating the presence of oil of spike.

Sample B. S. G. .9893 @ 25° O. R. -5.55°.
 Ester, (½ hour sapon.) 28.3%.
 Ester, (1½ hour sapon.) 29.9%.
 Acetin titration, 0.6%.

Fractions:

1. 20% O. R. —4.80° (insoluble in 70% alcohol).
 2. 20% O. R. —5.35.
 3. 20% O. R. —6.20.
 4. 20% O. R. —6.60.
 5. 17% O. R. —6.07.

The saponifications indicate the presence of terpinyl acetate: the insolubility of the first section points to excess of terpenes, probably from some other source.

Sample C. S. G. 0.9094 @ 25° O. R. -3.30°.
 Ester, (½ hour sapon). 29.4%.
 Ester, (1½ hour sapon). 30.2%.
 Acetin titration, 0.9%.

Distillation test:

10 cc. yielded 9.4 cc., containing 21.2% ester.

Fractions:

1. 20% O. R. —5.15° (insoluble).
 2. 20% O. R. —2.43.
 3. 20% O. R. —1.91.
 4. 20% O. R. —2.64.
 5. 15% O. R. —4.75.

The drop in ester, in the distilled oil, and the variation in rotation are significant.

Sample D. S. G. 0.9069 @ 25°, O. R. -3.96°.
 Ester, (½ hour sapon.) 23.6%.
 Ester, (1½ hour sapon.) 28.4%.
 Acetin titration, 0.4%.

Distillation test:

10 cc. yielded 9.8 cc., containing 26.8% ester.

The high Specific Gravity, and the variation in saponification, are decided indications of the presence of terpinyl acetate.

Laboratory of the Dodge and Olcott Co.

THE DETECTION OF CHICORY IN DECOCTIONS OF CHICORY AND COFFEE.

CHARLES H. LAWALL AND LEROY FORMAN.

In December, 1913, the American Journal of Pharmacy contained an article by the above authors, in which it was proposed to differentiate between pure coffee decoctions and those which contain chicory or any other substance high in reducing-sugars, by taking into account the ratio of reducing-sugar to extractive. In confirmation of the success of the method we would say that in about twenty-five suits which were instituted for violation of the food laws, in which this method of analysis was applied to the samples, no instance is on record of a denial of the adulteration, and fines were immediately paid by nearly all of the offenders, among whom were included several high-class restaurants and hotels. The object of this paper is to confirm the conclusions given in the former article, and to submit some data upon the analyses of additional products and to offer some suggestions so as to ensure accuracy of judgment for those who desire to make it the basis of legal procedure.

In the first place, it must be understood that the strength of the coffee or the method of its preparation has little or no influence upon the results. This was not made as clear in the former article, as it might have been, so we will now state that, using the same coffee and employing such widely divergent methods of preparation as decoction, filtration and percolation, the ratio of reducing-sugars to extractive, did not exceed the maximum of 3% reducing-sugars calculated to extractive, as the following results will show:

	Percentage of Reducing-Sugars in Extractive
Coffee prepared by filtration (simply pouring boiling water through the powdered material contained in a straining cloth)	2.22
Coffee prepared by decoction (powdered coffee boiled with water and filtered washing the residue on filter with boiling water)	2.39
Coffee prepared by percolation (ground coffee extracted in one of the common household percolator coffee urns)	2.68

In the second place, it must be remembered that coffee-decoctions, in common with other aqueous solutions containing organic matter, undergo decomposition quite readily, and as such decomposition is always accompanied by a loss of reducing-sugars, it is imperative that the analysis of the samples be made promptly after the sample is taken, or that some non-reducing preservative substance, like thymol, be added when the samples are taken or received, in order that the composition may remain constant until the analysis is made.

It must also be remembered that the addition of either sugar, or milk, or cream, vitiates the results, in so far as an accurate conclusion may be drawn. Cane-sugar, as commonly added for sweetening, has no influence upon the presence of

reducing-sugars, but, needlessly, complicates the analysis, by rendering it imperative that the sucrose be separately estimated and subtracted from the extractive found, in order to arrive at a knowledge of the amount of extractive due to the coffee, upon which the ratio is based. The presence of milk or cream entirely vitiates the results, as milk-sugar is a reducing-sugar and as the presence of a small amount of milk or cream might escape detection, it is suggested that the centrifuging of about 10 cc. in a centrifuge such as is used for urinary sediments, or of a larger amount in a Babcock milk-testing machine, will quickly result in the identification and rejection of such samples that have had milk or cream added to them either accidentally or intentionally.

It has been found by us in laboratory practice applied to commercial samples, that about one-fourth of the adulterated samples contain a cereal in addition to the chicory. The detection of the cereal is easily made, easy by testing for starch (which is entirely absent in the beverage made from pure coffee) by taking 10 cc. of the liquid, acidulating with sulphuric acid and adding potassium permanganate solution, drop by drop, until the liquid is just decolorized, when a drop of iodine test-solution added to the filtrate gives the clear-blue starch reaction, which is ordinarily obscured by the dark color of the liquid.

The percentage of reducing-sugars in the extractive of a number of commercial products, is herewith given, as being of an informative character:

Name of Product	Percentage of Reducing-Sugars in Extractive
G. Washington Coffee (a coffee extract)	less than 1%
German Stick Chicory (extract)	22.10
Caramel Cereal	13.69
Postum Cereal	5.43
Instant Postum	6.36
Grist Mill	6.64

The four last named are proprietary substitutes for coffee. All of them contained cereal, as shown by the starch-test above described.

COMPARISON OF THE PHYSICAL PROPERTIES OF SOME OFFICIAL VOLATILE OILS WITH SPECIAL REFERENCE TO THE REQUIREMENTS OF THE U. S. P., 1910.

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The ninth decennial revision of the United States Pharmacopœia has resulted in numerous changes in the section devoted to volatile oils, especially with regard to the physical properties of the various oils. Among the properties described are color, odor, taste, specific gravity, optical rotation, and solubility, the refractive index being mentioned in only few instances. The importance of these properties should not be underestimated, as the varying quality of any volatile oil may be readily observed by means of them. Because of the inability of the

senses, to measure accurately the color, odor, and taste of a volatile oil, these properties are necessarily somewhat less significant than those which admit of careful and accurate measurement. The color of a volatile oil, is a property which may, however, be influenced greatly, by a number of factors such as the condition of the plant, whether fresh, dry, or partly dry, the stage of growth, and the length of time of distillation. The last factor is especially important since, in numerous distillations of aromatic plants it has been observed that the first runnings are invariably lighter in color than the later portions of the oil. This is, probably, partly due to the fact that fractionation takes place during the distilling process, the lighter, most volatile and usually least colored portions of the oil, distilling over before the denser and higher-boiling constituents make their appearance. In order therefore to obtain a genuine sample of an oil it is of utmost importance that the distillation process be continued until extraction of the oil is complete. The odor and taste will be likewise affected, but the latter is less capable of being described than the former. Only pronounced differences, at best, can be observed by the sense of taste and smell, yet these properties are beneficial, and even *necessary*, in the preliminary examination of a volatile oil.

In direct contrast to the above properties, which are uncertain of expression, are specific gravity and optical rotation, both of which are readily determined and expressed in figures to admit of easy comparison. Specific gravity is, perhaps, the most important of the physical properties of volatile oils and is influenced very much by the source and condition of a plant, as well as by seasonal changes, the effects of these factors being reflected in the density of the oil. Optical rotation and likewise solubility, while possibly less important, are nevertheless dependent to a large extent upon the chemical composition of the oil, which, in turn, is modified by condition of distillation, ripeness of the plant and climatic conditions. Each physical property may be said to serve a more or less definite purpose in general examinations of volatile oils, before the application of special chemical methods for the determination of any definitely-known constituents.

While a large number of aromatic plants have been under observation by the writer, only those which are officially recognized by the U. S. Pharmacopœia, will be considered here. The paper has been prepared with a two-fold object. First, a comparison of the physical properties of the oils with the requirements of the U. S. Pharmacopœia, 1910, will be made, and, secondly, the properties of each oil will be compared through several successive seasons, in order to show the effect of seasonal influence on the general characteristics of the oils.

The oils which will be discussed with respect to their physical properties, and compared with the limitations adopted by the U. S. Pharmacopœia, 1910, are as follows:—Chenopodium, Fennel, Lavender, Pennyroyal, Peppermint, Rosemary, Spearmint, and Thyme.

At the outset, it is essential to state that the above plants were grown in the same locality for several years. Each plant was distilled with steam, while in full bloom, the material being cut and distilled immediately, in order to prevent any changes which might be brought about by drying or partial-drying, and in order that the oils might be directly comparable from season to season. Distillation was continued in each case, until little or no oil was perceptible, when a

small quantity of distillate was collected in a test tube, true samples of the oils being thereby obtained from the respective plants. The oils were subsequently filtered and kept in tightly-stoppered bottles, in a dark place, until the determinations were made.

The various physical properties as mentioned previously, were carefully determined for each oil, and the results tabulated.

Table I embodies the color, odor, and taste of the various oils distilled during the seasons 1907, 1908, 1909, and 1910. For the purpose of comparison, the requirements of the U. S. Pharmacopœia, 1910, are included in this table as well as the tables following.

TABLE I—COLOR, ODOR AND TASTE.

Oil	Requirements of U. S. P. 1910, 9th Revision	Oils distilled during several successive seasons at Arlington Experimental Farm			
		1907	1908	1909	1910
Chenopodium	Colorless, or pale yellow; characteristic disagreeable odor and taste.	Light brown color; penetrating offensive odor; sharp and bitter taste.	Golden yellow color; characteristic offensive odor; very pungent and bitter taste.	.....	.....
Fennel	Colorless, or pale yellow; characteristic odor and taste.	.....	.....	*Very pale yellow color; sweet pleasant and aromatic odor and taste.	*Pale yellow color; sweet fragrant odor; fatty, sweet taste.
Lavender ...	Colorless, or yellow; characteristic odor and taste.	.....	Pale yellow color; pleasant fragrant characteristic odor; aromatic, slightly bitter taste.	Golden yellow color; agreeable flowery characteristic odor; aromatic bitter taste.	Pale brown color; agreeable, flowery odor; aromatic, bitter taste.
Pennyroyal ..	Pale yellow color; characteristic odor and taste.	.....	Bright yellow color; minty characteristic odor; minty, slightly bitter taste.	Very pale yellow; pleasant, minty odor, pungent, minty taste.	Yellowish color; odor agreeable, not noticeably minty; bitter pungent, minty taste.
Peppermint ..	Colorless; strong odor of pepper-mint; pungent cooling taste.	Greenish-yellow color; agreeable minty odor; pungent cooling taste.	Light yellowish green; pleasant minty odor; very pungent; cooling taste.	Pale yellow; agreeable, minty odor; pungent minty taste.	Pale yellow; mild, agreeable, minty odor; fatty pungent, cooling taste.
Rosemary ...	Colorless, or pale yellow; characteristic odor; camphoraceous taste.	.....	.....	Yellow color; pleasant, aromatic odor; slightly bitter, camphoraceous taste.	.....
Spearmint ...	Colorless, yellow or greenish yellow; characteristic odor and taste.	Light yellowish color; sharp, aromatic, characteristic taste.	Light green color; agreeable, characteristic odor; characteristic, minty, pungent taste.	Pale green; agreeable, flowery odor; bitter, pungent, aromatic taste.	Dark golden yellow; strong aromatic, characteristic odor; very pungent, bitter, characteristic taste.
Thyme	Colorless, or red; characteristic odor and taste.	Light brown color; strong thymol-like odor; extremely pungent taste.	Golden yellow, mild, not unpleasant aromatic odor; very pungent taste.	Light brown color; flowery strong, thyme-like odor; very pungent taste.	Brownish red color; thymol-like, not unpleasant odor; intensely pungent taste.

* Oils from fruiting tops.

From Table I it will be seen that the *Chenopodium* oils distilled in 1907 and 1908, were darker in color than the requirements of the Pharmacopœia. Fennel oils distilled in 1909 and 1910, corresponded more closely to the color requirements. Lavender oils, on the other hand, from three successive season's crops,

showed some variation in color, from pale-yellow to a pale-brown, probably because of differences in the plant material due to seasonal conditions. Pennyroyal and rosemary oils corresponded fairly closely in color to the Pharmacopœial requirements, while peppermint and spearmint varied greatly from year to year. Thyme oils from seasons of 1907, 1908, 1909, and 1910 ranged from a golden-yellow to brownish-red color, a colorless oil never having been distilled during the number of seasons in which this plant has been under observation. The odor and taste of the various oils, are described in most cases as "characteristic," hence a comparison of these properties could not be made, other than among the individual oils from season to season. The properties of odor and taste, will be seen to differ considerably in some cases, doubtless due to a variation in composition of the respective oils.

It would seem, from the data presented, that the color of an oil, is a property which is subject to wide variation, the odor and taste also showing differences sufficient to be more or less easily detected by the senses. While descriptions of these properties depend largely upon individual sensitiveness, a careful analytical description of odor and taste would be decidedly advantageous.

TABLE II—SPECIFIC GRAVITY.

Oils	Requirements of U. S. P., 1910, 9th Revision 25° C.	Oil distilled during several successive seasons at Arlington Experimental Farm			
		1907	1908	1909	1910
Chenopodium	0.955 to 0.980	0.933 (25° C.)	0.944 (24° C.)	.....	.....
Fennel	0.953 to 0.973	.....	.....	0.927 (23° C.)*	0.944 (24° C.)
Lavender	0.875 to 0.888	.....	0.890 (24° C.)	0.892 (20° C.)	0.8962 (23° C.)
Pennyroyal ..	0.920 to 0.935	.....	0.9195 (24° C.)	0.9209 (22° C.)	0.9365 (23° C.)
Peppermint ..	0.894 to 0.914	0.9048 (25° C.)	0.924 (23° C.)	0.9203 (22° C.)	0.9273 (23° C.)
Rosemary	0.894 to 0.912	.....	.....	0.8947 (21° C.)	.....
Spearmint	0.914 to 0.934	0.923 (25° C.)	0.918 (22° C.)	0.9289 (21° C.)	0.9252 (24° C.)
Thyme	0.894 to 0.929	0.898 (25° C.)	0.897 (24° C.)	0.9144 (21° C.)	0.936 (24° C.)

* Oils from fruiting tops.

It will be observed, from Table II, that the specific gravities of the Chenopodium oils, easily fall within the requirements prescribed by the Pharmacopœia. The densities of the fennel oils, are below the standard, which is, doubtless, due to the fact that these oils were distilled in 1909 and 1910, from the partly ripe fruiting-tops and from ripe fruiting-tops respectively, while the Pharmacopœia specifies the oil from ripe fruit. Lavender oils from the seasons of 1908, 1909, and 1910 are uniformly regular and higher in specific gravity than the requirements. These oils were distilled from fully matured fresh flowering-tops of lavender. Since this oil is produced in foreign countries exclusively, it is probable that the higher densities of the American oils are due to climatic and soil conditions contingent upon geographical sources. No important differences were revealed in the specific gravities of the pennyroyal oils included in the table, the slightly higher specific gravity of the 1910 oil, being due to the slightly lower temperature at which it was observed. The peppermint oils from the four successive seasons are perhaps somewhat higher than the upper limit specified by the Pharmacopœia. This is especially true of the oils distilled during the seasons of 1908, 1909, and 1910. The slightly lower temperature at which the densities were taken, would probably not account for the higher figures obtained. Rosemary

and spearmint oils shows no noteworthy discrepancies, while only the thyme oil of 1910 is beyond the upper limit of the Pharmacopœial requirement.

It is most evident that the specific gravity, is a property which is materially influenced by the numerous factors and conditions attending the distillation process, and the nature and condition of the plant material as influenced by seasonal variations.

TABLE III—OPTICAL ROTATION.

Oils	Requirements of U. S. P., 1910, 9th Revision 100 mm. tubes	Oil distilled during several successive seasons at Arlington Experimental Farm			
		1907	1908	1909	1910
Chenopodium	—4° to —10°	—7.7° Specific rotation	—6.6° Specific rotation	.....	.....
Fennel	+12° to 24°	.....	.....	+14.9° (50 mm. tube)*	+13.8° (50 mm. tube)*
Lavender	—1° to —10°	.....	—4° (50 mm. tube)	—6.5° (50 mm. tube)	—1.4° (50 mm. tube)
Pennyroyal ..	+17° to 28°	.....	+34.4° (50 mm. tube)	+28.6° (50 mm. tube)	+13.3° (50 mm. tube)
Peppermint ..	—20° to 35°	—10.4° (50 mm. tube)	—4.5° (50 mm. tube)	—10.6° (50 mm. tube)	—5.7° (50 mm. tube)
Rosemary ....	.....	.....	.....	—2.4° (50 mm. tube)	.....
Spearmint ...	—35° to 50°	—45.6° (Specific rotation)	—27.3° (50 mm. tube)	—16.1° (50 mm. tube)	—20.3° (50 mm. tube)
Thyme	Slightly lavogyrate	—1.3° (50 mm. tube)	—0.6° (50 mm. tube)	—1.1° (50 mm. tube)	.....

* Oils from fruiting tops.

The optical rotation of the Chenopodium oils, as shown, fall well within the limits prescribed by the Pharmacopœia. The fennel oils, as in the case of the specific gravities, are higher in rotatory power than the limits of the Pharmacopœia this being due in all probability to the state of ripeness of the material when distilled, as previously discussed. The rotation of the lavender oils, shows much variation from year to year, the oil from the 1909 crop being considerably higher than the limit of optical rotation of the Pharmacopœia. The pennyroyal oils likewise, differ in rotation from season to season, the oils of the 1908 and 1909 crop being conspicuously higher than the standards, especially if reduced to terms of rotation in a 100 mm. tube, only the oil of the 1910 crop falling within the limits of rotation. Marked differences in rotation, are also noted in peppermint and spearmint oils during four successive seasons, varying from —4.5° to —10.6° in the former and —16.1° to —27.3° in the latter, all observations being taken in a 50 mm. tube. Peppermint oils, from the 1908 and 1910 crops, are below the minimum optical rotation adopted by the Pharmacopœia. The oil of the 1908 crops of spearmint, shows an optical rotation above that of the maximum of the Pharmacopœia. The thyme oils were slightly lavogyrate, varying from —0.6° to —1.3° in a 50 mm. tube.

In the matter of the optical rotation it is again obvious that variability in this property is more or less marked, showing that the composition of the oils change somewhat from season to season depending upon the numerous factors previously mentioned.

TABLE IV—SOLUBILITY.

Oils	Requirements of U. S. P., 1910, 9th Revision	Oils distilled during several successive seasons at Arlington Experimental Farm			
		1907	1908	1909	1910
Chenopodium	8 vols. 70% alcohol	1 vol. 80% alcohol clear solution	0.75 vol. 80% al- cohol clear solu- tion.	.....	.....
Fennel	8 vols. 80% alcohol 1 vol. 90% alcohol	.....	.....	* Turbid in 12 vols. 80% alcohol. 2 vols. 90% alco- hol with clear so- lution.	* 2.5 vols. 80% alcohol. Clear in excess.
Lavender	3 vols. 70% alcohol	.....	0.75 vol. 80% al- cohol clear solu- tion.	1.2 vols. 80% al- cohol.	0.8 vol. 80% al- cohol. Turbid in 4 vols. or more.
Pennyroyal ..	2 vols. 70% alcohol	.....	1 vol. 80% alco- hol slightly tur- bid on further di- lution.	0.5 vol. 80% al- cohol. Clear so- lution.	All proportions in 80% alcohol.
Peppermint ..	4 vols. 70% alcohol with only slight opales- cence.	1.5 vols. 80% clear solution	1.25 vols. 80% al- cohol clear solu- tion.	1.2 vols. 80% al- cohol; turbid with 2 vols. or more.	0.6 vol. 80% al- cohol; turbid with 2 vols. or more.
Rosemary	10 vols. 80% al- cohol.	.....	.....	Insoluble in 80% alcohol with clear solution. 0.75 vol. 90% alcohol.	.....
Spearmint ...	1 vol. 80% alco- hol; cloudy on further dilution.	1 vol. 80% alco- hol clear solution.	Turbid in all pro- portions with 80% alcohol. 1 vol. 90% alcohol cloudy on further dilution.	1 vol. 80% alco- hol; turbid with 2 vols. or more.	0.4 vol. 80% al- cohol; turbid with 2 vols. or more.
Thyme	2 vols. 80% alco- hol.	1 vol. 80% alco- hol clear solution	2 vols. 80% alco- hol with turbidity. 1 vol. 90% alco- hol, faint turbid- ity when further diluted.	1.6 vols. 80% al- cohol; clear on further dilution.	1 vol. 80% clear alcohol on further di- lution.

* Oils from fruiting tops.

It is unfortunate that the solubilities of all the oils in question, were determined with 80% and 90% alcohol, the Pharmacopœial requirements specifying 70% alcohol in several cases. However, the results will at least admit of comparisons being made of the solubility of the oils from one season to another.

The solubility of the Chenopodium oils from crops of 1907 and 1908, vary but slightly.

The fennel oils are widely separated with respect to solubility in 80% alcohol, the oil of the 1909 crop being turbid in 12 volumes of 80% alcohol, while the oil of the 1910 crop dissolved in 2½ volumes of 80% alcohol with a clear solution. The latter oil being distilled from ripe fruiting-tops, probably accounts for its much greater solubility. No doubt distinct differences exist between the composition of these two oils,—the oil from the partly unripe fruiting-tops consisting undoubtedly of a larger proportion of terpenic compounds.

Distinct differences in the solubility of the lavender oils, are also disclosed, as may be seen from the table. Comparison with the requirements of the Pharmacopœia, are incapable of being made, in case of lavender and pennyroyal oils, because of the employment of alcohol of different percentage strength. In a like

manner, pennyroyal oils from 1908, 1909, and 1910 crops, show considerable diversity with regard to their solubility in 80% alcohol. Peppermint oils from the four seasons crops exhibited very constant solubilities in 80% alcohol, the 1910 oil being most soluble. Rosemary oil distilled from 1909 crop, was found to be insoluble in 80% alcohol to make a clear solution; the Pharmacopœial requirement of the oil being 10 volumes of 80% alcohol. Spearmint oils exhibited decidedly variable solubility in 80% alcohol. The oil from the 1908 crop, was insoluble to a clear solution in 80% alcohol while the 1910 oil, in direct contrast, was soluble in 0.4 volume, becoming turbid in excess of two volumes of 80% alcohol.

The thyme oils distilled during the four successive seasons, were soluble in one to two volumes of 80% alcohol, all being within the requirements of the Pharmacopœia in this respect.

The results of the comparison of physical properties of the several official volatile oils, are such as to clearly indicate that conditions of cultivation, harvest, and distillation affect the physical constants of the oils. It is noteworthy of mention, in connection with the data presented, that all of the plants from which the above oils were obtained, were grown and distilled in the same locality, under identical conditions of harvest and distillation, yet variations are evident in the properties of the volatile oils. That seasonal conditions affect the composition of the oils, can hardly be doubted, from the comparisons of the several physical properties in the foregoing pages. The variations in specific gravity, optical rotation and solubility, are especially significant, since these properties bear direct relationship to the chemical composition of the oils. In some instances only were the constants of the oils within the limits of the Pharmacopœial requirements, yet the oils under observation were distilled with utmost care from material carefully grown and harvested, and therefore, must be considered as true, authentic samples.

DISCUSSION.

MR. ASHER: I would like to ask Dr. Stockberger whether other analyses have been made of these oils at various times, that is for instance, the oils made in 1907; whether analyses were made in 1910, and so on. My object in asking that question is this. I have done a great deal of work with the pinenes. We have examined, in the experiments we have conducted, these oils for solubility, refractive index and after several years found these possessed different constants from those found when previously tested and no doubt the oils taken as standards by the pharmacopœia were not taken from fresh samples, as in this case and very much of the difference of the constants is no doubt due to some changes due to time.

DR. STOCKBERGER: Yes, samples of these oils have been examined from time to time and in many cases they have been found to vary with time in respect to their constants. On the other hand the figures shown in these tables were obtained from freshly distilled oils, and are presented to show the variations in these oils according to the season in which they were produced.

MR. ASHER: Just one further question in that regard, Mr. Stockberger. Did the gentleman who did the work later test these samples and did they then correspond with the samples in the pharmacopœia?

DR. STOCKBERGER: I am unable to answer that absolutely, because it is a special point with reference to the author's work which I am not sufficiently well acquainted with, to enable me to make a categorical answer. The intent of the author of this paper is to show that absolutely authentic material was worked with and that it is quite possible to have an authentic oil which does not conform to pharmacopœial requirements.

MR. CHARLES T. P. FENNEL, of Cincinnati: Were the oils ever tested for moisture?

DR. STOCKBERGER: Yes, sir. The oils were dry.

MR. FENNEL: You are sure of that? I made a series of experiments a good many years ago, and I claim that quite a number of these oils contained water. I recall very distinctly the oil of cloves contained two percent. water. My claim for content of water was denied

by manufacturers of volatile oil, especially one, but years afterwards the sample in question was picked out of the list presented and the distiller admitted it contained two percent. of water. The records of the Association gave the data but I am not able to recall the time it was published.

MR. STOCKBERGER: I know it has been Mr. Rabak's custom in working with these oils to take all precautions, so far as possible, to remove moisture from the oil. Whether it was absolutely removed or not, of course, it is impossible for me to say, but I know that is my impression, that they were moisture free samples.

NOTES ON A NEW ALKALOID FOUND IN NUX VOMICA.*

HUGO H. SCHAEFER.

We find from time to time in pharmaceutical literature, reports of the discovery of new alkaloids in nux vomica beans, that is, alkaloids other than strychnine or brucine. In the Jour. Chem. Soc. (39-457), Shenstone reports the finding of an alkaloid freely soluble in warm water. After describing the substance, the author states that it is probably brucine with some persistent impurity. In the Pharm. Jour. (III, XIV, 1025) Dunston reports the discovery of a glucoside in nux vomica, which he terms loganin. Desnoir (Jahresbericht 50-54, p. 48) describes a new nux vomica alkaloid, which he calls igasurine. This, he claims, is an intensely bitter substance, giving tests entirely different from those of strychnine or brucine. Again, in Gmelin (XVII—589), we find that igasurine is a very bitter substance resembling brucine, but more soluble in water. Schutzenberg (Am. Jour. Pharm., 1858-535) reports that igasurine is really composed of nine different and distinct alkaloids. He separates these by fractional crystallizations and gives a brief description of each one. Finally we find, in Am. Jour. Pharm. (1872-256, Jörgenston), evidence that there is no such alkaloid as igasurine, or at least, that the substance so-called, can be readily converted into brucine, by treating with potassium iodide, filtering off and regenerating the alkaloid, which will be found to be brucine.

We therefore see, from the above contradicting statements, that it is an open question as to whether such an alkaloid as igasurine really exists. However, the author now wishes to report the finding of an alkaloid in nux vomica, which is totally different from strychnine, brucine, or any of the igasurines, as described in literature, and which alkaloid he proposes to call *struxine*.

This alkaloid makes its appearance during the process of manufacturing strychnine. In neutralizing the acid-solution of the raw alkaloidal sulphates of nux vomica, the new alkaloid separates out as a base, when the liquors become just neutral, or are still slightly acid, while strychnine and brucine remain in solution as sulphates. It was found that only few lots of nux vomica beans contained this substance, and the quantities, in those which did contain it, differed greatly with different lots. Careful record was made of the beans which yielded this new alkaloid, and this proved that all such beans were from shipments made from Cochin-China. Those lots which consisted mostly of small beans, insect-eaten

* Read before Scientific Section at Detroit.

and partly decomposed by prolonged exposure in wet fields, contained the largest percentage of the alkaloid. The average amount found in these beans was 0.1%.

Struxine, which separates from the solution of raw alkaloids as above stated, was filtered off, dissolved in an excess of dilute sulphuric acid, made alkaline, and the precipitated alkaloid again filtered off. This was now purified by repeated recrystallizations from alcohol.

The final pure product, when freshly made, consists of colorless crystals containing no water of crystallization. Upon exposure to air and light, however, the crystals gradually develop a faint yellowish color. No melting point could be determined, as the substance begins to char at about 250° C. A solution of it gives typical alkaloidal reaction with gold chloride, platinum chloride, mercuric chloride, Bouchardat's, Marme's, Mayer's, Dragendorff's, Sonnenschein's, and Scheibler's reagents, and with tannic acid and picric acid. The alkaloid is only very slightly bitter, which lack of taste is probably due to its extreme insolubility in water, since the more soluble salts of *struxine* are distinctly bitter, but have not the intensity of either strychnine or brucine, or any of the igasurines, as reported in literature.

The following solubility determinations were made:—

In water 1-5000 cc.	In chloroform 1-1 2/3 cc.
In alcohol 1-190 cc.	In ether 1-450 cc.
In methyl 1-210 cc.	In benzol 1-35 cc.

Upon microscopical examination, it was found that the crystals are all of well-defined rhombic form. This, together with the fact that various attempts at fractional crystallization proved failures, shows that the substance is not a mixture of alkaloids, but is a uniform product.

The ultimate analysis of the alkaloid gave the following composition:—

	A.	B.	Average
C.	67.31%	67.11	67.21
H.	7.89	8.13	8.01
N.	7.62	7.44	7.53
O.	17.18	17.32	17.25

A careful determination by means of the freezing-point method, indicated that the alkaloid had a molecular weight of 371. From this data, it was calculated that the empiric formula of *struxine* is $C_{21}H_{30}N_2O_4$, which would give it a molecular weight of 374.53. As will be noted below, this molecular weight is between that of strychnine, and of brucine, and its formula in certain respects resembles that of strychnine and brucine.

Empiric Formula

<i>Struxine</i>	$C_{21}H_{30}N_2O_4$	374.53
Strychnine	$C_{21}H_{22}N_2O_2$	334.466
Brucine	$C_{23}H_{26}N_2O_4$	394.518

Because of these resemblances, it is thought that, possibly, the new alkaloid is a product of decomposition, by fermentation or oxidation of either strychnine or brucine. The fact that those beans which are insect-eaten and partly decomposed, contain more of the alkaloid than good beans, would also indicate this.

Various salts of *struxine* were made, and it was found that it forms normal and

acid salts. The latter, in most cases, however, only from a solution containing a very large excess of acid. All the salts react acid to litmus, and when these acid solutions were neutralized with ammonia water, the free alkaloid separated out, even while the solution showed still a faint acid reaction. No melting points could be obtained, since all these salts charred at 240°-250° C.

Among the salts made and examined, were the following:—

Sulphate— $(C_{21}H_{30}N_2O_4)_2H_2SO_4 \cdot 8H_2O$.

This is a yellowish, crystalline salt, possessing a bitter taste, soluble in water 1-120, in boiling water 1-12, and in alcohol 1-100.

Bisulphate— $C_{21}H_{30}N_2O_4 \cdot H_2SO_4 \cdot 1H_2O$.

This is a white crystalline salt, possessing a bitter taste, soluble in water 1-75 and in alcohol 1-210.

Hydrochloride— $C_{21}H_{30}N_2O_4 \cdot HCl \cdot 3H_2O$.

This is a yellow crystalline salt, which with water, gives a golden yellow-colored solution, having a bitter taste. It is soluble in water 1-85 and in alcohol 1-75. The alkaloid does not combine with two molecules of hydrochloric acid, since even from a solution of a large excess of acid, the neutral salt is obtained.

Hydrobromide— $C_{21}H_{30}N_2O_4 \cdot HBr \cdot 2H_2O$.

This is a yellowish, bitter crystalline salt, soluble in water 1-115 and in alcohol 1-100. A di-hydrobromide could not be obtained even from a solution containing a large excess of hydrobromic acid.

Bitartrate— $C_{21}H_{30}N_2O_4 \cdot H_2C_4H_4O_6 \cdot 2H_2O$.

This salt consists of white, glistening, flaky crystals possessing a bitter taste. Only the acid salt could be obtained. In attempting to make the normal salt, the theoretical quantities of acid and alkaloid in hot water, formed a product which was found to be a mixture of the alkaloid and acid tartrate. Upon using double the amount of tartaric acid, however, all the alkaloid went into solution, from which upon cooling, the acid tartrate crystallized out in beautiful flaky crystals, sparingly soluble in water or alcohol. These crystals, when dissolved in hot water, form a solution of strong acid character. If this solution is neutralized with ammonia water until neutral to litmus, no normal tartrate is obtained, but free alkaloid crystallizes out.

An attempt was made to obtain the acetate of the alkaloid. It was found, however, that no such salt could be obtained in crystallized form.

Many tests were made with the new alkaloid, in order to find characteristic reactions and possible resemblances to strychnine or brucine.

Among these reactions were the following:—

A. A small quantity of the alkaloid will give no color when a drop of concentrated sulphuric acid is added. If to this mixture, however, a crystal of potassium dichromate be added, a yellow color will be obtained, which slowly changes to green.

B. If to a small quantity of the alkaloid, a drop of concentrated sulphuric acid be added, and then a small particle of sodium nitrite, a dark brown color is obtained.

C. If to a small quantity of the alkaloid, a drop of concentrated sulphuric acid be added, and then a small particle of lead peroxide, a dark brown color is obtained, which slowly changes to purple, and finally to violet.

D. If to a small quantity of the alkaloid, a drop of concentrated sulphuric acid

be added, and then a small crystal of potassium ferricyanide, an orange color is obtained which changes to brown.

E. If to a small quantity of the alkaloid, a drop or two of concentrated sulphuric acid be added, and then a few particles of manganese dioxide, a brown color is obtained which slowly changes to purple.

F. A small quantity of the alkaloid will give a brown color, upon addition of a drop of concentrated nitric acid, which color does not change upon addition of a small quantity of zinc chloride.

G. If a small quantity of the alkaloid be dissolved in a few drops of nitric acid and the mixture evaporated to dryness, a light yellow residue remains behind. If this residue be dissolved in ammonia water, a reddish-colored solution is obtained. If alcoholic potassium hydroxide solution now be added, a red to brown precipitate is obtained.

H. If to a small quantity of the alkaloid, a few drops of aqueous solution of potassium hydroxide be added, and the mixture evaporated to dryness, a brown residue remains behind.

I. If to a small quantity of the alkaloid, a drop of a solution of stannous chloride be added, a yellow color is obtained.

J. If to a small quantity of the alkaloid, a drop of concentrated hydrochloric acid be added, a yellow color is obtained.

K. If to a small quantity of the alkaloid, a drop of alcoholic solution of potassium hydroxide be added, an orange color is obtained, which slowly changes to red and then to brown, and finally to black. This test can also be performed by treating the alkaloid with a drop of aqueous solution of potassium hydroxide, which produces no change in color. However, as soon as a drop of alcohol is now added, to the mixture, the above color-changes occur.

All the foregoing tests were made on watch-glasses, or crucible covers with the dry alkaloid. The following tests were made in test tubes, using a saturated aqueous solution of the sulphate:—

L. A small quantity of the saturated solution when treated with an equal portion of concentrated sulphuric acid gives a pink color. If now a particle of sodium nitrite be added, a red-colored solution is slowly formed.

M. The solution of the sulphate gives a yellow-colored precipitate, upon addition of a solution of picric acid.

N. Upon addition of an equal portion of concentrated hydrochloric acid to the saturated solution, no color is obtained even on heating.

O. Upon addition of chlorine water to the saturated solution of the sulphate, a yellow-colored mixture is obtained with no precipitate.

P. A heavy yellow precipitate is obtained from the solution of the sulphate upon addition of as little as one drop of bromine water.

Q. If a small quantity of the saturated solution be diluted with an equal portion of alcohol, and two or three drops of bromine water now be added, no precipitate appears and the solution remains colorless. However, if a large excess of bromine water be added, a yellow precipitate is formed.

R. If an excess of sulphuric acid be added to the solution of *struxine sulphate*, and sodium carbonate or bicarbonate be added in excess, a heavy white precipitate is formed, showing that the alkaloid is not soluble in a solution of carbon dioxide.

S. A solution of potassium chlorate, when added to the solution of sulphate, will cause no color-change or precipitation.

T. If to the saturated solution, a solution of potassium ferri-cyanide be added, a dense white precipitate is obtained.

U. If to the solution of the sulphate a solution of potassium ferro-cyanide be

added, an amorphous yellow precipitate is obtained. If an equal portion of alcohol now be added, the precipitate immediately dissolves.

V. Tincture of iodine, when added to the solution of the sulphate, gives a brown precipitate.

W. If to the solution of the sulphate, some alcoholic potassium hydroxide solution be added, the mixture slowly takes on a pink color, gradually changing into cherry, then red, and, finally, purple.

This test is characteristic of this alkaloid only, and therefore many modifications were tried, until the following was finally determined as being the sharpest and most definite:—

Y. If to the saturated alcoholic solution of the sulphate (1-100) an equal part of alcoholic solution of potassium hydroxide 10% be added, within one minute, the mixture will take on a cherry-red color, which turns darker upon standing. If to this colored mixture, four drops of alcoholic solution of resorcinol (1-100) be added, the color immediately changes to intense dark green. If alcoholic solutions of either hydrochinone, or anthra-quinone (1-100) be used in place of the resorcinol, the same green color will be obtained.

These experiments, reactions and descriptions prove conclusively that there is a third alkaloid in *nux vomica*, unlike any described in literature under the name *igasurine*. While studying the alkaloid, much more research work suggested itself to the author, and the results of some of it will be published in a later paper. Experiments will also be made to obtain the physiological reaction of *struxine*.

Laboratory N. Y. Quinine and Chem. Works.

LABORATORY NOTES.

GEORGE E. E'WE AND CHARLES E. VANDERKLEED.

In every laboratory where a large variety of work is being done, many observations are made from time to time, which are not of enough importance in themselves to be dignified by making them the subjects for scientific papers; yet they may be of interest and importance to workers in other laboratories. Under the title of "Laboratory Notes," therefore, we have collected a number of such observations of miscellaneous character, hoping that they may prove to be of interest to members of the Scientific Section, and that they may prove to be a step in the direction of encouraging, at our meetings, the mutual exchange of laboratory ideas.

Criticism of U. S. P. Directions for Making Decinormal Iodine Solution:—
The U. S. Pharmacopœia directs, in making N/10 Iodine solution, to

"Dissolve 12.59 gm. pure iodine in a solution of 18 gm. of potassium iodide in 300 cc. water."

This procedure of making the solution, requires from one to three hours. A great saving in time may be effected by cutting down the amount of water to about 40 cc. By this modified method, the solution may be prepared in about 10

minutes, and will be found to be quite as accurate as a solution made by the longer process, as is shown by the following experiments:—

Method	Time Required	Factor of the N/10 Solution
U. S. P. procedure.....	3 hours	1.000
Short method, diluted after 10 minutes....	15 minutes	1.001
Short method, allowing to stand 1 hour after iodine is dissolved.....	1¼ hours	1.001

Note on U. S. P. Method of Assaying Solution of Lead Subacetate:—In this assay, the U. S. Pharmacopœia directs that an aliquot part of the solution be taken for titration of excess of oxalic acid, after allowing the precipitate to settle. To insure freedom from the lead precipitate and to effect a saving of time, filtration of the mixture is advisable. The mixture may be filtered without waiting for the precipitate to settle.

Note on the U. S. P. Assay of Nux Vomica for Strychnine:—In the assay for strychnine, the U. S. Pharmacopœia directs the filtration of the final chloroformic extractions containing strychnine, in order to prevent the carrying over of some of the fixed alkali used to liberate the alkaloid. This filtration of the chloroform is not always productive of perfect results, since the filtered solutions sometimes still contain traces of fixed alkali. In four experiments, the extra precaution of washing the united chloroformic extractions with 10 cc. water resulted in reductions of 1.9%, 1.1%, 1.8%, and 2.3% of the total strychnine apparently present.

Assay of Tincture Ferric Citro-Chloride N. F.:—The National Formulary provides no methods of assay or control for N. F. preparations, each laboratory being obliged to provide its own methods for their control. We have found the U. S. P. method for the assay of Tincture of Ferric Chloride is applicable to this tincture with fairly accurate results. The presence of the citric acid does not materially interfere with the oxidation of the iron to the ferric state nor the subsequent reduction to ferrous iron by the hydriodic acid. Experiments on samples which contained known amounts of iron returned on the average, 98.5% of the iron present, by this method.

One sample of Tincture Ferric Citro-Chloride came under our observation, which contained a large precipitate consisting of a complex double salt of iron and sodium citrate. The precipitate contained about 50% of the iron present.

Determination of Chromium in Presence of Acacia:—Organic substances generally interfere with the precipitation by ammonia, of members of the iron group, to which chromium belongs. Chromium sulphate occurs in the market in the form of scales, which, with the assistance of a binder such as acacia, may be readily compressed into tablets. In attempting to assay chromium sulphate tablets containing 10% of acacia, it was found that the chromium could be precipitated quantitatively as hydroxide by ammonia, without interference from the acacia. On the other hand, acacia prevents the precipitation of iron. The possibility of a new method for the separation of iron and chromium, is also suggested by this observation.

Detection of Nitric Acid in Lime Juice:—Although nitric acid is a very infrequent adulterant in lime juice, its detection, when present, presents difficulty, since most of the tests for nitric acid are color-reactions, in which concentrated sul-

phuric acid is used, and the latter carbonizes the organic matter present, thus obscuring the color-reaction. The following method, which has no such objection, will readily detect 0.1% of nitric acid in lime juice.

Place 5 cc. of lime juice, 5 cc. of 20% of potassium hydroxide solution, and about 0.5 gm. of granulated aluminum in a test-tube loosely stoppered with cotton. Heat on steam-bath for 10 minutes. No odor of ammonia should be noticeable during that time, indicating absence of nitric acid.

Interference of Aniline Colors in Alkaloidal Assays:—We have occasionally found on the market alkaloidal preparations, such as Powdered Extract Stramonium, containing a green aniline dye to simulate the natural color of the leaf. In attempting to assay such extracts we have found that the green color appears in the alkaloidal residue which is to be titrated. Besides obscuring the end-reaction, some of these colors are basic in character and increase the apparent amount of alkaloid present. In one specimen which we examined, the color present increased the apparent amount of alkaloid present to the extent of 24%. The interfering color can usually be eliminated by extracting the acid solution of the alkaloids, with chloroform or other suitable solvent, before making alkaline for the extraction of the alkaloids.

Occurrence of Guaiac Resin in Scammony Resin:—Alcoholic solutions of scammony resin, occasionally give a blue coloration with ferric chloride, indicating the presence of guaiac resin. This test, which is given in the U. S. Pharmacopœia under Scammony, should be repeated under Resin of Scammony.

Physical Instability of Mercurial Ointment:—Because of the high specific gravity of metallic mercury, mercurial ointments are subject to a settling of the mercury to the bottom of the container. In one instance, a 50% ointment was examined which assayed 75% mercury when sampled from the bottom. It would be well to include in the U. S. Pharmacopœia, directions to "mix well before dispensing."

Influence of Method of Manufacture on Composition of Compound Solution of Cresol, U. S. P.:—When prepared by the cold process, exactly as prescribed by the U. S. Pharmacopœia, a lot of Liquor Cresolis Comp. assayed 8.5% water and 48.5% phenols by the methods of assay given in Bulletin 107, Bureau of Animal Industry, U. S. Department of Agriculture. When prepared by the more satisfactory method of heating to saponify the linseed oil and dissolving the resultant soap while hot in the cresol, many lots manufactured ranged from 5 to 8.6% of water and from 48 to 50% of phenols.

Volatility of Caffeine and of Acetanilid in a Current of Steam:—Having occasion to separate monobromated camphor from a tablet-mixture containing among other ingredients caffeine, the mixture was distilled with steam. Caffeine was found along with the monobromated camphor in the distillate. To determine to what extent the caffeine was volatilized under the conditions employed in the separation of the monobromated camphor from the tablet-mixture, 1 gm. of caffeine was distilled with steam until a 500 cc. distillate was obtained. 0.8% of the caffeine was recovered from the distillate.

Acetanilid is also slightly volatile in a current of steam, and as was expected, the volatility is somewhat greater than that of caffeine. An experiment resulted

in 3% of the acetanilid being found in the distillate, when 2 gm. was distilled with steam until a distillate of 500 cc. was obtained. In a second experiment, using 1 gm. of acetanilid, 2.4% was found in the distillate.

Determination of Free Phosphorus in Rat Pastes:—The following method works well with phosphorus rat pastes:—Take a sample of about 1 gm., place in a distilling flask connected with a CO₂ generator and a condenser, and connect the condenser with a 300 cc. Erlenmeyer flask containing 50 cc. of 3% silver nitrate solution. Connect the flask with a series of two U tubes containing 3% silver nitrate solution. All connections exposed to the phosphorus must be of glass or of cork covered with plaster of paris. Pass CO₂ through the apparatus for 20 minutes, testing for leaks with flexible collodion, which will bubble at a leak. Place 125 cc. of cold, freshly boiled, distilled water containing 2 cc. of sulphuric acid in the flask containing the sample by means of the tube which leads to the CO₂ generator. Continue to pass in CO₂, and heat the flask gently until, after about three hours, practically all of the liquid in the flask has been distilled into the silver nitrate solution.

Finally, allow the condenser to become hot from the distillation, and disconnect between generator and distillation flask before removing flame. Collect all the silver nitrate solutions in the Erlenmeyer flask, using nitric acid to dissolve the black precipitate in the U tubes. Add 15 cc. of nitric acid to the mixture, boil for five minutes, and add hydrochloric acid, in moderate excess, to precipitate the silver. Boil for 20 minutes, let cool, filter, and concentrate to 150 cc. Cool to 40° C., add 100 cc. ammonium molybdate solution, stir well, and let stand in warm place over night. Filter off clear liquid, wash precipitate by decantation, using 25 cc. water for each washing, transfer to filter, and wash until two fillings of the funnel are rendered pink by one drop of N/2 potassium hydroxide solution, using phenolphthalein as indicator. Place the filter and precipitate, in a glass-stoppered flask, add an excess of N/2 potassium hydroxide solution, shake for a few minutes, add phenolphthalein indicator, and titrate back with N/2 sulphuric acid. Each cc. of N/2 potassium hydroxide solution, is equivalent to 0.0007071 gm. phosphorus.

This method is also applicable to the assay of phosphoretted resin and phosphorus tablets, for free phosphorus. Three samples of commercial phosphorus rat-pastes, were found to contain respectively 57.9%, 41%, and 82%, of the claimed amounts of phosphorus in free condition.

Note on Charging Melting-Point Tubes:—The usual method of taking melting-points involves the use of a capillary melting-point tube, sealed at one end. This type of tube presents the difficulty of requiring the shaking down of the sample, into the closed end of the tube. A capillary tube open at both ends is far more convenient. It may be charged with the sample, to the depth of about one-fourth inch, merely by pressing the end of the tube into the powdered substance in the manner of filling capsules. The tube may then be attached to the thermometer in the usual manner, and used the same as a tube closed at one end. In all our experience with this open capillary tube, the melted sample has always been retained within the tube by capillary attraction. This type of tube permits of the employment, if desired, of a finer capillary tube, as the sample does not

have to be shaken down. It is unnecessary to say, of course, that these tubes can only be used in a melting-point apparatus provided with an air chamber, such for example, as Roth's, they could not be submerged in a water or acid bath.

Lead Storage-Tanks for Pharmaceutical Preparations:—In investigating the suitability of lead-lined storage-tanks for pharmaceutical preparations, the following observations were made:—Tincture of Opium, and Syrup of White Pine Compound, dissolve lead; Tincture of Aconite and Fluid Extract of Ergot, do not permanently dissolve lead, but form precipitates containing lead; Tincture of Vanilla and Aromatic Fluid Extract of Cascara Sagrada, dissolve lead and also form precipitates containing lead.

Note on Soft Gambir:—The U. S. P. requires that gambir be friable, that it contain not less than 70% alcohol-soluble matter and not more than 5% ash. Gambir, when soft, contains excessive water, which is included as alcohol-soluble matter. If the amount of soft gambir used in a formula, is corrected for its excessive water, soft gambir may be used, in place of the friable gambir required by the U. S. P. The point to be considered is the maximum amount of water which gambir may contain and retain its friable condition.

In order to determine this point, a flat cake of soft gambir was alternately heated at 100° C. for fifteen minutes, and then cooled, and the condition of the gambir ascertained when cool. Under these conditions, the gambir became friable when it contained 5.3% of water. This figure, however, was not consistent with the moisture-content of spontaneously-dried, commercial, friable samples, which contained as much as 12% moisture. It is evident, therefore, that the maximum content of water consistent with a friable condition, is variable according to the method of drying. The commercial method of drying gambir, is the spontaneous one, so that the determination of the maximum content of water consistent with a friable condition, should be based on spontaneously-dried commercial samples. The maximum moisture in the samples of friable gambir, which we have examined up to the present, is 12%. The minimum moisture in the samples of soft gambir which we have examined up to the present, is 21%. The proper maximum-content of water in gambir, consistent with a friable condition, to adopt as a standard, should be that which we have found in practice and which is 12%. In valuing soft gambir, the moisture, alcohol-solubility, and ash should be determined and only 12% of the moisture should be calculated as alcohol-soluble matter.

As an illustration, we will consider a soft gambir which assays 25.4% moisture and 74.2% alcohol-soluble matter. The moisture in excess of the 12%, consistent with a friable condition, is 13.4% which should be subtracted from 74.2% alcohol-soluble matter, leaving 60.8% alcohol-soluble matter, exclusive of excessive water for the gambir, instead of the 70% which the U. S. P. requires, thus indicating that 116 parts are equivalent to 100 parts of U. S. P. gambir.

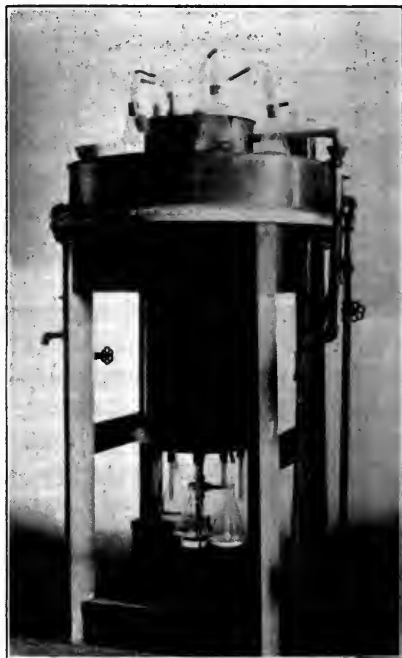
Gambir labeled as catechu, is always friable and for catechu and friable gambir, this method of calculating is not called for. These should assay not less than 70% alcohol-soluble matter and not more than 5% ash. There may be some slight objection to the use of soft gambir on the score of its diluting the menstruum and therefore changing the character of the extractive a trifle. But this

is not likely, as the chief medicinal ingredient is tannic acid and tannic acid is quite soluble in both water and alcohol.

An Improved Form of Steam Bath:—A circular steam bath containing the usual steam coil, constant water-level, openings with accommodating-rings for various-sized apparatus, etc., and with the additional arrangement of having an upright condenser placed in the center of the bath, has many advantages over the usual rectangular-shaped steam-bath without condenser.

The circular steam-bath requires no special explanation, but the upright condenser may be described as follows:

The condenser consists of two cylinders, one within the other, with glass tubes for condensing purposes placed in the space between the two cylinders. These cylinders contain the water used for condensing purposes,—the water entering the inner cylinder at the top, passing through holes in the bottom of the cylinder in to space between the two cylinders,



where it comes in contact with the condensing tubes, and then, passing up through the outer cylinder to the overflow near the top. The inner cylinder is designed for use with ice, when weather conditions require its use.

Flasks containing light solvents, are connected, for the process of distillation, with small spray traps, by means of corks which have been extracted with the kind of solvent undergoing distillation. The spray traps, in turn, are connected with the condensing tubes by means of short pieces of rubber tubing. To prevent loss of substances due to sudden boiling, it is desirable that the inner bottoms of the flasks be scratched with a diamond, taking care not to cut deeply into the glass.

This type of steam-bath has the advantages that it is always ready for the recovery of small quantities of volatile solvents, without the necessity for setting up distillation-apparatus; cold condensing can be conveniently carried out; the apparatus is compact; breakage, such as is common with glass condensers of the ordinary unprotected type, is prevented; the recovery of light solvents, which can be repeatedly employed for the same class of work is encouraged; and finally it may be used as an ordinary steam-bath, when the condensing arrangements are not required.

Cuts of the apparatus accompany this description.

ANALYTICAL LABORATORY, H. K. MULFORD COMPANY, July 29, 1914.

Editorial

ERNEST C. MARSHALL, Acting Editor.....63 Clinton Building, Columbus Ohio

Yuletide.

NOW comes the season of rejoicing. The Day of all Days, when, one and all, the entire Christian people of the earth, join in praise of the Lord of Lords, the King of Kings. The day when every one seems to try to make another glad of life, and the day from which we learn the veritable truth of the saying, "It is more blessed to give than to receive," and find more joy and peace in being kind, true and loving than in being unkind, false and insincere. Would there were more such days. Would that every day, the world's people thought of how they could lift the burden from some fellow-mortal and relieve their wants and their sorrows. How strange that with the joys and memories of one such day to abide with us, there cannot be seen how much better this world would be, if all days were like this one, full of joy and helpfulness to others.

What a different world this Cosmos would be if all, should from to-day, make their best endeavor to free themselves from meanness, from deceit, from wrong and cruel ways. Burns sings to us,—

*"Man's inhumanity to Man
Makes countless thousands mourn."*

when just simply Man's kindness to his fellow-men would make the world a place so joyous, that it would be a foretaste of the Heaven to which we all aspire. A MERRY CHRISTMAS! WHY? Why not a year of Merry Christmases? Why should we make but one, the sum and total of all our aspirations for a kinder and more generous life; then like the dog of Peter II, 22, turn to that by which we are degraded and defiled? "*Love ye one another,*" taught the Great Teacher, whose birth and life we celebrate this day. Not this for one day, but for every day.

We pharmacists follow Galen, "*The Paradoxopaus,*" (The Wonder-worker). Let us be wonder-workers in the world, and do our simple part to make it happier and better. In Italy the beggars greet you with "*Fate ben per voi*" (Be good to yourselves) in asking alms. Let us then seek our own good by doing good to others, and thus maintain the humanity, the worth of our high profession, devoted to the alleviation of the miseries of mankind; not alone the physical, but the mental and the spiritual as well. Thus will we honor our calling and make the name and the profession of Pharmacy revered and honored in the land.

The Journal wishes to every member A Most Merry Christmas!!

E. C. M.

A PLAIN DUTY.

WHAT Professor Kauffman called attention to at the last meeting of the Columbus Branch,—the use of the sodium salts in place of those of potassium,—is one of particular importance to every person, especially to pharmacists.

The supply of sodium in this country is practically inexhaustible, while we are almost entirely dependent upon Germany for potassium, and this fact accounts for the sharp advance in the prices of potassium salts, which will probably be accentuated if the war continues.

Salts of potassium and sodium, are presumed to derive their medicinal value from their combination with their radicals, not from their bases. The iodides and bromides of sodium and potassium have like medicinal uses, and are usually administered because of the iodine they contain, and the slight difference between them in this regard is in favor of the sodium salts. The latter are even preferred by many practitioners.

Merck's Report says:—

"Medicinally, in fact, the sodium salts are even believed to be superior to the potassium salts, because the consensus of opinion accredits the potassium ion with a depressing action on the central nervous system and heart, while the sodium ion is perfectly inert or indifferent. This view is so widely held that many physicians, particularly abroad, prefer the sodium salts (bromide, iodide, etc.,) to the potassium salts, and invariably prescribe them. This fact has not, however, been impressed upon the greater number of physicians, who largely follow traditions in prescribing, and who perhaps are not fully familiar with the sodium salts and their doses."

If physicians were informed on these points by pharmacists, there would doubtless result a greater use of the sodium salts and a lessened one for those of potassium. The doses of the most commonly used salts of these bases are practically identical,—of the iodides and bromides exactly the same. It would seem, therefore, as though it were the performance of a plain duty to the public and to themselves, for druggists to recommend to physicians the use of the salts of sodium instead of those of potassium. At the same time, they would be assisting to render the country independent of any interference with its medicinal supplies, such as has been caused by the existing war in Europe.

E. C. M.

RETAILERS IN THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THOUGH not unfriendly in tone, an editorial in the November number of the Western Druggist entitled "Retailers in the American Pharmaceutical Association," is based upon a false assumption and therefore leads to a wrong conclusion.

An assertion, admittedly made "during a somewhat acrimonious debate" at the last N. A. R. D. convention, affords very slender support for such a sweeping premise as that "a majority of the members of the A. Ph. A. consist of pharmaceutical teachers, pharmaceutical editors, representatives of various departments of wholesale and manufacturing houses and the retired lists of these various interests."

An inspection of the roster of the A. Ph. A. members, quickly disproves this assertion. An actual count of the members in Massachusetts shows that 130 out

of 151 members of that state are engaged in the retail drug-business as proprietors or clerks.

The Chicago Branch, which includes in its membership representatives of the faculties of four schools of pharmacy, as well as a liberal number of chemists, manufacturers, wholesalers and journalists, shows, nevertheless, a decided preponderance of practicing pharmacists among its members. In the smaller cities and throughout the country the percentage of retail pharmacists is of course much greater than in the large centers of industry.

True, many of the most active members of the A. Ph. A. are not engaged in the retail drug business, but more than a few of these are qualified pharmacists notwithstanding. Further, it is to be expected that teachers, journalists, chemists, wholesalers and manufacturers *should* take an active part in the work of the A. Ph. A. More commonly than the retailer, they have the ambition, the time and the training which leadership requires. The strength of the A. Ph. A. lies in no small degree in its ability and opportunity to avail itself of the talents of such men.

The inference, that the Journal of the A. Ph. A. has been a failure is likewise refuted by facts. The Journal has been and is a success—a success not to be measured in the dollars of advertising receipts—especially as the cautious and conservative policy of the Association, does not permit of the acceptance of much of the advertising ordinarily carried in most of the trade journals.

That the Journal has materially helped to increase the membership of the Association may be determined by a comparison of the rate of growth for the nine years before and since the establishment of the monthly. In 1896, the total membership was 1558. Nine years later it was 1776, an increase of 14 percent. The Bulletin, as the Journal was first known, was inaugurated in 1905. During the following nine years—to 1914, the membership increased nearly 50 percent., passing the 2600 mark at the last convention.

W. B. DAY.

OLIVE CROP OF TUSCANY.

The olive crop of 1914-15 for all of Tuscany is estimated to average, with a tendency to increase, the 1913-14 crop, which, according to last statistics, produced 1,064,000 quintals (106,400 tons) of olives, producing 197,000 hectoliters (5,204,159 gallons) of oil.

The cold winter and dry summer, though having somewhat reduced the very promising crop as to quantity, have much prevented the development and spreading of the olive fly (*Dacus olearia*) and other parasites, and the quality of oil is expected to be superior to that of 1913 as a result.

Very little oil of the 1913-14 crop is still on the market—estimated as not exceeding 5 to 6 percent. of the total production.

The oil from the 1914-15 crop will not be on sale until December or January next, and prices (purchases from the producer) are expected to be about as the last quotations, viz., per 100 kilos (220.46 pounds), 200 lire (\$38.60), for first quality; 180 lire (\$34.74), second quality; 150 lire (\$28.95), third quality; and 105 to 115 lire (\$20.26 to \$22.19), for industrial purposes.—Consul Benjamin F. Chase, Leghorn, Oct. 13.

Section on Education and Legislation

Papers Presented at the Sixty-Second Annual Convention

A FORM OF LAW PROPOSED FOR THE REGULATION OF THE ITINERANT VENDING OF DRUGS, MEDICINES AND POISONS.*

J. H. BEAL, SC. D.

The regulation of the distribution of drugs, medicines and poisons by unqualified itinerant vendors is a subject of perennial interest.

Pharmacists and physicians are naturally indignant at the discrimination of the law which imposes many burdensome conditions upon the conduct of their respective callings, but permits itinerant vendors to sell without let or hindrance, not only the so-called domestic or household drugs but also any other combination of drugs, provided their vendors are adroit enough to clothe them with some fanciful title not found in the United States Pharmacopœia or National Formulary.

This discrimination bears with especial hardship upon the pharmacist located in the small town or village. The law requires him to be especially educated for his business, and to be registered by examination. His goods are subject to both Federal and State inspection, and he is liable to severe penalties if they are deficient in quality. He is specially taxed for the enforcement of the laws regulating the practice of pharmacy, in addition to the tax which he pays for the maintenance of the government of the local community. It is small wonder, therefore, that he raises a protest when he sees his business taken away from him by itinerant vendors who contribute nothing to the support of the community in which they do business, who are not qualified by education to judge of the character of the products which they offer for sale, and which products are frequently dangerous to life and health, and still more frequently are of inferior quality.

Numerous efforts have been made to enact legislation restraining or regulating such itinerant vending, and occasionally acts for that purpose have been placed upon the statute books, but have generally been declared void by the court of last resort when attempts have been made to enforce them.

The fault of such attempted legislation has been that it has almost invariably tried to accomplish too much. Under the guise of regulation, it has imposed conditions that practically would have amounted to extermination: and under the pretense of protecting the public health has really attempted to legislate against the business of the man whose store was upon wheels in favor of the business of the man whose store occupied a permanent location. To make such legislation

* Read before the Section on Education and Legislation, at the 61st Annual Convention, Nashville, Tenn., 1913.

valid there must be a logical connection between the requirements which it imposes, and the general public good, and not merely the particular good of the retailer who has a fixed place of business. If this connection with the public welfare be plainly shown, then such legislation will stand a good chance of being sustained by the courts, even if it shall amount to practical prohibition of the itinerant vending of drugs and medicines.

In other words, the only warrant for the imposing of special requirements upon the itinerant vendor of drugs and medicines is the necessity of protecting the public against the sale of fraudulent or dangerous preparations or the collection of necessary taxes; and this necessity must be real and in line with the requirements imposed upon the non-itinerant vendors of the same class of articles, and must not be designed merely to interfere with the business of those who travel from place to place in favor of the interests of those who do business in one place.

The following is proposed as a form of law which the writer believes meets most of the constitutional objections which have been offered to such legislation in the past, and at the same time provides the means of bringing under proper control and subjecting to proper regulations, a variety of itinerant traffic, which without proper regulation, is likely to be dangerous to public health besides being unfair to the qualified and registered pharmacist and physician.

The form given below would, of course, need modification to fit it to local conditions in the states when it was proposed for enactment, as for example, by substituting the name of the state official charged with the enforcement of the food and drug laws, where these are not enforced by the state board of pharmacy, etc.

A BILL

To regulate the itinerant vending of medicines, and nostrums, and of compounds and mixtures containing dangerous or habit-forming drugs, and to provide for the licensing of vendors of the same.

Be it enacted by the General Assembly of the State of

Section 1. Any person, firm or corporation desiring to engage, either as principal or as agent, in the business of selling, or vending by peddling, or by canvassing from house to house, or by vending from valise, pack, bundle, wagon or other vehicle, or by public out-cry, or upon the street or public highway, any drug or medicine, or any combination or mixture of drugs and medicines recommended for the cure, treatment or mitigation of disease, injury or deformity, either of man or other animals, shall apply to the state [board of pharmacy] for a license, or for a certified copy thereof, as provided in section two of this act, authorizing such peddling, canvassing, selling or vending.

Every application shall be in the form prescribed by the state [board of pharmacy] and shall particularly set forth the drugs, medicines, or combinations or mixtures thereof desired to be vended or sold, and shall be accompanied by samples of such drugs, medicines, combinations or mixtures, sufficient in quantity for analysis, the quantity to be such as may be determined by the state [board of pharmacy] and by a true statement of the quantity or proportion of any alcohol, opium, morphine, codeine, heroin, or cocaine, or of any salt, alkaloid, derivative, preparation or compound of any such drugs contained therein, and by copies of the circulars, labels or other printed matter by which such articles are to be accompanied or advertised.

If the state [board of pharmacy] is satisfied that such application is in the proper form and that the drugs, medicines, combinations or mixtures proposed

to be sold or vended do not contain poisonous or habit-forming drugs in greater proportion than is permitted by law, or alcohol in greater proportion than is necessary to preserve or hold the essential ingredients of such drugs, medicines, combinations or mixtures in solution, and that such preparations cannot be used as alcoholic beverages nor to create or satisfy a drug habit, and that they are not dangerous to life, or health, nor intended for unlawful or immoral purposes, and that the circulars, labels or other printed matter by which such articles are to be accompanied or advertised do not contain any statements that are false and fraudulent, [the State Board of Pharmacy] shall upon receipt of the fees hereinafter described, cause to be issued to such applicant a license authorizing the selling, peddling or vending of such drugs, medicines, combinations or mixtures thereof.

Such license shall particularly describe the drug, medicine, combination or mixture authorized to be sold thereunder, the name of the person, firm or corporation to which the license is issued, the date when such license expires, and shall be signed by the [Secretary of the state board of pharmacy].

Nothing in this or in any other section of this act shall be construed to affect the operation of any provision of law regulating the practice of pharmacy, medicine, dentistry or veterinary medicine, or regulating the sale of alcoholic liquors, habit-forming drugs, or of food and drugs, nor shall it be construed to suspend or avoid the operation of any legal ordinance of any municipality regulating the itinerant vending or peddling of drugs, medicines or other articles.

Section 2. The state [board of pharmacy] shall be authorized to charge and collect the sum of ten dollars (\$10.00) for each such license, and if the sale of more than one drug, medicine, compound or mixture is authorized thereunder, they shall be authorized to charge and collect the sum of one dollar (\$1.00) for each additional drug, medicine, compound or mixture. No person, firm or corporation shall be required to procure more than one license for the sale of any preparation, but each agent shall be required to carry with him the license obtained by his principal, or a certified copy thereof, and to produce the same for inspection when requested to do so by any officer of the law, or by any inspector of the state [board of pharmacy] and when more than one agent or canvasser is employed by any person, firm or corporation, the state [board of pharmacy] shall furnish certified copies of such license for each of such agents or canvassers and shall be authorized to charge the sum of one dollar (\$1.00) for each copy thereof. No license shall be issued for a longer period than one year.

The state [board of pharmacy] shall cause a record to be kept of the licenses issued under this act, to whom issued and of the dates of expiration thereof, which licenses shall be consecutively numbered, and all drugs, medicines, combinations or mixtures thereof, authorized to be sold or vended thereunder shall bear a label upon which is printed in plain and easily read letters the words, "Sale authorized by [name of state] License No. ———," accompanied by the serial number of such license and the date when such license will expire.

Section 3. Any person, firm or corporation, who, either as principal or agent, shall sell or offer for sale, by peddling, or by canvassing from house to house, or by vending from valise, pack, bundle, wagon or other vehicle, or by public outcry, or upon the street or public highway, any drug or medicine, or any combination or mixture of drugs or medicines recommended for the cure, treatment or mitigation of any disease, injury or deformity, either of man or other animals, without first having obtained a license from the state [board of pharmacy] as hereinbefore provided, or any one who in any application for license under this act shall state falsely the composition of any drug, medicine, combination or mixture, or when vending by public outcry shall make or utter any statement regarding the articles offered for sale which shall be false or misleading, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than fifty

dollars (\$50.00) nor more than two hundred dollars (\$200.00) for the first offense, and on any subsequent conviction for the same offense shall be fined not less than two hundred dollars (\$200.00) nor more than five hundred dollars (\$500.00).

All licenses and other fees and all fines collected under this act shall be paid to the state [board of pharmacy] and by [them] shall be paid into the state treasury, where they shall be disposed of according to law.

Section 4. It shall be the duty of the state [board of pharmacy] to administer the provisions of this act, to investigate charges of violation of any of the provisions, to prosecute or cause to be prosecuted any person, firm or corporation guilty of such violation and to make such proper and lawful regulations as may be necessary to carry the provisions of this act into effect.

In case it is desired to regulate also the itinerant practice of medicine, the writer suggests the insertion between Sections 2 and 3, of another Section something like the following:

Section 3. Any physician or person having or claiming authority to practice medicine under the laws of this state, and who, not being a legal resident, shall desire to begin or continue the itinerant practice of medicine in this state, shall first obtain authority so to do from the state board of health which (or who) upon proper application in writing may issue a permit for such practice covering a period of one year from date upon the payment of a fee of dollars and the filing of a bond for with good and sufficient sureties residing in this state, to insure against the improper performance of medical service.

Any physician having or claiming authority to practice medicine under the laws of this state, and who being a legal resident of this state, may desire to begin or continue the itinerant practice of medicine may obtain a permit in the same manner as prescribed for a non-resident, but shall not be required to file the bond described in this section.

The state board of health shall upon a proper showing of authority of the applicant to practice medicine in this state, and upon the performance of the other acts named herein, issue the permit for an itinerant physician, provided no permit shall be issued to such physicians as offer to treat diseases of a venereal nature, nor to any physician of known immoral character or intemperate habits.

The state board of health shall at once revoke the permit of any itinerant physician who shall be proven to be of immoral character or intemperate habits, or who shall offer to treat diseases named herein, and in the event of such revocation no portion of the fee paid shall be refunded.

The words "itinerant physician" within the meaning of this act shall be deemed to mean any physician who being a non-resident of the state shall practice medicine from place to place within the state and who shall offer his services in the various localities through public advertising of any nature, or by word of mouth in any street or public place, or who being a resident of this state shall so practice or advertise outside of the county of his legal residence.

The provisions of this section shall apply to any physician so practicing or advertising whether acting as principal, agent or employee.

Each itinerant physician shall carry with him his permit for the current year and shall produce the same for the inspection of any officer of the law or any agent of the issuing authority.

DISCUSSION.

Mr. F. H. Freericks, of Cincinnati, said he desired to express his pleasure at having been present at the meeting a year or two ago of the Academy of Medicine and Ohio Valley Druggists Association of Cincinnati, where Mr. Beal had discussed this question of the itinerant vendor. It became apparent at that time that the physicians were equally interested with the pharmacists of the country in this question, and, subsequent to that meeting, he had met

some fifteen or twenty of the prominent physicians of Cincinnati, who had been present at the meeting, who assured him—and possibly through him the Association—that any effort of this kind would have their very hearty approval. A bill had been introduced at the last session of the Ohio Legislature which, to a great extent, embodied the views here expressed by Mr. Beal. He agreed with Mr. Beal that any effort in this direction must be based primarily on the public good and welfare; it could not be a question of what was best for the druggist, but must always be a question of whether it served the public welfare. He expressed the hope that some method might be found by the author of this bill under which it would be possible to make it applicable to the unqualified vendor, who had a fixed place of business, as well as to the unqualified vendor who traveled around, because there was some doubt as to whether a distinction made as to the itinerant vendor that was not applicable to the vendor at a fixed place, would be constitutional.

Mr. Nixon thought one of the strongest assets the itinerant vendor had was in that clause of the Pure Food & Drugs Act allowing a multiple standard. In his section of the country they had found that these vendors were selling tincture of iodine containing three per cent., which the law allowed. He had a customer to whom he had sold tincture of iodine to bring it back because it stained (!) his hand. It was easy to see where he had been buying the article. He had had physicians tell him the same thing, that they were able to obtain tincture of iodine which would not stain the skin, and that their patients preferred it. Another instance was peppermint. He thought the percentage of essence of peppermint, which was 10, was too high. A lady had brought him back a bottle not a great while ago, saying she had given her child a teaspoonful of this essence of peppermint, and it had nearly strangled the child. She had been buying of an itinerant vendor, and he requested her to bring him the bottle, which she did, and he found it contained only 2½ percent. of oil. Personally, he expressed himself as being strongly in favor of the single standard for Pharmacopoeial preparations.

Mr. Cassaday said that, in Indiana, they had had quite an experience at Indianapolis, at the last session of the Legislature, in getting their narcotic law passed. When it began to be apparent that the bill was to be enacted into law, the question arose as to where the authority to enforce its provisions should lie. Some contended that the Board of Pharmacy was the proper authority, others that it was the Board of Health. The Press took the side of the Board of Pharmacy, as it had control of the sale of medicines, and argued that it was rather out of the sphere of the Board of Health. As had been suggested here, these itinerant vendors were becoming "drug-stores on wheels." The question was, who was going to look after the enforcement of the law as to the sales of medicine and the licensing of those who should sell medicines in the State? Was this authority to be turned over to the Board of Health? It was generally conceded that these boards had enough to do already, and he was ready to enter his protest against any supervision of the sales of medicines in any way by the Board of Health. Druggists were the people best qualified to do this. He thought this could be properly regarded as a matter pertaining to the public health, which should properly be administered through the Board of Pharmacy. If not, druggists might as well turn the matter over to some other association that knew less or nothing about it. He thought the people themselves should make it their business to study and know about these things.

GOVERNMENT AID TO FRENCH CHEMICAL INDUSTRIES.

The French Government, by presidential decree, created a special bureau in the Department of Commerce, for the duration of the war, charged with matters touching the production and supply in France of chemical and pharmaceutical products.

The decree (see *Journal Officiel* for Oct. 19, p. 8355) provides that the duties of the office shall be to determine the amount of existing stocks of chemical and pharmaceutical products, to estimate the present volume of production, and to secure production and distribution for the future. "It is equally its duty," the decree continues, "to develop in France a more intensified production of these same products and to encourage the manufacture of new products." Mr. Behal, professor in the *Ecole Supérieure de Pharmacie* and member of the Academy of Medicine, is named director.—Consul General A. M. Thackara, Paris, Oct. 22.

Section on Historical Pharmacy

Papers Presented at the Sixty-Second Annual Convention

ADDRESS OF THE CHAIRMAN OF THE HISTORICAL SECTION.

DR. W. C. ALPERS.

Chairman Alpers prefaced the reading of his address with the following remarks:—

Before reading my address I will state that during the last year a number of letters, papers, clippings, etc., were sent me from various sources, to be incorporated in the archives of the Association, the most important ones being the following:

Correspondence of the Council during the year 1913, sent by the Secretary of the Council, Mr. England, to General Secretary Beal.

From H. M. Whelpley the following Ebert miscellany was received:—

The license of Albert E. Ebert as a physician; the inventory of Mr. Ebert's store at the corner of Polk and State Streets, Chicago, and his appointment as a member of the Board of Pharmacy of Illinois.

From Francis B. Hayes, former editor of the Druggists Circular, was received the following historical miscellany:—

Press clippings relating to the meetings of the Association held at New York in 1907, and at Richmond in 1900 and 1910 and of the meeting of the U. S. Pharmacopœial Convention held at Washington, D. C., in 1910.

Originals of letters from distinguished pharmacists anent the life and death of Professor C. S. N. Hallberg, originally published in the Druggists Circular. Other clippings on the same subject collected from other journals.

Letter from Prof. J. M. Maisch anent the dispensing of poisons.

Formal announcement, in French, with heavy mourning border, of the death of J. L. A. Creuse.

Engraved card of Monsieur Creuse with his Brooklyn and Paris addresses added,—presumably in his own handwriting.

Photograph of Microscope, with original diagram and description, signed by Hans M. Wilder, of his "gauge for the proper polarizing angle of the block glass."

Manuscript of Hans M. Wilder entitled, "Examinations of Colors, Yarns and Fabrics for Arsenic and Tin," translated from the Rundschau.

ADDRESS.

During the last year the remark has been made by some of our members, and also, in the correspondence of the council, that the Historical Section did not arouse any interest, and might just as well be abolished, in order to shorten or facilitate the work of the Association. I consider it proper and timely, to refute these arguments and point out that the Historical Section is not only useful but necessary for the further development and standing of the American Pharmaceutical Association.

There can be no doubt that there are some among our 3000 members—in fact it would be remarkable if there were not—who take no interest in historical matters at all, whether pharmaceutical, industrial or political, and to whom history in general is a useless science; men who only live in the present, who cannot, and will not, learn from the successes and failures of former generations; men who in the dullness of their own intellect or inflated conception of their own importance, know nothing in this world but themselves, and believe that their own narrow views are sufficient and broad enough for everybody else. We need not listen to the views of such men. If we did we would have to abolish, not only the Historical Section, but all sections; for there are others who hold these same narrow views about the Scientific Section, others about the Commercial Section, and so on. The strength of the American Pharmaceutical Association, however, lies in the fact that it has always embraced all branches of pharmacy, and has devoted equal time, labor and energy to each and every one, thus expounding, promoting and encouraging knowledge, instruction and industrial development, and its true members understand and appreciate this broad scope.

Then the claim is made, that the attendance, at the meetings of the Historical Section is generally small, on account of lack of interest. This charge of small attendance has been true, I regret to say, during the last few years; but the reason for it is not lack of interest, but rather errors of arrangement and management. The programs of the meetings of the last few years, show that the sessions of the Historical Section were put at the end of the meetings, mostly on Saturday. This was probably done without any particular intent, but simply because ours was, until recently, the youngest of all the sections. However, this arrangement necessarily curtailed its attendance, as many members leave for home on Saturday. Another cause of absence, has been the unreasonable extension and adjournment of other sections. If the business of other sections, is not finished in their allotted time, they generally adjourn to Saturday, without paying any regard to those that will meet at the same time. At the Nashville meeting three adjourned-sections met, in this way, on Saturday, that had had ample time before, but either through the leniency of their chairman, or the loquacity of some talkative members, who must be heard on every question, at every section and time, for fear the Association might go to pieces without their garrulousness, they did not finish their business and encroached on the prerogatives of the later sections. No wonder that there is a small attendance, if three adjourned-sections meet at the time allotted to this section.

The importance and necessity of a Historical Section, in an association like ours must be apparent to every thinking member. There is no other association of national character, whether scientific, commercial or political, that does not devote a good deal of its time to this work. Indeed, so important are the records of events considered, that we have numerous associations devoted solely to history; nearly every state possesses one, many counties and cities embrace it in their official work, and, besides these, there is the great National Historical Association. The truth of the word of the great historian, Ranke, that, "History is the court of the world that renders only just verdicts," has long been recognized, and neither efforts nor money are spared to read these verdicts to the people, and to let them learn and profit by them. The study of history is a safe and reliable guide in the progress of all human endeavor, no matter on what field it is employed or to what purpose it is directed.

Among the professions, pharmacy needs this guide more than any other. The aims and purposes of most professions are well defined and clearly laid out; their disciples march, like a closed phalanx, on the straight road that their leaders have pointed out. They may differ as to methods, as to time, as to means, in smaller matters. But they are united and unanimous in their fundamental

principles, and wherever obstacles appear or enemies arise, they offer a firm front and always come out victorious. Not so with pharmacy. Pharmacy is not a science by itself, like Medicine, Theology, Jurisprudence, Mathematics, and others. It is composed of parts of many sciences. It takes from botany, chemistry, medicine, microscopy, and others. It borrows from commercial pursuits and demands high skill and handicraft from its disciples. All these parts it joins together and builds a new structure from them. Such a complex organism cannot endure, unless each part is strong in itself and well balanced in its proportions and importance. No wonder that difficulties and dissensions arise, no wonder that many minds will differ as to the importance of some one part. It is thus that pharmacy easily deviates from her straight and safe course and loses herself in a maze of conflicting advice and efforts. Here History will point out the right way. We can learn from her that these controversies, these aberrations from the straight course, are the natural consequence of its complex character, that they have existed from the very beginning and will forever continue to exist. We will learn that, at every emergency, strong and faithful leaders have arisen, undisturbed by the clamor of the mass, with clear views and courage of conviction. We will learn that many times these leaders have been derided and ridiculed, but that their views finally prevailed. We will learn that pharmacy, like every other science that aspires to truth and justice, cannot succumb to outer influences of a base nature, no matter how strong they may appear. And when we turn to the lives and deeds of the noble men in our profession that shaped its course in the past, we will gain strength, to uphold the high aims of our vocation, and confidence in the final outcome.

Let us place the lives of our best men before the young, and teach them that success in life does not mean wealth alone. Let us create in them, by the examples of those whom we honor, a high conception of their duties and strong impulse to do their very best in their positions, however humble they may be. All can learn from these examples, and in the records of pharmaceutical history, that there are lessons for every member of our profession. By simply reading the proceedings of the American Pharmaceutical Association of past years, we find many instances of every type of pharmacist from the highest scientific man to the strictly commercial drug dealer, each worthy to be emulated, each aspiring to and reaching the aim that he put before himself, each accomplishing success as he understood it.

The manufacturer will find hundreds of hints serviceable to his purpose, in the employment of various methods or the use of tools and machinery; he will learn the wishes and needs of his customers, profit by suggestions and benefit by the inventive minds of former generations.

The source of wealth that lies in the study of pharmaceutical history for the scientific man, is really inexhaustible. There is no subject of the wide domain of pharmacy, that has not been approached in former years; no theory that has not been discussed; no problem, the solution of which has not been attempted. It is true, many of these papers appear crude or unfinished in the light of our present understanding, others that were once hailed as pioneers on new fields, may have turned out wrong since then—but in spite of this, there are lessons in them; they may be regarded as warning signals for the searcher of truth and show which roads to avoid, which thicket to circumvent.

The young man with literary ambition, by reading pharmaceutical history, will not precipitately rush into print, whenever a new idea or problem,—new to him and therefore as he argues to every one,—agitates his mind. He will learn that probably nine-tenths of what he supposes to be new, has been treated by others before him; but, by reading and studying these problems as they appeared to others under other conditions, he will improve his knowledge, correct his judgment and clarify his views.

The greatest gain in studying the history of pharmacy will accrue to the men who compose the bulk of our profession, the practical pharmacists. Whether they look at their vocation as a profession or business they will learn that pharmacy is not a science or occupation the conduction of which can be put down in so many rules or laws; that it is rather a continuous development, that its work and purpose are progressive and constantly changing. Rules of business and industry are always based on surrounding conditions, on the quality of customers, on international trade, on new inventions, new methods of manufacture, new uses and applications of apparatus, and many other conditions, over which neither the individual, nor the united craft, nor even a whole nation, have any influence. History shows us that all these conditions undergo a constant change, and that our rules and methods must likewise change. Stubborn adherence to certain methods, that were good and profitable in past years, is a fight against the inevitable, and neither close combination, nor boycott, nor promises, will check the onward march of such commercial evolutions. History will show us that we must pay attention to these evolutions and adapt ourselves to them. We will thus learn that the most successful men are those who with keen eyes foresaw such changes and prepared their methods, their purchases, their whole business for them. Adaptability should be the leading quality of every successful pharmacist, not stubborn conservatism or reactionary revolution. This is true for the large dealer as well as the smallest apothecary, for the strictly commercial man, as well as the professional pharmacist. And more, we learn that these various men of different type, no matter how divergent their views and aims, might have worked harmoniously together and in combination, each one working faithfully in his sphere, to erect the great structure of pharmacy.

The broad and general knowledge, that History, like a good friend and teacher, thus imparts to every disciple is, however, not the only gain that we derive from its study. We also learn that system and order are of immense importance in another direction, and are thus shown the way to new and necessary work in the interest of our profession. Many times in reading the records of past pharmaceutical history, we are disappointed about the lack of information and dearth of dates concerning some great man or important event. In some instances we do not even know the date and place of birth of some of the pharmacists, who shaped the destinies of our profession; sometimes, also, conflicting views are expressed, and it seems impossible to sift truth from supposition and error. To overcome this difficulty a historical record of every member of our profession should be kept, or if this demand is too broad,—of every member of our Association. Cards should be devised and written giving his birth, education and industrial and scientific development. Dates of membership in this Association and others should be provided, offices that he held, committees to which he belonged, reports that he wrote, addresses that he made, papers and books that he compiled, lectures that he delivered, degrees conferred upon him and other honors that he achieved. The Austrian Pharmaceutical Association entertains what they call a *Gremium*, a combination of a scientific school and business office, where they keep a record of every pharmacist in the large domain of the Austrian empire. True, there are not as many members as there are in the United States, as the number of pharmacists of that country is restricted to a fixed percentage of population. But by systematic and persistent work we, too, might have such valuable records, particularly if the state associations would also take up this work, and thereby divide it in many parts. It seems to me that the Historical Section should undertake this work for the members of the Association, and every new candidate should in future be requested to fill out a question sheet devised for this purpose. It would not take long to obtain this information from the living members, and after that the history of those deceased should be treated in the same way. Such a record, if once completed, would

not only furnish dates and names, but also serves to disclose the inner thoughts, the underlying motive power, that actuated leading men in their doings, which to discover and analyze is the highest and most difficult aim of history.

Together with such records, should go a historical museum. The first historian of this section, Dr. E. Kremers, has contributed valuable papers on the usefulness of such an institution which to repeat does not seem necessary. But as but little has been done, so far in this direction, I again urge the Association to provide some means for this most useful and necessary institution, and to create the position of a custodian, whose duty it should be to collect objects of interest, classify and arrange them and enter into correspondence with all who might be able and willing to contribute to such a collection. The importance of such a museum, and the interest evinced in it, is best shown by the zeal with which traveling pharmacists visit the Germanic Museum in Nuremberg where three different pharmacies representing the 13th, the 15th and the 17th centuries, are exhibited. The articles shown there were contributed from all parts of Germany and every German pharmacist is proud of the collection. Other similar collections may be seen in Berlin, Vienna and Berne, each representing the history of pharmacy of its country. Our country should not be backward, and defer the establishment of a pharmaceutical museum until it will be difficult, or even impossible to collect articles of interest of past years. If the proposition to erect a home for the American Pharmaceutical Association ever becomes a reality, such a house would be the proper place for the museum and historical records. But a beginning should be made now, and a custodian should be appointed, who has time, ability and inclination to perform this work and who can give it a temporary abode.

I therefore recommend that such a custodian be appointed by the council or the work of the historian be extended and sufficient funds be appropriated to carry out the work in a dignified and proper way.

Before closing my address I consider it my duty to express my sincere thanks to our Secretary, Mr. F. T. Gordon, who has filled this important office for a number of years with most praiseworthy zeal and remarkable ability. It is owing to his energy that the sessions of the Historical Section have been crowned with success in past years. I also thank our Historian and all members who have contributed in such able manner to the archives of this section and to the members of the Association in general for their faithful attendance and interest.

REPORT OF THE SECRETARY.

The work of the secretary for the past year has chiefly been the soliciting of contributions from members on topics of historical interest to pharmacy and the collection of historical material. The suggestion made at the Nashville Meeting, that the collection of pharmaceutical journals and daily newspapers containing reports of the meetings of this Association, has proven successful, and I have received copies of all the leading pharmaceutical journals of that period, which will be extremely valuable in future years, through the photographs and personal items concerning members and their activities. I wish to express my thanks, and that of the Association, to those editors who have so willingly complied with the request for copies of their journals. We are so accustomed to throw aside newspapers and other printed matter that we often overlook the importance it will have to future students of the history of pharmacy. There is no doubt as to the value of such material, but WHERE ARE WE GOING TO KEEP IT? If we, of the present day, really wish to add material to the building of the temple of pharmacy we must have a place to put it, and not let it be scattered in all parts

of the country. For the preservation of historical material alone, we are absolutely obligated to establish some permanent home or place where the vast collection of personal and scientific data may be available to the student and historian.

This brings me to the greatest difficulty I have met in obtaining material of historical value. Plenty of such material is offered but who will take care of it, who will arrange it so that it will be available? It is not fair and it is, certainly, not creditable to the American Pharmaceutical Association that it should solicit contributions of historical material and then leave their safekeeping to volunteer members in all parts of the country. How does the man who sends us rare photographs, priceless documents and mementos of friends dear to him know what will be done with them? I confess, myself, that I prefer to keep my own collection of historical material where it can be seen and utilized, instead of consigning it to the oblivion of a packing case, located—WHERE? This question of providing a home, headquarters or whatever it may be called, is now the vital one before this Association and the sooner it is attended to the better. We claim to be the guardians of American pharmacy, its past, present and future guides, but, if this claim is to continue, we must assuredly provide a home for the guardian and not let him depend upon the chance hospitality of a stranger. *Ipse facit?* Not if history is true.

The following recommendations as to continuance of the work of this Section are made, based on my experience of the past two years: 1. That state pharmaceutical associations be requested by the secretary of this Section, through their proper officers, to furnish a copy of the printed proceedings of their annual meetings for inclusion in the Historical Collection of this Association. Such material should be obtained by the secretary and transferred to the care of the Historian as convenient. But once again, where will it be kept?

2. That the secretary request copies of the American Pharmaceutical journals containing reports of the annual meetings of the American Pharmaceutical Association, the National Association of Retail Druggists and other national associations connected with pharmacy, in all its branches, and that these shall be sent to the Historian as part of the Historical Collection. Again, where?

3. That such foreign and American publications devoted to pharmacy, as may be received in exchange by the Editor of the Journal of the Association, be ultimately forwarded to the Historian for inclusion in the Historical Collection.

Our chairman has outlined plans for collection and preservation of other historical material in his address, therefore I will close my report by recalling the fact that history is being made now, that will profoundly affect the world, and that our members have an opportunity for laying the foundations of a mighty temple of truth in the history of pharmacy. Until such time as the Association shall provide a suitable place for safe keeping and exhibition of the historical material contributed, I will gladly take care of any sent me and will try to preserve it for future installation in our "Home."

The expenses of this Section have been chiefly for postage and printing, the total amounting to something less than \$10.00. All bills have been paid and vouchers are in the files of the General Treasurer.

Respectfully submitted,

F. T. GORDON.

HISTORIAN'S REPORT.

CASWELL A. MAYO.

I beg leave to present the following photographs:

1. House of William Procter, Jr., Mount Holly, N. J.
2. A. Ph. A. members at Mammoth Cave, on the return from Nashville meeting, 1913.
3. E. H. Lowe and Dr. W. C. Anderson.
4. Members of Detroit Executive Committee for the A. Ph. A. meeting, 1914.
5. Members of the N. Y. State Ph. A. at Catskill Mountain House, June, 1913.
6. Thanksgiving Day, 1913. N. W. D. A. Convention at Miami, Fla.
7. Microscopic Laboratory of the New York College of Pharmacy.
8. Members of the Nashville Committee for the A. Ph. A. meeting, 1913.
9. Two Photographs of the College of Pharmacy of the University of Minnesota. (Crude Drug Drying Closet and Section of Pharmacognosy Class Collecting Digitalis Leaves.)
10. At the grave of William Procter, Jr., Mount Holly, N. J., on the 97th anniversary of his birth.
11. Two Presidents at Niagara Falls—John G. Godding, H. B. Guilford.
12. W. S. Richardson, wife and two daughters, both of whom have the title of Doctor of Pharmacy.
12. Members at the Niagara Falls meeting of N. A. R. D., 1911.
13. Officers of the Illinois Ph. Association.
14. Officers of the Chicago Retail Druggists' Association—B. A. C. Hoelzer, Isham M. Light, and James B. Crowley.
15. At Plymouth Rock, American Pharmaceutical Association meeting, Boston, 1911.
16. Mrs. Brunstrom, of Moline, Ill., and other ladies, at N. A. R. D. meeting.
17. John W. Lowe, S. N. Jones, W. C. Anderson—three members who have attended every meeting of the N. A. R. D.
18. The Chicago Delegation, with the Niagara Falls for background.
19. Mr. and Mrs. Matthew White.
20. Mrs. Phil. Forbirsh, of Tampa, Cuba, and her sister.
21. Officers of the Illinois Pharmaceutical Association—Ralph Doehrland, Duncan, Charles Aschelpohl and Jim Wells.
22. Delegates from Illinois?
23. Otto Hottinger and Charles Huhn with little nephews at Detroit depot on way to Niagara Falls.
24. Scene taken from Steamer Island Queen, N. A. R. D. Convention, Cinn., 1913.
25. Joe H. Schmitt, Sol. A. Eckstein, Mil. N. A. R. D. Convention, Cinn, 1913.
26. Tom Golden and wife on board Steamer Island Queen, N. A. R. D. Convention, Cinn., 1913.
27. Embarking for Coney Island, August 29, N. A. R. D. Convention, Cinn., 1913.
28. Marion B. Craig and Hugh Craig.
29. Ohio Delegates to the Milwaukee meeting of the N. A. R. D., 1912.
30. Snapshots taken at the Denver meeting of the A. Ph. A.
31. Snapshots taken at the Denver meeting of the A. Ph. A.
32. Members of the National Association of Boards of Pharmacy.
33. President's party at the Milwaukee meeting of the N. A. R. D.
34. Photographs and pamphlets of J. D. Riedel's Swiss Pharmacy.
35. Travelers' Auxiliary at Saratoga Springs.
36. Assistant Pharmacist Mayor, of the 2nd class—French Pharmacist—Navy.
37. Robert Burns Bowling League.
38. Chicago Druggists on deck of Theodore Roosevelt.
39. Serving the Barbecue at Coney Island.
40. J. H. Beal.
41. Liebig Monument.
42. Outgoing officers of the Illinois Pharmaceutical Association and of Ill. Travelers' at 1914 meeting.
43. George Reiman and his four sons.
44. Belle Isle, Pleasure Boat, Detroit.
45. Canal at Belle Isle Park, Detroit.
46. Hurlburt Memorial, Water Works Park, Detroit.
47. Wicke's Drug Store, Brooklyn, N. Y. H. Schlesinger in front.
48. Group of Tourists on the "Moffat Road"—Denver, N. W. and Pacific R. R.
49. Phila. delegates to the convention meeting of the N. A. R. D., 1913.

50. Members of the Commercial Travelers Association of the New York State Association at the Rochester meeting.
51. New York State Pharmaceutical Association at Manitou Beach, near Rochester.
52. Members of the New York State Board of Pharmacy, 1914.
53. Group—Dr. and Mrs. H. M. Whelpley and Mr. and Mrs. Wm. Mittelbach.
54. American Association of Pharmaceutical Chemists, at Hotel Somerset, Boston, June 1914.
55. A. Ph. A. at Glacier Lake at Denver meeting.
- a55. Snapshots at the Milwaukee meeting of the N. A. R. D.
56. Delegates to the Milwaukee meeting of the N. A. R. D.
57. The Phila. delegates to the N. A. R. D. meeting at Milwaukee.
58. Prof. W. H. Perkin and Dr. Carl Duisberg at the Eighth International Congress of Applied Chemistry.
59. Dr. Reid Hunt and Dr. J. J. Abel, Prof. of Pharmacology, Johns Hopkins University, Baltimore, at the E. I. C. of A. C.
60. Dr. Carl Duisberg, Dr. John H. Findley and Herman A. Metz at the E. I. C. of A. C.
61. Dr. Charles Baskerville, Dr. S. A. Tucker, Dr. A. S. Cushman and Dr. E. Coggeshell at the E. I. C. of A. C.
62. President Nichols and Sir William Ramsay on the Steamer Excursion at the convention of the E. I. C. of A. C.
63. Four U. S. Government chemists—Dr. W. D. Bigelow, A. Seidell, E. W. Boughton and F. C. Cook, at the convention of E. I. C. of A. C.
64. Three American chemists—Prof. J. P. Remington, Dr. S. P. Sadtler and Dr. W. E. Hillebrand at the convention of the E. I. C. of A. C.
65. U. S. Military Academy at West Point as seen from the steamer.
66. Portrait of Sir William Ramsay.
67. Newspaper print of Dr. R. Prescott, first dean of the School of Pharmacy of the University of Michigan, with history of the school.
68. Correspondence of the Council during 1913, contributed by J. H. Beal, Scio, Ohio.

I also beg leave to present the following items of interest :

Labels used by Professor Hallberg.

Circular sent to the pharmacists of Maine in connection with the A. Ph. A. meeting at Montreal.

Annual "Round-Up" issued by students of Baylor University. College of Pharmacy, Dallas, Texas.

Story of Philo Carpenter, Pioneer Druggist of Illinois.

Souvenirs of the Milwaukee meeting of the N. A. R. D.

Views of the University of Minnesota.

ATTAR OF ROSES FROM BULGARIA.

American purchases of attar of roses increased from \$580,783 in 1912 to \$791,370 in 1913. Much of this comes from Bulgaria. Consul General C. C. Campbell, Jr., of Bucharest, Roumania, sends a list of the principal Bulgarian exporters of attar of roses, which may be had from the Bureau of Foreign and Domestic Commerce, at Washington, or its branches. The list was prepared by A. C. Kermekhtchieff, American consular agent at Sofia, Bulgaria. In transmitting it he calls attention to the advantage which would accrue to the American importers of this article if an agency were established in Bulgaria to purchase the essence direct from the producers instead of from the exporters.

PHARMACEUTICAL HAPPENINGS A CENTURY AGO.*

OTTO RAUBENHEIMER, PHAR. D.

In accordance with my promise, as former Chairman of the Historical Section, the writer presents the following historical paper on Pharmaceutical History, which he trusts will prove of interest to all pharmacists.

The year 1814 practically ended the career of the Emperor Napoleon I, to whom pharmacy must be always grateful for the establishment of military and hospital pharmacists in his *Grande Armee*. Many, a great many, of the pharmacists, most celebrated in France, began their career as such, in the armies with which Napoleon waged his conflicts.

In this paper the author has divided the subject into three parts:

1. Pharmaceutical Happenings in 1814.
2. Men, especially pharmacists, born in 1814.
3. Those who died in 1814 and whose names should be remembered by pharmacists.

HAPPENINGS IN 1814.

WOLLASTON.

W. H. Wollaston the English physicist and chemist, regarded Dalton's *atoms* as "Equivalents" only.

FRAUNHOFER.

Joseph Fraunhofer, Ph. D., published his memorable work on the solar spectrum, in the Denkschrift of the Muenchener Academie, Band V. 1814-1815. He was the son of a glazier and was born March 6, 1785, at Straubing. He served as apprentice with Weichselburger, the celebrated mirror-maker of Munich. In 1806, he became optician in the mathematical institute of Reichenbach and, in 1809, he became a partner in the establishment. It was here that the work on the solar spectrum was done and that the fixed lines of the spectrum were first determined and were used to measure refraction. Fraunhofer died on June 7, 1826, at Munich.

SATTTLER.

In this year the German Chemist, Sattler discovered at Schweinfurt, Bavaria, the celebrated green mineral color named after that place. Chemically, it is a double salt of copper acetate and copper metarsenate, $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2 + 3\text{Cu}(\text{AsO}_2)_2$.

Besides its original name, *Schweinfurt Gruen*, it is also called *Kaiser*, *Wiener* or *Pariser Gruen*. It was used extensively as a color, but has since gone out of use, being very poisonous due to its arsenic content. The original process of manufacture was kept a factory-secret, until Liebig, and later Braconnot, published the formula and process of manufacture.

In 1814 Louis Nicolas Vauquelin, the celebrated French pharmacist accomplished the separation of the metals of the platinum group.

In the same year Gay-Lussac discovered Chloric Acid, HClO_3 , that great oxi-

* Read by title before the Historical Section at the Detroit meeting.

dizing agent. It is well to remember that Potassium Chlorate KClO_3 was previously discovered by Higgins in 1786.

BORN IN 1814.

FRÉMY.

Edmond Frémy (1814-1894) is a descendant of a family of celebrated French Apothecaries. His grandfather was a pharmacist in Auxerre, who died in 1804 and his father was the celebrated Edmond François Frémy, who together with Courtois, the discoverer of iodine, and Thenard, the discoverer of hydrogen peroxide, worked under the celebrated French pharmacist and chemist Fourcroy.

Edmond Frémy was noted for his investigations on Alpha and Meta Stannous Acid and also the Ferrates. He was the first to prepare Potassium Metantimoniate KSbO_3 or Kali Stibicum, also known under the name of Antimonium Diaphoreticum, prepared by fusing together Antimony and Potassium Nitrate. In 1854 he originated the method of Fluorination, and, in 1869, he first prepared pure anhydrous Hydrofluoric Acid.

Like his father he also became Professor of Chemistry in Paris.

MAYER.

Julius Robert Mayer was born November 25, 1814, in Heilbronn, Germany. In his "wanderlust," he made a voyage to Java on a Dutch ship. Later on he became city physician in his native town.

His numerous works on physics were published in Liebig's *Annalen* from 1842 to 1851, which also printed his celebrated "Dynamic of the Heaven" in 1848. His most important work, however, was on the "*Mechanical Equivalents of Heat*," published in the same journal in 1851. Julius Robert Mayer's greatest credit however, is in the establishment of the "Law of the Conservation of Energy," and his name will continue to live forever in the science of physics.

Like many other of the illustrious brain workers, Julius Robert Mayer died in an insane asylum in 1858.

SCHACHT.

George Frederick Schacht (1814-1896) was the descendant of a celebrated German family of apothecaries and became one of the best known and most intelligent German Apothecaries in England.

About 1840, he became the owner of a pharmacy in Bristol and later a member of the firm of Giles, Schacht & Co. He was elected Vice-President of the Pharmaceutical Society of Great Britain, and during 25 years served as a member of the Pharmaceutical Council. Schacht was very active in professional and scientific pharmacy and also in other literary work.

In 1858 he originated "Plasma," which he brought forth as a substitute for ointments, possessing emollient and demulcent properties without having the disadvantage of being greasy. He published this formula in the *Pharmaceutical Journal*, 1866, page 210, as follows:

Powdered starch . . . 70 grains.

Glycerin . . . 1 fluid ounce.

Heat to 240 degrees F. with constant stirring until union is affected.

This preparation was adopted into the British Pharmacopœia as *Glycerinum*

Amyli, into the U. S. P. as *Glyceritum Amyli* and into the German and other Pharmacopœias as *Unguentum Glycerini*.

About 1865 he originated *Liquor Bismuthi*, which was adopted by the British Pharmacopœia in 1867. It has frequently been stated that the official preparation differed from the proprietary article in taste and action, because it was not entirely free from Nitric Acid. In 1885 this solution was then prepared from Bismuth Citrate and Ammonia Water and was made official as *Liquor Bismuthi et Ammonii Citras*.

George Frederick Schacht died in 1896, and with his passing away England, as well as the entire pharmaceutical world, lost one of its most scientific men.

TRAPP.

Julius von Trapp, one of the most, if not the most, celebrated men in Russian pharmacy, was born in 1814 in Mariampol, Poland, as the son of an apothecary who immigrated from Prussia. He was educated at the German gymnasium in Tilsit, Prussia, where he entered Maurach's Apotheke and passed his examination as apprentice in 1836. He studied in St. Petersburg and passed his examination as "Provisor," in 1842. In the following year, he became assistant to the Professor of Pharmacy and Chemistry at the Imperial Academy. In 1848 he obtained the degree of *Magister Pharmaciæ* and passed his State Board Examination. He remained in the service of the government all his life, and was very highly honored, obtaining the following titles: *Hofrat*, in 1852, *Staatsrat and Excellence*, in 1863, and *Geheimrat*, in 1870.

It is said that the starting point of Trapp's political-pharmaceutical career, was the serving of a glass of water to a lady of nobility, on a railroad train, who through this incident became his patroness.

Between the years of 1858 and 1877, he was Professor of Pharmacy, Pharmaceutical Chemistry, Pharmacognosy and Toxicology at the Medical-Chirurgical Academy of St. Petersburg. He became President of the Pharmaceutical Association of St. Petersburg and was a State Board Examiner for a great many years. It was said that Dr. Trapp in the latter capacity was very fond of "trapping" the candidates.

The University of Königsberg bestowed upon him the Honorary Degree of Doctor, and about 30 scientific societies made him an honorary member.

February 12, 1893, marked the fiftieth anniversary of Trapp's career as an educator. This fiftieth jubilee was celebrated in a very elaborate manner and numerous presents were received from all parts of Russia as well as foreign countries. At the same time, Trapp received a beautiful diploma making him an honorary member of the Russian Academy.

Julius von Trapp was very active in a literary way. He wrote numerous papers and books which are standard works to-day, especially in Russian pharmacy. A great many of his works have also been translated into German. The following is a list of the most important: *Hospital Pharmacopœia*, 1860; *Pharmacopœia Militaris*, 1866; *Pharmacognosy*, 1858 and 1868; *Flotten-Pharmacopœia*, 1869; *Pharmacopœia of the Imperial Court Apotheke*, 1871; *Toxicology*, 1876; *Prescription Dispensing*, 1877 and 1880.

Besides this, he has been an active member on the Revision Committee of the Pharmacopœia Rossica of 1867, 1870, 1880 and 1891.

The name of Trapp will live forever in pharmacy of Russia, as well as throughout the entire world.

ANKUM.

Christian Hendrik van AnKum (1814-1888) was one of the most celebrated pharmacists in Holland. He was born October 16, 1814, in Dalfsen. In 1828, at the early age of 14 years, he entered the apotheke of Van Giffen in Steenwyk. Here he began his pharmaceutical career and learned the fundamental principles of applied chemistry, in which he later became a true master.

He studied at the University of Groningen, under the celebrated Professors Hall and Stratingh. In 1835, he passed the State Board Examination and became assistant in the laboratory of the University. It was here he accomplished his work on the Iodine content of Cod Liver Oil. He married in 1842 and became the owner of a pharmacy.

He was active in scientific pharmacy and was an honorary member of different pharmaceutical and scientific societies. He was also a member of the Revision Committee of the Pharmacopœia Nederlandica II and III. From 1865 until 1884, he was a member of the Board of Pharmacy in Groningen. AnKum was very modest and even went so far as to decline the chair as Professor of Chemistry at the University. In 1878 he celebrated his golden jubilee or his semi-centennial as pharmacist. On this occasion the King of Netherlands made him "Ritter of the Loewenorden." At the same time the pharmacists throughout Netherlands sent him a substantial silver present, which was delivered by a special delegation.

The name of AnKum together with Haaxman and Opwijrda will forever designate the *coryphees* of pharmacy in the Netherlands.

DIED IN 1814.

THOMPSON.

Sir Benjamin Thompson, Count Rumford, was born on March 26, 1753, at Rumford, N. H., which place has been re-named Concord. In 1772, he became a school teacher at Bradford, Mass., and then at Rumford, N. H. It is not to the credit of this American that he enlisted in the British army and fought against the Patriots. In 1783 he went to England and there was made a "Sir." In 1785, he went into the service of Karl Theodor, by whom he was made a Count. In 1798 he began his memorable work on "Heat by Mechanical Means," and in 1799 he returned to England. Rumford certainly had the "wanderlust" as in 1802 he went to Paris and, in 1805, married the widow of Lavoisier, that great chemist and founder of the new chemistry. In 1809, he became separated from Madame Lavoisier and then continued again his scientific work.

Count Rumford should also be known to pharmacists, because as early as 1813 he used a method resembling our present percolation for preparing coffee. This is fully described in his Eighteenth Essay in the Repertory of Arts for April and May, 1813.

Count Rumford deserves special credit for being the first to ascertain that liquids

can be boiled by means of steam. He was a very prolific writer and his works are published as "Essays, Political, Economical and Philosophical," in three volumes, London, 1796-1803. His works are also published in French and in German.

In 1796 he endowed the Royal Society of London and the American Academy of Arts and Sciences with a considerable sum for a prize medal for practical and utile inventions.

In 1810 he founded the London Royal Institution.

Sir Benjamin Thompson died August 21, 1814, at Auteuil near Paris. Rumford Hall, the lecture room in the Chemists' Club in New York City, is named after this scientist and is adorned with his bust.

A BRIEF HISTORY OF THE HOMŒOPATHIC PHARMACOPŒIA AND SOME COMMENTS THEREON.

FREDERICK T. GORDON, B. SC.

It will doubtless surprise many of our members to be told that the homœopathic school of medicine has a pharmacopœia which is just as carefully revised and edited, as is the United States Pharmacopœia under the direction of a permanent body, the American Institute of Homœopathy, an association corresponding to the American Medical Association, in its relation to physicians and surgeons of the homœopathic school.

I have had the opportunity lately of observing the homœopathic practice of pharmacy and its study has been so interesting and full of valuable information, that I am sure it will interest others and that a brief history of its origin and development will be appropriate for inclusion in the contributions to Historical Pharmacy from this Section. We know very little of homœopathic pharmacy, as practitioners of allopathic pharmacy, but such knowledge should be a part of our equipment: "*Pharmacistus sum et nil pharmacopœiae mihi alienum est*" should be our motto. I hope that some member will contribute a history of Eclectic Pharmacy at our next meeting, to round out our archives.

Most of us trained in the allopathic school look somewhat derisively upon the homœopathic materia medica, as nothing but little sugar pellets, or infinitely diluted tinctures or triturations of drugs, but this is a very mistaken idea; the homœopathic pharmacist must be acquainted with many drugs, their constitution and methods of preparing them for medicinal use and the proper form in which they should be prepared. The essence of homœopathic medication being simplicity, the administration of a single drug at one time, the homœopathic pharmacopœia does not contain mixtures such as are given in our pharmacopœia.

All preparations are made from a single drug as tinctures or triturations and then diluted or exhibited as powders, globules, etc., etc. In fact, the homœopathic pharmacopœia is more the materia medica of homœopathic practice than a pharmacopœia such as the U. S. P.; the drugs are described singly, directions are given as to the quantities to be used for making the mother tincture or first trituration

and the dilutions or attenuations to be made from these. General methods are described and directions are given for preparing each class, which apply to all the drugs included in the official list, so that the pharmacist is never in doubt as to the proper method of preparing remedies from crude drugs. This simplicity and the rigid rules laid down as to methods of preparing tinctures, triturations, etc., makes uniformity in strength and appearance possible, much more easily than does the manufacture of compound preparations containing several drugs. The only drawback to absolute uniformity is the lack of assay methods in the homœopathic pharmacopœia. Tests for many chemicals are given, but no assay methods for vegetable drugs, which constitute the larger part of homœopathic materia medica nor for inorganic salts. Serums are not mentioned, although used freely by homœopathic practitioners. Many animal products are official, also preparations derived from insects (*apis mell*), and snakes (*lachesis*).

If the digression will be pardoned, I would like to say that I am beginning to believe that Hahnemann was a prophet in his theories as to the principles of drug action, his theories, considered in the light of latter day scientific discoveries, are startlingly near to what modern science has partially proven. For instance the famous text, "*Simila similibus curantur*," (like cures like), is the basis of modern serum therapy. We give antitoxins prepared from the very germ that causes the disease. Is not that like curing like? Hahnemann's theory was that a drug that would cause certain effects in the healthy body, would counteract the same conditions if caused by disease. Where is the difference? Again, his theory of attenuation, is but the ionic theory of dissociation applied to drugs. Homœopathy does not teach that the more diluted a drug is, the stronger it is, as is believed by many, but it does claim that a drug is rendered more potent by minute sub-division than if administered in masses. This is the ionic theory, that the activity of a salt is proportionate to the dissociation of its molecules or atoms into electrons or ions, the homœopathic theory is, that the more minutely the particles of a drug are divided the more points of active contact, or absorption, it will have. This theory is the basis of homœopathic pharmacy,—division of the drug into the most effective number of minute particles, each of which is free to exert its action without being hampered by inclusion in a comparatively large mass with few free particles. Contrary to another erroneous belief, homœopathic pharmacists do not claim infinite divisibility of a drug, they recognize that it is impossible to subdivide a drug into particles of infinitesimal or molecular size and that each drug has a limit as to sub-division and size of particles in tincture or in trituration. It is not for me to express an opinion as to the truth or error of the two schools of medicine, these comments are made in hope of correcting misapprehension as to the practice of homœopathic pharmacy.

History.—The first publication that may be called a homœopathic pharmacopœia was Hahnemann's "*Fragmenta de viribus medicamentorum positivis sive in sano corpore humane observatis*," published in 1805. This was followed by his "*Materia Medica*" and "*Chronic Diseases*," published in parts, between the years 1811 and 1832. In 1832, was published his "*Archiv*" which contained much material from the preceding works. In all of these, directions were given for the preparation of remedies. The first homœopathic dispensatory was written by Caspari and published at Leipsic in 1825, German being the language used. A

revision of this work was published in 1828. The year 1829 was a period of great activity among homœopathic writers, the first distinctive homœopathic pharmacopœia being compiled and published by Hartmann, at Leipzig, in German, a revision of the Homœopathic Dispensatory by Caspari, (German) and homœopathic pharmacopœias prepared by Belluomini and La Raja, the two latter being printed in Italian. The first Latin pharmacopœia was published in 1834, being a translation of Caspari's revised dispensatory. The first pharmacopœia written in French was compiled by L. Noirot and Ph. Mouzin and was published in Paris and Dijon in 1835. The first homœopathic pharmacopœia written in English, was a translation by Dr. James Kitchen, of Philadelphia, from the *Nouvelle Pharmacopée et Posologie Homœopathique* (French) of Jahr, Paris, 1841, published in Philadelphia in 1842, pp. 306. Numerous revisions of older works and several new works were published in various languages between 1833 and 1842, German, French, Italian and English being the languages employed. Jahr's pharmacopœia was published as a Spanish translation, edited to date, in 1847 (Madrid) and as a French edition in 1853. In 1845, Gruner issued a very complete work on homœopathic pharmacy and materia medica (German) which served as a standard with the works of Jahr for several years. Later, 1850, Jahr and Gruner collaborated in the compilation of a new homœopathic pharmacopœia which was the most complete work of its kind at that date and which, translated into many languages, served as a text book for many years. The first American edition was a translation by Dr. Charles J. Hempel, published in New York in 1850, under the title, "New Homœopathic Pharmacopœia and Posology." This gave detailed instructions as to the preparation of homœopathic remedies and their dosage. From 1850 to 1865, numerous works on pharmacy were written and published and many revisions of the works of Caspari, Gruner and Jahr were issued by various collaborators. Most of these were written in French and German, Spanish being second, Latin third, Italian fourth, English fifth, as to languages employed. A complete bibliography of the works on homœopathic pharmacy and materia medica published between 1805 and 1865 may be found, by those wishing to go into further details, in the third edition of the *Homœopathic Pharmacopœia of the United States*, revised edition, 1914, and the mere recital of titles would be of little interest here.

Previous to 1870, all the various pharmacopœias and dispensaries were unofficial, that is they were the work of one or more men of high standing in homœopathic medicine, and they were accepted as text books and standards, because of the eminence of the authors and their collaborators, and of the editors of revisions of the original work. They might be compared, in a way, to our Dispensatories. The first homœopathic pharmacy to be issued officially, under the auspices and sanction of a recognized homœopathic association, was the *British Homœopathic Pharmacopœia*, published by the British Homœopathic Society, London in 1870, pages 336. This was revised and a second edition issued in 1876, many new drugs being added to its materia medica. The first American *Pharmacopœia* was published in the same year, 1876, by Duncan Brothers, Chicago, under the title, "The United States Homœopathic Pharmacopœia." This was an adaptation of the *British Pharmacopœia* and contained a section devoted

to pharmaceutical processes, and methods and directions as to the nature and strength of its preparations. The next important date is 1880, when a "*Pharmacopœia Homœopathica Polyglotta*" was compiled and published by Schwabe. This work was written in German in the original, and this text was translated into English, French, Italian, Spanish and Dutch, the entire work being issued in several volumes. This was a very ambitious work and chapters were added by each collaborator covering materia medica and pharmaceutical practice in the various countries in whose languages the volume was written.

Homœopathy, at first bitterly opposed in this country and in England, was confined chiefly up to 1860, to continental Europe but after that year it steadily increased in popularity in both countries and hence we find greater activity in the publication of works on homœopathic medicine and pharmacy. The third edition of the British Homœopathic Pharmacopœia was issued in 1882 and a "Companion" or dispensatory in the same year. The first edition of the American Homœopathic Pharmacopœia was published, also in 1882, by Boericke and Tafel, New York and Philadelphia, compiled and edited by Dr. Joseph T. O'Connor. Subsequent revisions were made and published in 1883, 1885 and 1890 and succeeding years. The last revision, the ninth, having been issued recently. The publication of this work caused some confusion and much controversy, in early years, as there were now two homœopathic pharmacopœias for the United States, differing to some extent in the materia medica included, and as to systems of dosage, dilutions, etc. As the pharmacopœia issued by the American Institute of Homœopathy had not been revised since its first appearance, 1876, naturally the later work was given preference by the majority of physicians and pharmacists of this school; and it continued to be the practical pharmacopœial authority until 1897, when the Homœopathic Institute issued a second revised edition of its original pharmacopœia. A dispensatory was published in 1884 by Dr. Theodore Williams, Chicago, under the title the "American Homœopathic Dispensatory," which was similar to our dispensaries in that it gave much medical information as to the materia medica as well as to its pharmacy. In 1897 the efforts of the American Institute of Homœopathy to compile and publish a pharmacopœia that would be the official standard for homœopathic practice and a text book in such schools was crowned with success and the "Pharmacopœia of the American Institute of Homœopathy" was completed and published. This book represented the work of years by a special committee appointed by the Institute, and was most complete both as to its chapters on pharmacy, pharmaceutical practice and materia medica. This was accepted as the official homœopathic pharmacopœia by most practitioners and colleges. France and Germany followed the example of the United States in issuing an official pharmacopœia sanctioned by the national association of homœopathic physicians and surgeons, the French Pharmacopœia being published in 1898 and the German in 1901. Both works represent the most advanced pharmaceutical practice of the two countries and were prepared much as our own pharmacopœia is, by committees of revision appointed by the associations representing homœopathic practice. The British Pharmacopœia has also been revised several times and has a similar official status.

This brings us up to the date of the last revision of the pharmacopœia in this country, the "Homœopathic Pharmacopœia of the United States," published as

the third revision of this work, in 1914, under the sanction of the American Institute of Homœopathy. Previous editions were published in 1897 and 1901 under the same title. The present work is divided into three sections: Part I—General Pharmacy; Part II—Materia Medica; Part III—Tables of Reference, Index, etc. It is a most comprehensive work on homœopathic pharmacy and compares very favorably with the United States Pharmacopœia in its particular field, its section on materia medica being especially well written and complete as to description, history and other data. This pharmacopœia is now recognized as occupying the same official standard for homœopathic practice as is the U. S. P. in its sphere, and is the official text book of homœopathic colleges where pharmacy is taught as part of the curriculum. Every homœopathic physician is supposed to know how to prepare his own remedies if necessary, hence a thorough course in its special pharmacy is a necessary part of his education. It is desired by many homœopathic physicians that this pharmacopœia be given the same legal standing as an official standard for drugs used in their practice as is given the U. S. P. and doubtless this will be done in the near future as at present there is no legal recognition of this work as presenting the standard requirements of drugs used by homœopaths.

The greatest obstacle to sanctioning the homœopathic pharmacopœia as a legal standard for homœopathic drugs is its lack of definite standards and assay methods. As the greater part of its materia medica is composed of vegetable drugs, for which no method of analysis or standardization has yet been worked out, the only test possible for these would be botanical identification, but definite assay methods for many potent drugs, such as aconite, belladonna, hyoscyamus, etc., are available and doubtless will be adopted in future revisions. There are no assay methods or rubrics of purity and strength for mineral or vegetable drugs, the tests given being chiefly identity-tests and for the detection of the usual impurities. The strength of liquid and solid preparations is, however, rigidly stated and each drug is treated separately in prescribing the menstruum for extraction, the quantity of fresh or dried drug to be used for tinctures or triturations and the dilutions or attenuations given. One feature is worthy of inclusion in allopathic practice, that of basing the quantity of menstruum used, for the extraction of plant principles, upon the amount of water contained in the green or dried drug. When the plant is used in the fresh state, a portion is taken, carefully weighed, dried and the amount of plant moisture estimated by the loss in weight. This plant moisture, is considered as part of the menstruum and allowances are made accordingly. For example, the mother tincture of aconite is made by the following formula: Aconitum, moist magma containing solids 100 gm., plant moisture 350 cc.; strong alcohol (95%) 683 cc.: to make 1000 cc. of mother tincture. Dilutions: 2 X to contain 1 part of tincture, 2 parts distilled water and 7 parts alcohol; 3 X to be made with one part of 2 X dilution and nine parts of dispensing alcohol (88% alcohol by volume). Triturations are made with milk sugar solely, although cane sugar globules are used for making dry pellets from liquid preparations. These are prepared by adding the required quantity of tincture to a given number of globules to saturation, then evaporating the excess of menstruum by drying.

Homœopathic pharmacy recognizes but four menstua for use in preparing

crude drugs for administration, these are alcohol, glycerin and water for fluid preparations and sugar of milk for triturations. The fluid menstrua differ in the proportions of alcohol, water and glycerin used, combinations best adapted to exhaust the plant-drugs being carefully worked out and specified for each drug. Milk sugar is used for making triturations and attenuations from both solids and tinctures because of its hardness and inertness, the gritty crystals of milk sugar aiding materially in breaking up the drug into minute particles. It is surprising to what minuteness such refractory substances as silica and the metals, can be subdivided by repeated dilutions and trituration with milk sugar; the particles are almost microscopic. A good magnifying glass is part of the equipment of the homœopathic pharmacist, for he must subject his triturations to scrutiny with a magnifying lens to determine if he has reduced the drug to the requisite fineness.

While not mentioned in the homœopathic pharmacopœia, except as addenda, homœopathic pharmacy also includes the preparation of ointments, cerates and plasters, tablet triturations, globules and pellets of medicated cane sugar, antiseptic solutions, etc. The cerate is the most popular form of external medication; these are made by adding 1 part of the mother tincture of the drug to 9 parts of cerate and heating at a low temperature until the menstruum has been evaporated, then final thorough incorporation of the drug extract. Plasters are similar to those used by allopathic physicians, except that they are made in definite strength according to the usual decimal system. Lead plaster and rubber plaster are chiefly used as bases. Nowadays the homœopathic physician makes use of many drugs not mentioned in the homœopathic pharmacopœia, such as ether and chloroform for surgical anesthesia, ethyl chloride for local anesthesia, etc., etc. Indeed it seems that the two schools are coming into closer agreement every year as to the materia medica used to combat disease, the chief difference being their preparation and methods of administration.

Nomenclature—Weights and Measures.—The nomenclature of the homœopathic pharmacopœia, is different from that of the U. S. Pharmacopœia in many respects. Plant drugs are given the botanical title in Latin, with sub-headings giving the natural order, part used, common name and usually the name in French, German and Italian or Spanish. The plant is fully described, its habitat given, its history and the date and author of its "proving" as suitable for use as a homœopathic remedy. Mineral drugs are described, tests are given as to identity and purity and their physical properties are briefly noted. No directions are given as to the manufacture of any chemical salt or for preparation of the elements employed in a pure form. It is in the nomenclature of metallic salts that the greatest difference between the H. P. and the U. S. P. is noted, the H. P. following closely the old German nomenclature in Latin terms. For example, copper sulphate is *Cuprum Sulphuricum*, copper carbonate is *Cuprum Carbonicum*, calcium chloride is *Calcarea Muriatica*, calcium oxalate is *Calcarea Oxalica*, ferric chloride is *Fer-rum Muriaticum*, mercury nitrate is *Mercurius Nitricus* and calomel is *Mercurius Dulcis*. This system of nomenclature seems unsystematic to us, as there are several different terminations used for metals, as shown above, there is no use of the genitive in the Latin titles, all being in the nominative. The nomenclature does not distinguish by termination or formation between alkaloids, glucosides or

other organic salts. Morphine is *Morphinum*, santonin is *Santoninum*, naphthalin is *Naphthalinum*, etc. Acids all have the same termination, as *Acidum Aceticum*, *Acidum Muriaticum*, *Acid Phosphoricum*, etc. Most of the metals and metallic salts are given the usual chemical names but the old Germanicized titles as *Kalium*, *Natrum*, *Calcareum*, etc., are used for potassium, sodium and calcium, *Plumbum* for lead, etc. The definitive has always the same declension terminative as the subject, as *Calcareum Bromatum*, *Ferrum Iodidum*, *Mercurius Nitricus*, etc. Few alkaloidal salts are mentioned, preference being given to the plant itself.

As the homœopathic system of dilutions is based on the decimal system, naturally the metric system of weights and measures was adopted in the later revisions of its pharmacopœias and text books. Formerly the old style apothecary's system of weights and measures was used, most of Hahnemann's original works and those immediately following, using it in connection with the centesimal system of dilution. For instance it was directed that a 1 C. dilution of a mother tincture be made by adding 1 drop of tincture to 99 drops of menstruum, triturations were to be made similarly with milk sugar. The adoption of decimal dilutions as the standard, makes it easy in fact to use any system of weights and measures. Numerous tables are given in the Homœopathic Pharmacopœia for converting weights and measures from one system to another, also tables of alcoholic strength, specific gravities, etc., etc.

There is still some confusion as to dilutions and attenuations, because of the two systems of dilution used, the old style, that of Hahnemann, being centesimal dilution and the modern style introduced by Dr. Constantine Hering, of Philadelphia, being decimal dilution. In the centesimal system one part of the mother tincture or first trituration is diluted with ninety-nine parts of alcohol or sugar of milk, to form the first dilution (1 C.), the second dilution (2 C.) is made by adding 1 part of the first dilution to 99 parts of the menstruum, and so on. The highest dilution commonly used under this system is 3 C., which represents 1 part of drug in 1,000,000. It was early seen that the jump from one to a hundred was too great, both as lacking a dilution of intermediate potency and because of inaccuracy due to manipulation. The decimal system of dilution was therefore generally adopted and is now the one official in the homœopathic pharmacopœia and in prescription writing. This system is distinguished by the letter x prefixed by a number denoting the dilution, thus 1 X means a tincture or trituration containing 1 part of drug in 10 parts of menstruum called the mother tincture or first trituration, 2 X, 1 part in 100, 3 X, 1 part in 1000 and so on. These preparations are made by taking 1 part of the higher dilution, as 2 X, and attenuating it by addition of 9 parts of menstruum, so that each succeeding dilution is one tenth the strength of the preceding one in the scale. Dilutions and attenuations are invariably progressive, that is each succeeding dilution must be made from the next preceding dilution. For example a 3 X dilution must not be made by mixing 1 part of drug with 999 parts of menstruum, it must be made progressively, first the 1 X, or mother tincture, is taken and diluted to 2 X, 1 part in 100, and then 1 part of the 2 X is taken and diluted to 3 X, 1 part in 1000. The object of this successive dilution is to insure the greatest possible sub-division of

the drug, triturations made by this method, especially, showing very minute division. 6 X, 1 part of drug in 1,000,000 parts, is the highest in the decimal scale; it corresponds with the 3 C dilution of the Hahnemann scale. Hahnemann at first used even higher dilutions but such dilutions are seldom used and only for very potent drugs, 2 X and 3 X being the dilutions usually prescribed. The medicated sugar globules of the homœopathic physicians are made of the desired dilution by saturating them with a tincture of the desired strength and carefully drying them. These globules are made of standard weights so that a definite amount of tincture or dilution will be absorbed. Tablet triturations are made directly from the attenuated triturations. Of late years certain combinations of drugs in tablet or triturate form have become popular with physicians and patients of the homœopathic school, although not in strict accord with its teachings. Most of these are simple cathartics, laxatives and tonics and are made from homœopathic tinctures or triturations. (Hypodermic tablets are also used.) The use of the Eclectic concentrated plant principles, such as hydrastin, irisin, podophyllin, etc., is also becoming popular with many physicians as they are highly concentrated plant extracts and well adapted to dilution by trituration. Pills, such as we are accustomed to, are seldom or never employed by the strict homœopathist, although some of the younger men occasionally use them.

In concluding this very incomplete reference to homœopathic pharmacy, there is one of its cardinal doctrines that I would like to emphasize as an admirable one for every pharmacist to adopt, that is the doctrine of absolute cleanliness. The basis of homœopathy being the administration of a single drug in as pure a state as possible, great emphasis is given to the importance of cleanliness of utensils, apparatus and materials. Hahnemann, indeed, laid down the rule, that a separate mortar and pestle be provided for each drug and used for that drug only, the same as to percolators, dilution flasks, etc. As it is practically impossible to provide separate apparatus for all the drugs now official, because of expense and inconvenience, it is customary to have a set of apparatus for a group of drugs that resemble each other in general therapeutic properties, even this, requiring an equipment that would daze the average druggist. Great stress is laid on the cleaning of mortars and pestles and general directions are given for their care, use and cleaning. It is easily seen that the slightest adherence of one drug to the sides of a mortar, would affect the properties of a very dilute attenuation of another drug. The mortars and pestles are further directed to be made of the hardest and most impervious ware, glass apparatus and containers to be made of hard glass containing the minimum of water-soluble constituents. All drugs, fresh or dried, are ordered to be kept in air-tight, dust-proof containers, separated by a small space to prevent accidental contamination, and stored in a cool, dark place. Vegetable drugs must be frequently renewed. Macerating-jars, much used for making mother tinctures, are ordered to be made of hard glass or glazed porcelain. Tincture-presses, etc., must be lined with pure block-tin, if of metal, glazed earthenware is recommended for many drugs. Special attention is given to corks, it being recognized that their porosity is a serious disadvantage, so new corks, thoroughly cleansed by boiling in distilled water, are directed to be used for every container or in preparing dilutions.

If simplicity in medication is the gospel of homœopathy, cleanliness in all things

may be called its commandments. It is indeed a pleasing sight that greets one when visiting the laboratory of the homœopathic pharmacist, it is so clean and orderly. Comparisons are odious, so I will not compare it with the average drug store apology, for laboratory and apparatus, either as to completeness of outfit or general order and cleanliness. There are very few homœopathic pharmacists, however, outside the large cities and hospitals, the bulk of the medicines used, either being prepared by the physician himself, or are manufactured on a large scale by firms making a specialty of homœopathic materia medica. As with us the large manufacturer has come to stay and the majority of physicians purchase their supplies from one firm or another. Probably this is for the best as it makes possible the manufacture and standardization of drugs of high quality, at less cost and labor, than could be done by the individual pharmacist himself. There are many more interesting topics that I might add to this paper, but I have tried to include those of general interest, and hope that I have succeeded in giving a fair idea of homœopathic pharmacy to my associates of the other school. I might add that I hope some member will contribute a historical paper of similar nature to this on eclectic pharmacy at our next annual meeting.

CAMPHOR PRODUCTION IN INDIA.

The Indian Trade Journal states that the camphor tree (*Cinnamomum camphora*), so well known in Japan, Formosa, and China, has been successfully planted in Burma, Ceylon, and the Federated Malay States.

In Burma there are plantations in the upper Chindwin, Myitkyina, Bhamo, and southern Shan States. In the Peninsula of India there are experimental plantations in the Nilgiri Hills and in certain isolated patches of Bombay and Madras. In Ceylon, which lies south of the latitude of its habitat, the tree grows only in the more elevated parts; there is a plantation at Hakgala. Great difficulty has always been experienced in getting good seed imported direct from Japan, and there is often wholesale failure to germinate. Seeds can be obtained from the Yokohama Nursery Co., but the seeds sown for the Burma plantations were obtained from Hongkong. In Ceylon it has been found economical to grow the trees in hedges about 6 to 9 feet high, running in the direction of the prevailing winds. As soon as the plants have reached a fair size and formed woody stems they can be clipped—in three years' time in suitable situations. The simplest method is to use hedge shears. Only the leaves and twigs are required, as the use of the wood and roots only leads to wanton destruction of the plants.—Consul Henry D. Baker, Bombay.

Contributed and Selected

DREAMING AND DOING.

JOSEPH W. ENGLAND, PH. G.

Professor Charles H. Rogers, Dean of the Department of Pharmacy of the West Virginia University, of Morgantown, W. Va., has very kindly asked me to send you a word of greeting to be read at the organization-meeting of your branch on November 19th inst., and I do so with pleasure.

I have no special message "to send to Garcia"—only a few cursory thoughts—but I do want to congratulate you upon the splendid forward step you are taking in forming your branch, and I do want to wish you God-speed in your future work. You are building wiser than you know!

The older I grow the prouder I become of my membership in the American Pharmaceutical Association, because this organization stands for the highest ideals of American Pharmacy, and because membership in it is a privilege and an inspiration.

Its objects are to advance the science and art of pharmacy and to improve the conditions of pharmaceutical practice—by stimulating original research work, by diffusing scientific knowledge, by fostering sound education, by promoting rational and well-balanced legislation—and we badly need it, both national and state—by teaching the history of Pharmacy and tilling the soil for the making of future history, and in a hundred different ways striving to better American Pharmacy and help American pharmacists.

The American Pharmaceutical Association represents, in its membership, not only the rank and file of pharmacists, but also, the captains of industry, the teachers of pharmacy, chemistry, botany, materia medica and related subjects, the editors, publishers and writers of pharmaceutical literature, the food and drug officials, the chemists, biologists and bacteriologists. The comprehensive character of the American Pharmaceutical Association is shown by the fact that, at the recent annual meeting, one hundred different organizations in pharmacy and related interests were represented by delegates to the House of Delegates of the Association.

The American Pharmaceutical Association was born in 1852 of a dream or ideal, but a dream backed by action. Sixty-two years ago, there were no legal standards for the identity, purity and strength of drugs, adulteration, substitution and misbranding were exceedingly common, the examinations of imported drugs at ports of entry were most superficial—in fact the first Federal Drug and Medicines Act to control the quality of imported drugs had been enacted but

Address to the members of the West Virginia Branch of the American Pharmaceutical Association, November 19, 1914.

four years before—and such a thing as the regulation of the use of habit-forming drugs was not thought of.

But a few far-sighted men in American Pharmacy dreamed dreams—had visions of what American Pharmacy should be and should stand for, and they founded the American Pharmaceutical Association, decided on the principles of action that should govern their professional and business conduct, and then they toiled and toiled and toiled in the upbuilding of the structure of their organization, and their *work*, and that of their successors, led by those master-minds of American Pharmacy—Procter, Parrish, Maisch, Squibb, Prescott, Curtman, Ebert, Hallberg, Oldberg, Searby, and many others—some of the old “war horses” are still with us, and long may they live—made for the wonderful progress in the science and art of pharmacy that has taken place during the past sixty-two years. The history of the work of the American Pharmaceutical Association, as exemplified by its publications, is the history of American Pharmacy! These fathers of our calling have left us a priceless heritage of deeds well done, which we will do well to emulate. They dreamed dreams, but they actualized their dreams into deeds; and it is up to us to carry on the work of dreaming and doing so well begun.

In an address at Freemason’s Hall, London, over half a century ago, Charles Dickens said:—

“The most delightful paper, the most charming essay, which the tender imagination of Charles Lamb conceived, represents him as sitting by his fireside on a winter night telling stories to his own dear children, and delighting in their society, until he suddenly comes to his old, solitary bachelor self, and finds that they were but *dream-children*, who might have been, but never were. ‘We are nothing,’ they say to him, ‘less than nothing, and dreams. We are only what might have been, and we must wait on the tedious shore of Lethe, millions of years, before we have existence and a name.’ And immediately awakening, he says, ‘I found myself in my armchair.’ The dream-children whom I would not raise, if I could, before every one of you, according to your various circumstance, should be the dear child you love, the dearer child you have lost, the child you might have had, the child you certainly have been.”

And so it is with the dream-children of our brains in our work for Pharmacy. We dream, we idealize, perchance we act, and the act brings forth fruit, but how often, oh! how often, we lack decision, we fail to act when dream-opportunity knocks at our door—and our dream children die. For to dream only is to die, so far as results are concerned, but to dream and to do, is to live and grow and develop all the latent possibilities within us.

We love Pharmacy and our daily work. We see every now and then something that could be improved, changes that would be helpful and make for genuine progress. We know that if the children of *our* brains were developed, they would grow into lusty fledglings and then into sturdy manhood and would do a whole world of good. But we falter. We hesitate. We demur about training our dream-children. It means work. It means new duties and responsibilities. We don’t want to wear the yoke of service. We know it means self-sacrifice. And so we remain mute, inglorious and lazy. We “job along” in

the same old way, in the direction of least resistance or rather in the direction of least endeavor, and we let "George do it." And George does it and he don't do it right. We *know* he don't. His work is all full of flaws. We see a dozen different places where we could have done it—oh! so much better and more effectively. But we didn't and we don't. We fear to plunge into the seething maelstrom of work and self-sacrifice. We are afraid that we may be criticized. We are afraid that we may not be appreciated. *We are afraid to do a man's work for the sake of men and not for the sake of self!* And so we drift, and drift, and drift, just like Charles Lamb did in his dreams, until we awaken from our dreams to find that the shadows of life are deepening and the evening of eternity is drawing near, and then we realize how little we have done despite the insistent calls of our dream-children, during the years that have passed and gone; how little we are doing for ourselves and our fellowmen!

Just a word more and my preachment will be done. Be strong and loyal members of the grand old American Pharmaceutical Association. Do all in your power to advance the objects it stands for. Develop yourself and your latent possibilities. There is more in you than you give yourselves credit for. Don't be afraid of work for the benefit of the other fellow. It will benefit you in the end, as much so or more, than it will him. Dream, dream, dream all you can of what you can do to help yourself and your fellow pharmacists, but be sure—very sure—that your dreams are not idle figments of the imagination, but real pictures, beautiful pictures, *and* that they are backed by action! action! action!

Paraphrasing Froude, it can be said that "the dreams that men use are the only real dreams, the only ones that have life and growth and convert themselves in practical power. All the rest hang like dust about the brain or dry like rain-drops off the stones."

COLLEGE EXAMINATIONS—A DEFENSE.

PROF. ZADA M. COOPER.

Examinations have been called a "useless antiquity" but, however antiquated they may be, there seems to be no modern substitute that at all accomplishes the desired result. However, among the arguments presented are some that are not without merit and deserve some consideration in any discussion of the question.

It is said that, if they are given to compel review, they are quite unnecessary, that it is possible to review without the test at the end. In theory, that may be true but it has little basis in fact. Experience has shown that such review will be half-hearted with some students. Other individuals will not even do their regular work consistently, to say nothing of review work, unless the fear or dread of an examination hangs over them. Nothing less will induce them to work. There is a possibility here, which has probably been tried more or less successfully by every teacher. It is to set a certain standard, the attainment of which, will excuse from the examination; requiring students to do the review work, not knowing that they shall not be obliged to take the examination, until

the hour for the examination arrives. The method offers considerable inducement, putting a premium on effort and, though it cannot be applied in all cases, for some courses, it brings excellent results.

We are told that examinations do not, as is claimed for them, teach self-control, and we must admit the truth of that statement in some isolated cases. The unreasoning dread of the test, may cause nervous excitable individuals to lose the little hold that they have upon themselves, and consequently come far short of doing their best. It is impossible to get any statistics bearing upon this point, but observation of many classes, leads to the conclusion that it more often cultivates self-control than lack of it. Though not an unmixed good, the good outweighs the bad.

We shall have to grant that drill in expressing themselves well in a limited time, could be better accomplished in some other way, that is, we must grant it, as an abstract fact, but, is it true in a College of Pharmacy? But for written examinations, would they have any such practice at all? English composition can find no place in the *curriculum* of a College of Pharmacy. However much we may theorize about the advantage to be derived from instruction of that sort, and the necessity for every pharmacist to know how to express himself well, we know no such work can have a place on the schedule. Nor is it the duty of any instructor in a College of Pharmacy to teach the use of the English language, but if examinations were to be eliminated entirely, actual practice would be reduced to a minimum. They give exercise to faculties otherwise somewhat dormant during college years. "Theoretically, when the undergraduate has assembled his thoughts, he is ready and competent to write them, but, practically, he is neither entirely ready nor usually entirely competent." It is not enough to think well, we all need practice in expressing our thoughts. Good authorities believe that an individual "must be able to say what he knows and *write* what he knows or he does not know it." Consider again written examinations. A man will learn, to some extent at least, to say what he knows, in clean clear-cut sentences, without superfluous language. This will be true especially, if the instructor urges the necessity of writing briefly but to the point, leaving nothing to be taken for granted and if he gives little credit for rambling, meaningless generalizations, in lieu of real knowledge of the subject. "The student must express his intellectual gains even as he absorbs them, or the crystallization of knowledge into personal thought will be checked in the beginning."

Probably the objection to examinations which is really of greatest force, is, that it is a poor way to determine what a student knows; that his actual standing is better determined in some other way. It is quite probable that if this were the only reason for giving examinations, there would be almost none. Few teachers make an examination, the only test of a man's knowledge of the subject; there are so many factors to be considered. If there were no other way to decide that question than an instructor's personal estimate, decided from daily work, the judgment of any conscientious teacher would come nearer the truth, but estimating a student's knowledge is a minor point, when considering the advisability of giving examinations.

Another objection that cannot be ignored, is that examinations give rise to a wrong spirit. We find in every class a small number who work for marks alone,

forgetting that mastery of the subject should be their aim. Not only is the real purpose forgotten, but all pleasure in the actual work is destroyed. Examinations are responsible for "cramming" in its worst form, a practice which may give some temporary knowledge but no power. Then, too, they give opportunity for cheating, a despicable habit which demoralizes the individual who resorts to it and the sight of which dishonesty, breeds disgust and contempt and discouragement in the hearts of honest individuals. An instructor may overcome, to some extent these bad effects, by emphasizing the fact that marks do not depend alone upon examinations and by bringing swift punishment upon the offender, when detected.

In this twentieth century, more and more emphasis is laid upon deeds. Men and women are judged by deeds; their efficiency by what they can do in their own particular line. Nowhere, perhaps, is this more true than in Pharmacy. A druggist judges his clerk by his ability to fill prescriptions, to sell goods, to get on with people. Are we not all saying, "What can he do? Can he deliver the goods?" Even in college, we put much stress on laboratory work and upon actual dispensing ability; we give courses in salesmanship; we are constantly teaching students to *do*; emphasizing the ability to *do* and telling them that their success, their very bread and butter depends on what they can *do*. This is all quite proper. Not for a moment, should we belittle this side of the question. On the other hand, are we not getting a one-sided estimate, when we judge men and women *only* by what they can do? Judging only by deeds, is not enough, because there are instances in life where that sort of test cannot be made or where it is inadequate. Take, for instance, the student fresh from college. He may not be able to do everything required of him and yet be potentially powerful. It may be in him to do the very best things, but some other test is needed. Among other elements of judgment what he says verbally, or in writing, must be considered. During his college career, recitations help to train him to speak, as does work in a literary society; examinations play their part in the training to write.

It is only too true that the tongue is used to deceive, and that language is perverted to create all sorts of false impressions, but, still, language is an important medium of expression and an "index of character and ideals." To a certain extent, the use of good language is a matter of gift, but it is also a talent that admits of cultivation. Every man whether gifted or not, ought to be able to talk and write intelligently about his own work. The idea is not that men are expected to produce literature, but that they should be able to tell what they know, to put in concrete form their own ideas, so that others can understand them. Some one has said that "speech and writing, if you get them in fair samples, indicate the extent and the value of a college education better than a degree." The way an individual talks and writes, is, in some measure, an indication of his learning and general fitness, as well as his native capacity.

Graduates, probably, often leave college with a sense of relief in the thought that examinations are over, but they are mistaken. They are only leaving behind one sort, to encounter another sort. In school, examination-questions have asked what they know. Life asks, not only what we know but what we can do

and what we are. "Life accepts no excuses," and this examination never ends but is renewed each day. The student does not always realize that scholarship is not an end in itself, but a means to an end, and that end, is life in its broadest sense, ability for service in his chosen calling and ability to enjoy every minute of that service. If our lives measure up to such standards we are passing life's examinations, perhaps, not as well as we wish we might, for our ideals are always above and beyond our realization, but creditably, nevertheless.

REVIEW OF CURRENT PHARMACEUTICAL LITERATURE.

FRANKLIN M. APPLE, PHAR. D.

PHARMACEUTICAL ERA.

An explanation of the Narcotic Law of New York City is made by Commissioner Goldwater, on pp. 459 and 460.

"*A Colorless Ointment of Iodid of Potassium*" (p. 463) is an interesting and valuable article.

"*The origin and practices of old-time Pharmacy*" are the subject of an interesting paper by Mrs. H. Ray Kenaston, on pp. 614 *et seq.*

"*The Manufacture of Biological Products*," on pp. 453 and 454 is the title of an article, to be continued, by Dr. F. E. Stewart.

"*A Corrosive Sublimate Antidote*," on pp. 455 and 456, demonstrates the workings of a close-reasoning, ingenious mind and should lead to practical results.

"*Colloidal Sulphur*" is described on p. 463.

"*Glycerine, as a Sterilizing Bath*," is on p. 464.

"*Proprietaries in Great Britain*," (p. 457) is an interesting and timely article and contains the conclusions and recommendations of a Committee which considered the subject of these preparations.

DRUGGISTS CIRCULAR.

"*The Validity of Druggists Trade-Marks*," (pp. 605 *et seq.*) discusses a "live topic."

"*Making Finger Prints Visible*," (p. 619) is an interesting article on the subject of identifying criminals.

"*Camphor and its Preparations*," are entertainingly treated by Prof. Leon Lascoff, (pp. 613-614.)

A formula for a Liquid Disinfectant for the disinfection of rooms, is given on p. 622, and the use of Coumarin and Balsam Peru is suggested on p. 623, to cover the odor of tar.

"*Petroleum Confections*," are the subject of a paper on p. 629.

"*Digitalis and its Pharmacology*," a paper by Dr. R. A. Hatcher, concludes in this issue, (pp. 607-610.)

Salicyl-Chlorid is suggested as a possible substitute for Aspirin. (p. 618.)

The use of *Lactic Acid Ferments* as remedial agents, is discussed on p. 620.

A method for testing *Papain* is given on p. 620.

A note on the "*Detection of Lead in Bismuth*," appears on p. 621.

"*Honesty in Advertising*," is commented upon, on p. 629.

A good window-display is described under the title "*A Clever Corn Window*," on p. 645.

"*A New Medical Game*," describes the despicable methods of a Brooklyn Physician in building his practise, which methods were seriously detrimental to the pharmacists of his locality, (p. 628).

The dangers besetting the careless use of *Sulfonal*, are set forth on p. 621.

The possibility of poisoning by *Pineapples*, (p. 621).

"*Blindness following the use of Atoxyl*," (p. 621) is interesting, as this drug has not been generally suspected of any such unfavorable effects.

An able summary of the labors of the National Association of Boards of Pharmacopœia appears on p. 602.

Material of much interest to graduates of the P. C. P. is printed on pp. 509-601, which appeals for careful reading and deep thought.

PRACTICAL DRUGGIST.

"The Chemistry of the Radio-Elements," by Harry F. Keller, (pp. 452-453) is informative and timely.

"How to Treat the Man on the Other Side of the Counter," by E. St. Elmo Lewis, on p. 452, is worthy of careful perusal.

The Sale of Insecticides and Fungicides by Druggists, (pp. 434 *et seq.*) points out the trade-value of intimate knowledge of these substances.

THE APOTHECARY.

"Starting in Business and Making Good," by W. S. Denton, on p. 26, contains most admirable advice.

OUR NEW OFFICERS.

WILLIAM CHARLES ALPERS, Sc. D.

THE PRESIDENT ELECT.

William Charles Alpers, Sc. D., the President-elect of the Association, was born at Hanover, Germany, July 7th, 1851. He attended the High School (Gymnasium) in Hanover, then the School of Technology, and later the University of Gottingen where he took courses in Natural Sciences and Mathematics. His studies were interrupted in 1870 by the Franco-German War, in which he took part. After the war, he came to America and was engaged in teaching for nearly ten years in the St. Matthew's Academy, New York. He entered the New York College of Pharmacy and later took a post-graduate course in chemistry at the University of New York, receiving the degree of Sc. D. in Chemistry. In 1881, he opened a pharmacy in Bayonne, N. J., where he remained until 1898.

After leaving Bayonne, N. J., Dr. Alpers was, for a number of years, manager of The Merck Pharmacy, New York, and afterwards conducted The Alpers Pharmacy on Broadway and 31st Streets. He withdrew from active business in 1905.

He became a member of the New Jersey State Pharmaceutical Society, and was elected its President in 1896. He was a member of the State Board of Pharmacy from 1893 to 1898. In 1890 he was elected a member of the American Pharmaceutical Association, and was Chairman of the Scientific Section in 1896, Chairman of Section on Pharmacy and Dispensing in 1906, and Chairman of the Historical Section in 1913. In 1903 was elected First Vice-President.

He is a member of the Executive Committee of the Revision of the Pharmacopœia and is Chairman of the Sub-Committee on Syrups and Elixirs. Was trustee of the New York College of Pharmacy for three terms until his removal to Cleveland.

He has contributed for many years to Pharmaceutical and Chemical literature and is now editor of the *Apotheker-Zeitung*, New York. He is the author of many pamphlets and of two books, *"The Medicinal Plants of Staten Island,"* and *"The Pharmacists at Work."* (Lippincott, 1896.)

Among Dr. Alpers most notable contributions to pharmaceutical literature is



CHAS. H. LAWALL
1st V. P. Elect



LINWOOD A. BROWN
3d V. P. Elect



F. A. RUDDIMANN
2d V. P. Elect



DR. W. C. ALPERS
President-elect



H. V. ARNY
Council



F. M. APPLE
Council



CASWELL A. MAYO
Council

THE OFFICERS ELECTED AT THE RECENT ELECTION OF THE ASSOCIATION.

his History of the American Pharmaceutical Association, the first decade of which was published in the Journal of 1912, and of which the first portion of the second decade appears in this issue.

He was appointed Professor of Pharmacy and Dean of The Cleveland School of Pharmacy in 1914.

Dr. Alpers has been married twice, first to Miss Bertha Guden, by whom he had six children. His oldest son, William H., is a pharmacist in Los Angeles, Cal., and his youngest son, Otto, is a pharmacist in City Island, N. Y. Both attended the New York College of Pharmacy. In 1913 Dr. Alpers espoused the present Madam Alpers, *nee* Miss Mathilda VanDamm.



CHARLES H. LAWALL, PH. M.

Professor Lawall was born in Allentown, Pa., in 1871, his father being a druggist of that city. He was educated in the public schools, and in the State Normal School of Bloomsburg, Penn., to which city his family had removed when Charles was five years old. At the age of seventeen he entered the employ of Moyer Brothers, of Bloomsburg, with whom he remained for a period of about four years, leaving them to go to Philadelphia, to enter the College of Pharmacy of that city. He graduated from that institution in 1893, and in 1901 he was appointed Instructor in the Theory and Practice of Pharmacy in his Alma Mater, and Associate Professor of the same department in 1905. From 1891 to 1904 he was in the employ of Smith Kline and French Co., being engaged principally in their manufacturing and analytical departments. In 1903 he became associated with Dr. Henry Leffmann, a prominent chemist of Philadelphia, and, a few years later, he succeeded to the business, which he has conducted ever since. In August, 1904, he was appointed Chemist to the Dairy and Food Department of Pennsylvania and for several years he was Food Inspection Chemist for the National Government at the Port of Philadelphia. In 1909, he was appointed Lecturer in Applied Organic Chemistry in the Wagner Free Institute of Science.

At the Pharmacopœial Convention of 1910 he was elected a member of the Revision Committee and is Chairman of the sub-committee on Inorganic Chemicals.

He is a voluminous contributor to pharmaceutical literature and has published one book on Chemistry, in connection with Dr. Leffmann.

He was married in 1907 and his spouse, who was educated as a pharmacist, acts as his secretary in his work.

His summer-home is at Longport, N. J., where he enjoys fishing and manual labor, in which he finds rest from his mental pursuits.



EDSEL ALEXANDER RUDDIMAN, M. D., PH. M.

Professor Ruddiman was born at Dearborn, Michigan, December 27, 1864. He is a graduate of the Detroit High School, and received the degree of Pharmaceutical Chemist from the University of Michigan, and that of Ph. M. in 1887 from that institution. He graduated from the Vanderbilt University of Nashville, Tennessee, in 1893, with the degree of M. D.

He was appointed chemist of the Tennessee Board of Pharmacy in 1897 and Food and Drug Chemist of the state in 1907. He is Professor of Pharmacy and Materia Medica in Vanderbilt University. He is the author of "Incompatibilities in Prescriptions," "Whys in Pharmacy," and also of a "Manual of Materia Medica."

He married Miss Jennie Evelyn Perry, of Detroit, Michigan.



LINWOOD A. BROWN, PH. C.

Professor Brown was born September 21, 1881, in Hancock County, Kentucky, and received his early education in the public schools of Lewisport of that state. In 1897 he began the study of Pharmacy, having for his preceptor Mr. G. Orville Patterson, of Hawesville, Ky. He graduated from the Louisville College of Pharmacy in 1903, being honor-man and valedictorian of the Junior Class and he received the gold medal for highest general average for both junior and senior years. He received the degree of Ph. C. from the University of Michigan in 1904 and was appointed assistant to Dr. E. D.

Campbell, in the course of Quantitative Analysis, where he remained one year, specializing in analytical work. He was employed for a time with the Canadian Copper Co. at Copper Cliff, Canada, leaving there to enter the employ of Merck & Co. as analytical chemist. In 1906 he became Assistant Professor of Pharmacy in the North Dakota Agricultural College and was Drug Analyst of the State. He became Professor of Pharmacy in the college in 1908. In 1909 he was appointed Drug Chemist of the Agricultural Experiment Station of the State University of Kentucky, which position he now occupies. Professor Brown is a member of the following societies:

American Association for the Advancement of Science.

American Pharmaceutical Association, of which he is the Second Vice-Chairman of the Scientific Section.

American Chemical Society, being Vice-Chairman of its Pharmaceutical Section.

Kentucky Pharmaceutical Association.

He is also a Royal Arch Mason.

In June 1907 he espoused Miss Vera Johnstone, of Owosso, Michigan.



HARRY V. ARNY, PH. D.

Prof. Arny was born in Philadelphia, Pa., in 1868 and began his study of Pharmacy in New Orleans under the instruction of our esteemed fellow-member Fabius C. Godbold. He entered the Philadelphia College of Pharmacy in 1887 and graduated therefrom in 1889. He studied at the University of Berlin and Göttingen from 1892-1896, making the degree of Doctor of Philosophy in the latter year at Göttingen. He was Professor of Pharmacy at the Cleveland School of Pharmacy from 1897, until called to the chair of Chemistry and Physics in the Columbia University, College of Pharmacy. He be-

came editor of the Druggists Circular in January, 1914.

His association activities have been many and various, and at the present time, he is chairman of the New York Branch of the American Pharmaceutical Association and Vice-President of the American Conference of Pharmaceutical Faculties, and a member of the Revision Committee of the National Formulary and the U. S. Pharmacopœia.



FRANKLIN M. APPLE, PH. D.

Dr. Apple was born at Stone Church, Pa., February 14, 1870. The son of a clergyman, he passed his early days in an educational environment and graduated as valedictorian of the Bangor, Pa. High School in 1885. He entered the profession of Pharmacy at Bangor the same year, and after preliminary education, he came to the Philadelphia College of Pharmacy from which he graduated in 1890, receiving honorable mention. He was then appointed assistant to Prof. S. P. Sadtler. He began business on his own account shortly after, and has remained in touch with the retail business until the first day of this month when he retired from the retail drug business. His activities in the different organizations of the drug business have been so many and various that it would be almost impossible to recount them, and in every position he has occupied, he has been of material service to the trade.

His literary contributions on pharmacal matters would fill a book, and it is needless to recall to the minds of the members the great service which he rendered the membership committee by his paper on "Indispensable Insurance for Pharmacists" which brought in many members to our ranks. He was the originator of the coffin-shape for Bi-chloride of Mercury Tablets. He is now a lecturer on Prescription Compounding at the Medico-Chirurgical College of Philadelphia.



CASWELL A. MAYO, PH. G.

A complete life sketch of President Mayo was published in the September issue. before the scientific section were not of tran-

DR. WILLIAM SAUNDERS.

William Saunders, of international fame as a scientist, was born in Devonshire, England, on June 16, 1836, and died at his home in London, Ontario, on September 13, 1914, after an illness of many months. His early educational advantages were meagre, but he succeeded in obtaining a technical training in pharmacy and chemistry and then entered the retail drug business in London, Ontario. His geniality, honesty and untiring industry brought him a fair measure of success. His love of nature led him to the collection of wild plants and insects and he became an ardent botanist and entomologist. Finding many medicinal plants readily obtainable, he began the manufacture of fluid-extracts, which were so efficient that they attracted the general attention of the medical profession and led to the establishment of an extensive and lucrative business, both wholesale and retail. Years later, when he became Director of the Experimental Farms of the Dominion, he transferred the wholesale business to his eldest son, W. E. Saunders, and the retail department to two of his younger sons.

In addition to his business life, Dr. Saunders took an active part in many other lines of work. Besides his scientific work in botany and entomology, he established a farm for fruit growing, and became a zealous member of the Ontario Fruit Growers Association, of which he was a director for many years and President from 1882-1885. He was appointed Professor of *Materia Medica* in the Western University, London, Ontario, in 1882; was Public Analyst for Western Ontario, President of the Ontario College of Pharmacy (1879-1881), and one of its founders, and a Fellow of the American Association for the Advancement of Science. For over half a century, he was a zealous member of the American Pharmaceutical Association, having been First Vice-President in 1873 and President in 1877.

He contributed a number of exceedingly able papers to the annual meetings of the American Pharmaceutical Association upon "Insect Enemies of Drugs," "Germination of Seeds of Medicinal Plants," "Medicinal Plants of Canada," "Pharmacy in Canada," "Cantharides," "Extract of *Cannabis Indica*," "Mexican Honey Ant," "Oil of *Stillingia*," "Rubber from Milk Weed," "Podophyllum Peltatum," "Preparations of Decoctions and Infusions," "Perfumes," "Sachets," and other subjects.

In 1862 he helped to found the Entomological Society of Ontario, of which he was President for the period of 1883-6, and in 1868, with C. J. S. Bethune, he began the publication of the "Canadian Entomologist."

In 1883, Mr. Saunders published his notable book, "Insects Injurious to Fruits," which is justly regarded as a classic by economic entomologists. In 1881, he was appointed by the Governor General of Canada, the Marquis of Lorn, one of the original Fellows of the Royal Society of Canada, and in 1906, was elected its President, the highest position of honor for scientific work in the Dominion of Canada. He contributed largely to the *Transactions of the Royal Society*. It has been said of him, by an American writer, that "By painstaking study and observation, he has risen to the topmost pinnacle of fame as an entomologist, horticulturist and experimental agriculturist."

In 1885, he was commissioned by the Canadian Government to visit various Experimental Stations in the United States and to report upon agricultural and experimental work in America and Europe. In the following year, he was appointed Director of the Experimental Farms of the Dominion of Canada. Here were carried on, under his direction, a great variety of experiments in breeding and feeding live stock, testing soils and water, growing fruit and ornamental trees of all kinds, selecting hardy varieties, improving the size and quality of fruits adapted to the climate of the Western Provinces, bee-keeping, studies in economic entomology, plant pathology and various other matters pertaining to the welfare of the farming community." The *Canadian Entomologist* (and from an admirable sketch of Dr. Saunders in this journal, October, 1914, 333, written by his very dear friend and co-worker, C. J. S. Bethune, is taken most of the data of this article), states that "Especially noteworthy was his work in crossing varieties of grain and producing new and improved kinds. One alone of these, the Marquis Wheat, is believed to have added millions of dollars to the value of the wheat products of the prairie country. All information thus acquired has been freely afforded to the farmers by distributions of seeds, and bulletins and reports on all manners of subject."

The ability and work of Dr. Saunders has been recognized in many ways. In 1896, he was given the honorary degree of L. L. D. from the Queen's University at Kingston, Ont., and in 1904, the same degree from the University of Toronto. In the same year, his work was commended by the British Association, and in the following year, he received the distinction of Companion of the Order of St. Michael and St. George, C. M. G., conferred by His Majesty, the late King Edward; and the Mantua gold medal for distinction in scientific knowledge. He was a Fellow of the Entomological Society of London, of the Linnean Society, of the Chemical Society and of the Royal Microscopical Society, an honorary member of the Pharmaceutical Society of Great Britain, and an active member of a large number of scientific societies in Canada and the United States.

A SYMPOSIUM ON THE PHARMACEUTICAL SYLLABUS.

PURDUE UNIVERSITY,
LAFAYETTE, INDIANA.

It is impossible for a Pharmaceutical Syllabus to exactly fit the needs of any school of pharmacy or to express the views of any one individual pharmacist or pharmaceutical educator and still be broad enough to act as a guide for all. Therefore, there is probably no one but has some adverse criticism to offer.

However, we must not lose sight of the fact that what we may consider detrimental to the book, some one else may consider excellent, and what we may deem should be included, may be considered useless by others. With this in mind, I am well satisfied with the book and feel that the committee has done an excellent piece of work, and I wish to thank them for it.

C. B. JORDAN, PH. C.

NEW YORK.

I read with great interest the criticism which appeared in the November issue of the Journal (which I received only yesterday) in the report of the minutes of the last General Session of the Association.

I do not agree with our friend Mr. Hilton in his statement in criticism of the book. But *I do agree* with Mr. Mason in his statement that:

"No one ever would be satisfied with any Syllabus that was gotten out by any one individual because a Syllabus like a law, is a result of a compromise."

It must be understood that a curriculum, Syllabus or outline of studies must represent the ideal of education required and conditional amount of latitude must be allowed; and that the work of the Syllabus Committee represented the work of some of the best minds in the pharmaceutical profession.

It is assumed that a head of such a department is capable of outlining an ideal course which meets the requirements of the educational and practical side of pharmacy.

It remains of course for its intelligent examiners to carefully differentiate between the essential and less essential, and to formulate the examination accordingly.

J. LEON LASCOFF, PHAR. D.

PHILADELPHIA, PA.

In reply to your communication asking for an expression of my opinion of the Pharmaceutical Syllabus, 2nd Edition, I would say that I believe it to be defective in several important particulars. In the first place it attempts to crowd too much into the space of time allotted to the instruction in the recognized and approved course. This might be thought to be an error on the safe side, but as the book is intended as a guide for both State Board Examiners and Educators the condition will constantly arise when the selective action of the Educator will cause the elimination from the course of sections upon which the Examiner will later ask questions.

In the "Quantitative Chemistry" particularly the overcrowding is especially noticeable. Only a small fraction of the work outlined can possibly be accomplished in the 40 hours of laboratory work and 10 lectures given for general quantitative chemistry, (page 114); and in Drug Assaying the 50 hours, similarly divided (page 116) is ridiculously inadequate.

If the sections, with the work of which I am familiar, are so poorly planned, I think I am fair in assuming that many other sections with whose details I am not sufficiently conversant to enable me to criticize, are equally faulty.

The reference works show evidence of hasty or careless compilation. The reference on page 162 to the National Dispensatory, Stille & Maisch, and the United States Dispensatory, Wood & Bache, raises a question in the mind whether many others of less familiar works referred to are similarly obsolete.

The book will serve a good purpose however as a guide or a stepping stone to a more practical work which will probably come at some later time.

CHARLES H. LAWALL, PH. M.

PHILADELPHIA, PA.

I am sending the following, concerning my views about the Pharmaceutical Syllabus. The book was designed to be a guide to the faculties of pharmaceutical colleges, by outlining the courses of study which it was thought desirable to teach in such institutions, and possibly this was its principal value.

Secondly, to inform members of boards of pharmacy of the nature of such courses, so as to indicate the scope of the questions permissible to be asked in board examinations.

Thirdly, it might give to a prospective student of pharmacy, (if he should ever see it) a bird's eye view of the studies he would be compelled to take up, although it is quite possible that after perusing it, he might come to the conclusion of the preacher in the Book of Ecclesiastics, "much study is a weariness of the flesh." The first edition, which was necessarily the work of a few, was published at the expense of the New York Board of Pharmacy.

It met with considerable criticism, some of it of an unfavorable nature. This edition being exhausted, and there being some demand for the book, it was necessary to prepare a new edition. It was thought that the book would be more representative in character if prepared by a larger committee, one representing the three great pharmaceutical organizations of our country, viz, the American Pharmaceutical Association, the Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy.

In pursuance of a request to this effect, a committee consisting of seven representatives from each of these organizations was elected. After the organization of the committee, it was divided into three groups to consider the three main subjects of materia medica, pharmacy and chemistry. In the work of the committee much correspondence ensued which necessarily limited progress, as in a work of this kind there were at times somewhat discordant views. It was not until the Pittsburg meeting of the committee in December, 1912, that the book approached completion. At that time by the close application of some of the members, who worked from 10 A. M. of one day, until 3 A. M. of the next morning much progress was made.

There was considerable divergence of opinion as to the nature, and amount of matter which should be included in the book, those institutions having longer courses of study, pleaded for fuller courses of instruction than was desired by those institutions giving shorter courses, and we were continually reminded that we were preparing a syllabus for a two years course of instruction only.

In some cases a compromise was affected by putting some of the new matter in brackets, thereby indicating that its teaching was a matter of choice. Some of the matter considered by some of us essential, was left out entirely. In the course on Physiology, the Special Senses, (page 38), received so brief mention as hardly to give an intelligent idea of the subject.

The Sub-Committee on Materia Medica decided that the different subjects of that branch should be classified according to their action on the human body, but notwithstanding the vote, it was not done, the former classification being retained.

The general committee also by vote, ordered that the American Pharmaceutical Association be asked to take charge of the publishing and sale of the book, as the majority felt that the facilities of the association for this work, would give it a wider distribution, and greater prominence. Why this explicit command of the general committee was not carried out by the executive committee, I have never been able to learn.

It has been urged that the Syllabus is too technical for members of boards of pharmacy. While this objection may hold good in some cases (as politics at times influences appointments), it by no means holds good in all. A criticism might be made regarding the speed with which the Syllabus was adopted by the different boards of pharmacy. This, while complimentary to the book, hardly implies a careful examination of it, but would lead one to infer that action was contagious. It may be urged against the Syllabus that the different subjects are not taken up in the best manner, some other arrangement would have been better, but it is expressly stated on page 16, "It is not designed, however, to interfere with such flexibility in courses of study and freedom in methods of instruction as ought to exist in pharmacy schools." Special attention is called to Chapter VI, on Reference Works, this I consider a most valuable compendium of the literature pertaining to pharmacy.

Let me say in conclusion that no one of the committee considers the Syllabus a perfect book, but it is undoubtedly a step in the direction of the unification of courses of instruction in colleges of pharmacy.

CLEMENT B. LOWE.

DETROIT, MICHIGAN.

The Pharmaceutical Syllabus has been criticized here and there by some individual because it did not seem to *him* what it ought to be. To me this is in a certain sense a certificate of character. The Syllabus ought not to represent the ideas of *any one man*. When it does that it is vicious: it is lop-sided: it is eccentric: it is unbalanced.

The Syllabus, as it stands to-day, is the result of the wisdom of twenty-one men, who for the most part have worked honestly and earnestly in an effort to get out something that would be a credit and benefit to American pharmacy. But when twenty-one men, or a majority among them, agree on any proposition, it is only as the result of compromise. You see this sort of compromise everywhere. President Wilson may have his idea of what a tariff or a revenue law should be, but when a house of representatives and a senate bring their wisdom to bear on the problem, changes and modifications are inevitable. The final result is not completely satisfactory to any one man—and it ought not to be.

The Syllabus may possibly be open to some valid criticism. For the most part, however, it represents all that is humanly possible at this time. The next edition will be better, and every future edition will register a distinct improvement. Fundamentally the whole Syllabus movement is one of vital importance to American pharmacy. Upon it will largely be based the educational growth, development, and unification of the future.

More than that, the Pharmaceutical Syllabus brings together for the first time examining boards on the one hand and colleges on the other. Through the medium of the Syllabus

these two groups of men are now working together in an earnest effort toward harmony and mutual understanding. This means a great deal in itself, wholly irrespective of what book or books may result as a consequence.

HARRY B. MASON.

BOONVILLE, MO.

The Pharmaceutical Syllabus, is not perfect; nor will it ever be. Criticisms on its contents will be made just as are being made on the pharmacopœia. This is perfectly natural, and it is well that such is the case. Otherwise there would be no improvements made. Progress and improvements come only after criticisms. The strength of the movement is in the fact that the Syllabus is being promulgated by three coördinating bodies, the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy, and we should recognize that fact. The American Pharmaceutical Association is represented on the committee by only a certain part, and can therefore control the Syllabus to that extent only. 'Tis true that our beloved association represents the best there is in pharmacy, professionally and morally, and must, therefore, take the lead in every movement that pertains to the betterment of pharmacy. If, however, the Syllabus is to become a standard for all, other bodies must have a right to take part in its development. And that is just the condition at this time. The Syllabus is being promoted by delegate bodies, and in that way becomes a standard for all. I don't believe that a Syllabus, controlled entirely by the American Pharmaceutical Association, can ever obtain a legal recognition. The National Formulary, if it shall continue to hold its legal status, must, in the end, emanate from a different source than it now does. It must be revised by a delegate convention, as is the pharmacopœia. Had President Beringer's suggestion been, that the Council take careful consideration of the revision of *the* Syllabus, instead of *a* Syllabus, no objections would have been raised against his criticism. The Syllabus already exists, and we are only interested in its revision and perfection.

Let us then, encourage the committee having in charge the revision of the Syllabus, and in a proper spirit bring about further improvements in the work; and not destroy what has been done. The Syllabus has been approved and accepted by the pharmacists generally, and several schools and boards are adjusting their work to conform to it. The present revisions of the Pharmacopœia and the National Formulary will not be free of errors; and yet, as loyal Americans, the pharmacists will accept them as their guide. And I believe the Syllabus will be accepted in the same spirit. The American Pharmaceutical Association did well in not overthrowing the work of the old committee, and I believe when another revision is made more harmony and satisfaction will prevail, and the pioneer work of our New York brothers be better understood and appreciated. I, too, find objectionable features in the Syllabus and would eliminate some things and change others, if I alone were interested; but I realize that the field is large, and that others have a right to their views. The mere fact that this movement has brought out a spirited discussion, means that it is of value; otherwise the Syllabus would have died of inanition. My greatest objection to the course outlined in the Syllabus, is the inclusion of the subject of physiology. This subject should be covered by the student while he is attending the common or public school, and his time used in the college of pharmacy, mastering a business course as applied to the practice of pharmacy, as now conducted. Let us therefore accept the work of the Syllabus committee, and encourage and aid it, in perfecting the work, so that in time the desired uniformity in our college courses and board examinations will be realized.

WM. MITTELBACH.

SEATTLE, WASHINGTON.

Regarding an expression on the recently published Pharmaceutical Syllabus will say that it is my opinion that we should use it, and give it a chance. I am inclined to think that much good can be done by carefully following the lines laid down in the Syllabus, and until the time is ripe for further improvement, I would consider it unwise to change it in any way. I believe that the committee in charge of the work has spent much time and has looked into this matter carefully, and I believe it is due the committee to test the present Syllabus as it is published.

C. OSSEWARD.

PHILADELPHIA, PENN.

In reply to your letter of November 2nd asking for my views of the recently published Pharmaceutical Syllabus, I would state that although I cannot agree to many of the things as set forth in the present Syllabus, I am heartily in accord with the objects and *personnel* of the Syllabus Committee. I am of the opinion that if we are ever to have uniform instruction in pharmacy and coöperation between pharmaceutical instructors and state examiners, it can only be accomplished through a medium such as the Syllabus.

I am also of the opinion that a Syllabus prepared independently by any one of the three coördinate bodies now in charge of this work, without the help and suggestions of the other two, would prove a failure and, therefore, feel that the present plan of placing this task in

the hands of a committee, composed of members of the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy, cannot be improved upon.

I heartily approve of the system adopted by the Syllabus Committee of classifying all knowledge relating to *Materia Medica*, under the general head "Pharmacology" and have, therefore, in my text-book on "Biochemic Drug Assay Methods" given, *verbatim*, the definitions of the Syllabus for Pharmacology, Pharmacognosy, Pharmacodynamics and Therapynamics. I find, on practical application of this plan, that my students at the Medico-Chirurgical College are better able to coördinate the knowledge of *Materia Medica* than was possible to acquire, under the old system in which the importance of Pharmacodynamics was lost sight of.

PAUL S. PITTENGER.

PHILADELPHIA, PENN.

A National Syllabus which aims to provide an outline of subjects which should be taught in colleges and departments of pharmacy is an actual need. The American Pharmaceutical Association represents the professional and scientific element better than any other pharmaceutical organization in America and is qualified to frame a proper syllabus.

The book which has been prepared is entirely too voluminous and detailed and, in my opinion, cannot be used successfully because too much has been squeezed into it to adequately teach all of its subjects to even very bright students in the time allotted. It would be far better to establish a minimum basis which the colleges, large and small, can conscientiously follow in a two-year course than to try to cover the greatly enlarged field of modern pharmacy in the way demanded by the present Syllabus.

We are advised that the book is not intended to be followed in all of its details; then why send it forth at all? Why not remedy its defects at once and secure universal acceptance?

JOSEPH P. REMINGTON, PH. M.

NASHVILLE, TENNESSEE.

The Pharmaceutical Syllabus is not a perfect guide for the educator or the examiner. There is work outlined in it which may seem to be necessary in one college but not in another. Latin, for example, may be necessary in some colleges which require comparatively little preparatory work, while it may not be necessary in some colleges which require high school graduation. Why, the future pharmacist needs a course in business more than the future grocer or other commercial man, is not entirely clear. The introduction of doses into the Syllabus, does not seem necessary.

And so we might go on and find other points on which we disagree. Nevertheless, the Syllabus should have the support of every pharmacist. It is work in the right direction. The *curricula* of the colleges and the examinations of the boards, are getting more uniform and closer together. No organization of any kind could be better fitted to accomplish this end than representatives from the American Pharmaceutical Association, the National Associations of Boards of Pharmacy, and the American Conference of Pharmaceutical Faculties, and if they fail, there is but little hope for any other body of men to succeed.

Statements made in the preface and in the introductory notes of the Syllabus, make it plain what it is. It is intended to be taken as a guide, not followed literally, and as such I am a strong supporter of it and am convinced that much good to pharmacy will result from it.

EDSEL A. RUDDIMAN.

THE UNIVERSITY OF KANSAS, LAWRENCE.

"The book accomplishes what it aims to do, in giving a concise statement of a scheme of instruction. It furnishes, not only to instructors but to many others seeking such knowledge, a systematic arrangement which is helpful to the instructor. It indicates the general scope and character of instruction which might be given by the teacher and the work to be accomplished by the student and this partakes of a national rather than of a local character which is decidedly advantageous. A conscientious instructor realizes the necessity of getting out of his local environment and getting hold of a broader and more comprehensive view than his environment is apt to give him.

"I understand the work as one that is not designed to interfere with the flexibility of courses of study. Nor does it in any way suggest the possibility of detracting from the value of the personality of the instructor.

"To my mind the work is in advance of the present time in reference to the basis of examination questions for use by boards of pharmacy and possibly many of our teachers. That is to say, boards of pharmacy and instructors alike may justly feel at times that details of the course presented in the Syllabus cannot be met by present conditions, or rather the present conditions do not demand such details. To do the amount of work that is required in the Syllabus without degrading it into a quiz-compend course would require considerable skill on the part of the instructors. This is, however, a material point which every instructor is to work out for himself."

L. E. SAYRE, Dean.

THE STATE UNIVERSITY OF IOWA.

"A famous preacher once remarked that he had found a lot of human nature in this world" and this statement I believe applies to some of the criticism of the Syllabus.

The Syllabus is not perfect. No one expected it to be perfect and some of the criticism is, no doubt, just, especially the typographical errors, which are inexcusable.

The Syllabus, if adopted as a tentative outline of a minimum course of study, will help to unify the courses of instruction in our colleges and if used as a basis of state board examinations will correlate the work of the two.

The future editions of the Syllabus can be improved and criticism, if of a *constructive nature* is to be desired.

The committee representing the American Pharmaceutical Association, The American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy is thoroughly representative of American pharmacy and they should have the coöperation of all in their honest effort in preparing a work which marks one of the great epochs in American Pharmacy.

WILBER J. TEETERS, Dean.

STATE BOARD OF PHARMACY OF INDIANA.

"I have found the old Syllabus a great help in the preparation of Board Questions, and I think the new Syllabus is a great improvement over the first one. No board member should fail to use the Syllabus if he wants to grow and improve in his board work."

WM. H. RUDDER,

DETROIT, MICHIGAN.

"As to the practicability and fitness of the Syllabus there will always be differences of opinion among individuals, and undoubtedly each school teacher or examiner will use such portions as seem to him best and reject the rest. This is the best criterion of its usefulness."

WILBUR L. SCOVILLE, PH. D.

DETROIT, MICH.

"In examining the Pharmaceutical Syllabus which came to me sometime ago, I have been very favorably impressed with the work of the committee which has had this matter in hand. The committee has been very fortunate in the members comprising it as well as in the method of its selection, constituting as it does, the most comprehensive representation of all the various workers in pharmacy.

"While it is impossible in a work of this kind to meet in detail the approval of any one man or body of men (and I presume this includes the committee itself) yet it is this very fact—that of being a compromise—a compromise of ideas of men studying the needs of pharmacy from every angle—that gives it its especial value. In just the degree in which it might fail to be a compromise, or the degree in which it might fail to reflect accurately the composite idea of the committee representing pharmacy as a whole—in just that degree would it fail of its mission.

"The writer believes that a future edition will doubtlessly be an improvement on this one, certain defects may be discovered, some inconsistencies ironed out but that this reflects no discredit on the work of the present committee which work will, he is sure, be of great assistance to members of examining boards from whose view point more especially he considers the work."

LEONARD A. SELTZER, PH. C.

PHILADELPHIA, PENN.

"Responding to your letter desiring information concerning my opinion of the recently issued Pharmaceutical Syllabus, I would say that the classification of the science that treats of drugs and medicines, their nature, preparation, administration and effect, under the general head 'pharmacology' meets my hearty approval. This is of course an old classification and the Syllabus has been criticized for going back to it, but no less authority than Hermann Professor of Physiology in the University of Zurich, and one of the leading authorities in experimental vivisection, in the introduction to his 'Experimental Pharmacology,' a hand book of methods for studying the physiologic action of drugs, said, 'Pharmacology, in its widest scope, embraces the study of drugs from all points of view, and the information thereby acquired may be useful under the most diverse conditions; to the physician, to enable the recognition and proper treatment of cases of poisoning, or to permit of the use of drugs for therapeutic purposes; to the public, to permit the avoidance of noxious substances; to the physiologist and pathologist, to enable the application of information derived from the study of the action of poisons to the advancement of their sciences. The study of pharmacology may therefore be limited according as one or more of these points of view occupy the first place in the mind of the investigator.'

"The definition of 'pharmacology' given by the Pharmaceutical Syllabus includes pharmacognosy, pharmacy, pharmacodynamics and therapy-dynamics. This is in harmony with the definition published in the Standard Dictionary which defines 'pharmacology' as 'the science

of medicines, their nature, preparation, administration and effects; including pharmacy, pharmacodynamics and pharmacognosy.' The definition is likewise in harmony with Webster's Dictionary and with the Century Dictionary.

"The advantage of this classification to pharmacy and the pharmacist becomes at once apparent in the work of classifying the newer vegetable drugs, as anyone can testify who has had experience in doing this work.

"In the next place, this classification associates in proper relationship knowledge of all the branches of materia medica science, and brings out very clearly the fact that pharmacy, as a branch of pharmacology, is the science and art of preparing, preserving, compounding and dispensing medicine, and that it is related to pharmacognosy, which 'treats of the identification and selection of vegetable and animal drugs;' that it is also related to pharmacodynamics, which 'treats of the action of medicines on healthy organs;' and is also related to therapy-dynamics, which 'treats of the action of medicines on diseased organs.'

"All of these branches of pharmacologic science are correlated and mutually dependent. Consequently, no person can become proficient in the knowledge of that science without acquiring an education in the science of the materia medica as a whole. Proper knowledge of the method of applying medicine to the treatment of the sick requires some acquaintance with pharmacognosy, pharmacy, pharmacodynamics and therapy-dynamics, and special knowledge of the action of drugs on healthy and diseased organs. The medical curriculum should therefore embrace the study of pharmacology. To select, prepare, preserve, compound and dispense medicines requires knowledge of pharmacodynamics and therapy-dynamics, as well as knowledge of pharmacognosy and pharmacy. Therefore, the pharmaceutical curriculum should include the study of pharmacology as a whole, with special attention given to the selection, preservation, preparation, compounding and dispensing of drugs.

"Proper education in pharmacologic science on the part of both physician and pharmacist would bring the medical and pharmaceutical professions together in the study of the common science and elevate the practice of pharmacy to a profession in fact as well as in name.

"In a monograph entitled 'An old system and a new science' published in 1882, I advocated a return to the classification in which knowledge relating to the materia medica is embraced under the general head 'pharmacology;' in my address as Chairman of the Section on Materia Medica, Pharmacy and Therapeutics, delivered at the Forty-seventh Annual Meeting (1896) of the American Medical Association, I again suggested a return to this classification. In numerous papers on the subject since contributed to medical and pharmaceutical societies and press, I have repeated the same plea again and again.

"It was therefore gratifying to me when the National Committee representing the boards and schools of pharmacy of the United States adopted this classification. It was also gratifying when the classification was incorporated into the New York State Pharmacy Law, and adopted by the Board of Regents of the State of New York, for the guidance of teachers of pharmacy in that state.

"While I am fully in harmony with the objects and plans of the Syllabus Committee, I am not as fully in harmony with the Syllabus itself. I am aware that the Syllabus as it now stands represents a large amount of work by experts who have had much more experience than has fallen to my lot as an educator, and I therefore hesitate about criticising the Syllabus. In conducting my Chair on Materia Medica in the Department of Pharmacy and Chemistry of the Medico-Chirurgical College, I have associated with me a specialist in pharmacognosy, also a specialist in pharmacodynamics, in so far as the so-called physiologic testing of materia medica products is concerned. We are using the Syllabus as a basis of our work, and modifying the plan to meet conditions pertaining thereto. As I understand the object of the Committee, it is to place in the hands of the teaching faculties a general plan for teaching pharmacologic science, the same to be modified by each institution to meet its own requirements, hoping thereby to promote and facilitate the development of the plan of the Syllabus, and make it practical. The plan of the Syllabus is therefore in the state of evolution, and does not pretend to be completed.

"I am well aware that leading educators in pharmacy are entirely opposed to the plan of the Syllabus Committee. Some of these educators are my seniors and have had far more experience in teaching than I have. In this respect, therefore, they have an advantage over me. On the other hand, I feel that I have an advantage over them in the fact that I am a physician as well as pharmacist, having graduated from the P. C. P., and the Jefferson Medical College, and practiced both professions for some years, although not in conjunction. I have also had the peculiar advantage resulting from a lifetime study of the problems pertaining to the relations which I believe should exist between the medical and pharmaceutical professions. I believe that pharmacy and medicine are branches of the same science and practice; that they are closely related and mutually dependent; that the only justification for the existence of either is the prevention and cure of disease; that the application of drugs for prevention and cure requires a medical education; that the selection, preservation, preparation, compounding and dispensing of medicines requires a pharmaceutical education; that the practice of the physician and pharmacist should each be limited to its own sphere, except at the point where both from necessity overlap, and that in this middle ground of domestic medicine, both should consider the interests of the public as paramount to selfish interest, and

coöperate with each other in protecting the public from the results of ignorance and greed on the part of those who would dishonestly exploit the sick-room for gain.

"To the extent that the adoption of the Syllabus for the teaching of pharmacologic science in both medical and pharmaceutical schools can be made subservient to these objects, I am entirely in harmony with the National Syllabus Committee."

F. E. STEWART, M. D.

PITTSBURG, PENN.

In reply to your request will say that the Pennsylvania Pharmacy Board at a recent meeting approved and adopted the second edition of the Pharmaceutical Syllabus, excepting however, the matter pertaining to physiology and to commercial pharmacy, the latter plays no part in the proper preparation of medicines, and an imperfect knowledge of the former subject, may only serve as a suggestion to counter prescribing.

It appears to be high time that more or less uniform methods are adopted by schools of pharmacy, in instructing their students, and by pharmacy boards, in the examination of those who aim to hold themselves up to the public as being proficient in the art of preparing medicines. The Syllabus may be regarded as a primary step; many steps may be needed before perfection is reached, but after the first step is taken there is encouragement for further progress.

Personally, I take little interest in entrance-requirement methods of teaching *et cet.* My interest centers on the finished product, and I have a private opinion—which may not look quite polite if put in cold type—of the system which turns out as finished pharmacists, students whose conceptions of an element are as follows:

"Anything having a chemical formula, or can exist alone, marble is an element." "Any substance which is found existing naturally in the earth." "One of the constituents of the atmosphere." "Anything which exists and is essential to life." "Any substance which may be obtained from the ground." "An element is what bodies are made of."

The above replies were given by graduates in pharmacy, at the recent board examination, whose college record shows that they were graduated on a record of "sufficient," and they are here given to show that a *perfect* pharmaceutical syllabus will not cure all of our ills.

LOUIS EMANUEL, President.

BUFFALO, N. Y.

Those concerned in the production of this volume have felt that they were engaged in constructive work. The authors of this work have been traveling mostly over an uncharted sea. The Committee itself had many discussions before reaching a substantial agreement upon many questions of detail. Under these circumstances it is not at all singular that earnest workers in the cause of pharmacy outside of the Committee, find things to criticise in the volume.

Sharp differences of opinion have often been found in New York State where the Syllabus idea has been carefully fostered. Yet, after ample discussion unanimous agreement was reached. Thinking the experience of New York State may be of service to all interested in the Syllabus, pro and con, the following records are submitted: As a word of explanation it might be stated that the "Pharmacy Council" in the State of New York consists of the deans of its five colleges of Pharmacy and of the Assistant Commissioner in charge of Higher Education.

EXTRACT FROM THE MINUTES OF THE PHARMACY COUNCIL.

To the Pharmacy Council of the State of New York:

The Syllabus Committee of this state takes pleasure in reporting that after several years' labor the second edition of the *National Pharmaceutical Syllabus* has been completed and published. The new volume follows the general plan of the first edition. The principal change made is in the addition of 100 hours each to the subjects of Pharmacy and Materia Medica, so that a minimum course of 1200 hours is outlined instead of 1000 hours.

Probably no member of the Syllabus Committee of twenty-one, representing the colleges, the boards and practical pharmacists, would claim that the work is perfect. It represents a compromise between many conflicting opinions. The influence of the schools giving courses of two years approximating 1200 hours of instruction tended to reduce the material contained in the volume, while the interests of schools giving three year courses or covering 1800 hours or more, tended to increase the subject matter of the book. It is recognized by all those who have carefully examined this edition that its contents cannot be properly taught in 1200 hours.

This raises the question as to whether an injustice will be done the schools with 1200 hour courses when the Syllabus is adopted by boards of pharmacy as a guide of their examinations. In this state this difficulty is happily avoided by our system of selection questions by which an examiner is permitted to answer ten questions out of a total of fifteen. It is not believed that this theoretical difficulty will prove to be an actual one in any state.

The first edition was prepared for a syllabus period of five years. The second edition, however, has no specific time for operation. It was thought wise by the committee that as the book is more or less experimental it would be better to preserve the opportunity of revising

it if found unsatisfactory in two or three years, or if found acceptable to those interested, to use it for an indefinite period.

The question arises as to what may be involved by its adoption either by schools of pharmacy or by boards of pharmacy. To give light upon this subject a number of quotations from the book itself are given.

Page 8, line 9, "But a syllabus like a living language is necessarily in process of constant change." It must not be used to dam the flow of increasing knowledge either of fact or practice."

Page 16, line 1, "Definition. The Pharmaceutical Syllabus is prepared to indicate the general scope and character of the instruction to be given by the teacher and the work to be done by the student."

Page 16, line 10. "It is not designed, however, to interfere with such flexibility in courses of study and freedom in methods of instruction as ought to exist in pharmacy schools."

Page 17, line 23. "The Syllabus is intended to allow the individual teacher or school the widest possible liberty as to order and grouping of these topics and method of presentation. Its object is to specify what topics are to be taught by the schools and expected by the boards without concerning itself with the manner in which this result is reached by any school, teacher or book."

Page 141, line 1. "The selection of the particular line of experiments to accompany a course of lectures upon pharmaceutical *technique* must necessarily be left largely to the judgment of the instructor, the choice of the latter naturally depending upon his opinion of the portions of the subject which need the emphasis of laboratory work."

Page 146, line 10. "Prepare the following official preparations and such additional U. S. P. or N. F. preparations as the time will permit as far as possible selecting such additional preparations from those which especially require skill and careful manipulation."

Page 149, line 4. "The time allotted for dispensing pharmacy should be arranged to give a liberal number of hours for actual work in the compounding of prescriptions."

With this indication of the purpose and spirit of the work it is not believed that it will be found to be a harness that will gall the user, nor a rigid mould that will prevent initiative or kill enthusiasm in either teacher or examiner. We, therefore, recommend that it be adopted by this Council and recommended to the schools of pharmacy in this state and to our Board of Pharmacy for adoption by each of such organizations.

Respectfully submitted,

(Signed) WILLIS G. GREGORY,
AUGUSTUS S. DOWNING,
HENRY H. RUSBY,
State Syllabus Committee.

A. Voted unanimously that we recommend to the pharmacy schools of the state the adoption of the second edition of the *National Pharmaceutical Syllabus* as a general guide for courses of instruction to take effect July 31st, 1914.

B. Voted unanimously that we recommend to the State Board of Pharmacy the adoption of the second edition of the *National Pharmaceutical Syllabus* as a general guide for examination of candidates for pharmacists' licenses to take effect July 31st, 1916.

At the first meeting of the Board of Pharmacy of the State of New York, following this action by the Pharmacy Council and after considerable discussion of the whole Syllabus proposition the Board voted unanimously to adopt the second edition of the *National Pharmaceutical Syllabus* as a general guide for the examination of candidates for pharmacists' licenses, to take effect July 31st, 1916.

It might be stated in passing that under this action of the Board of Pharmacy was the belief that whatever inconsistencies or defects there might be in the Syllabus they would not be at all commensurate with the evils of an entire lack of standardization in the teaching of the Colleges and the examinations of the Boards.

WILLIS G. GREGORY.



Dr. Alpers, Mesdames Tschirch and Alpers, Dr. Tschirch, at the Tschirch Villa, Berne.

APOTHECARIES ABROAD.

ON THE GRAND TOUR WITH THE

NEW YORK DEUTSCHER APOTHEKER VEREIN.*

PROF. GUSTAV BACHMAN

Minneapolis.

July 2nd, 1914, our party, of about 130 pharmacists representing nearly every state in the Union, sailed on the S. S. Barbarossa for Europe, under the auspices of the German Apothecaries Society of New York City.

On July 13th we arrived in Bremen.

Our visit in Berlin of only three days will always be remembered with great interest and pleasure. We were here the guests of the German Apothecaries' Society, an organization composed of pharmacists from throughout Germany. It owns a large manufacturing establishment and wholesale house. In connection with the factory, is a colossal club-house in which reception-rooms, banquet-halls and rest-rooms are arranged.

Our party was invited to meet at the Club House soon after arriving in Berlin. After listening to an address of welcome by the president of the association, we were divided into a number of groups for the inspection of the establishment, the several groups being distinguished by different flowers, such as white rose, red rose, carnation, etc. Competent guides were assigned to each group, who explained the points of interest both in German and in English. Contrary to our expectations, we saw few patent medicines and proprietary articles in stock. Most of the floor-space was occupied with large pharmaceutical and analytical laboratories, where we saw official preparations in process of manufacture in large quantities. One room in the factory was used exclusively for filling ampoules with potent liquids. In another spacious laboratory we saw the spreading of plasters on linen by machines, gauze bandages made into long rolls and cut into pieces of different widths. After partaking of a banquet fit for the gods, we visited the Institute of Pharmacy of the University of Berlin. Dr. Thoms, the head of this department, gave us an interesting and instructive lecture which was illustrated with spectacular experiments. The most interesting experiments were made with liquid air. After this we inspected the pharmaceutical laboratories. This Institute was recently built and is therefore well planned, lighted, ventilated and equipped with the latest scientific apparatus. All museum cases containing chemicals that are affected by light, have amber colored glass doors.

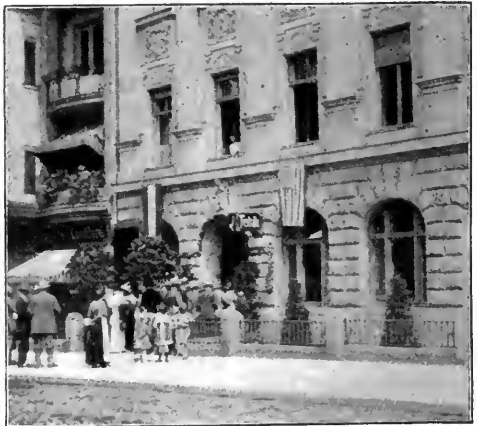
Our next visit was to the Botanical Gardens of the "U" of Berlin. The gardens are

under the direction of Dr. Gilg and are the most complete of their kind. Trees, shrubs, flowers and medicinal plants, indigenous to every country in the world, are to be found in the gardens where they grow under conditions similar to those prevailing in their native country. Here we saw the wonderful vegetation of Japan, then suddenly found ourselves in Africa, then in Cuba, etc. When we came to the United States gardens I could imagine myself in Minneapolis. In Berlin our attention was called to the two kinds of stores; namely, the Apotheke meaning a pharmacy and a Drogerie meaning a drug store. Upon inquiry, we learned the differences between these two stores. An Apotheke is a pharmacy which can only be managed by a registered pharmacist who confines his activity to selling drugs and the filling of prescriptions, while a Drogerie or drug store can be managed by anybody. Such a store carries druggists' sundries, patent medicines and sick room supplies. No prescriptions are allowed to be dispensed in a Drogerie. The government designates where an Apotheke is to be located and the number to be established. Only one Pharmacy is allowed in a community of 10,000 people. The prices charged for a prescription are also regulated by law. The price is based on the cost of ingredients, the time required to fill the prescriptions and the cost of the container. Prescriptions are not numbered nor placed on file, but are always returned to the patient. All prescriptions containing liquids are dispensed by weight. No graduates are, as a rule, to be found in the store. Poisons are kept in closets and can be reached only by unlocking three doors. Phosphorus must be kept in the basement, where a specially built-in closet is constructed in the foundation of the building.

Arriving in Vienna we were the guests of the local pharmacist's association. A splendid



BERLIN. COLLEGE OF PHARMACY, UNIVERSITY OF BERLIN.



BERLIN. AMERICANS ENTERING GERMAN APOTHECARIES ASSOCIATION.

program was planned for us. The first day we visited the University, whose organization dates back to the year 1363. It is to-day a model institution, beautiful, spacious and well arranged. A rare opportunity was extended to our party to inspect the Pharmacy Depot of the Military Department. Considering the excitement preceding the declaration of war between Austria and Serbia, we were indeed fortunate to be given the privilege of visiting this department. Here the supplies for the entire Austrian army are made. Our guide was an officer, who was very courteous and willing to explain things in detail. We saw the preparation of gauze bandages, adhesive plasters and absorbent cotton. These packages were pressed into flat pieces in order to reduce their bulk so that they would take up less room in a soldier's knapsack. Every soldier is provided with a case containing supplies for "first aid" to the injured. In Vienna we visited the oldest Apotheke in Austria. It was established in 1551. Here they prepare everything needed in a pharmacy. They employ 30 people who are busy making pills, tablets and other preparations not, as a rule, made by pharmacists in the United States. The proprietor of this store said the physicians of Vienna prescribe many American-made preparations, because of the fact that so many American physicians, who are taking post-graduate work, introduce the proprietary articles.

The next city of special interest to me was Munich. I spent an afternoon in the German Scientific Museum. Here we were shown a large glass globe, possibly 8 feet in diameter, into which was placed a miniature Universe—the earth, the sun, the moon and the planets with their moons, and all these, one could see revolving in a correct astronomical manner. One could see just how an eclipse of the sun occurs, and at what time of the year and just what part of our earth would see it. It is the most marvelous and wonderful work of science I have ever seen. Every other instrument in that department was working upon some mathe-

matical principle. The first instrument invented in the field of electricity, was exhibited and all others down to the very latest. This was also true of printing presses, photography, musical instruments, etc. I saw the first "Condenser" invented by Liebig, and all the other varieties of condensers, invented since his time. I saw there, the first Bunsen burner made, which, of course, is now greatly improved.

A side trip to Berne was arranged by Dr. Alpers while we were in Lucerne, Switzerland. Only about fifteen out of our party embraced this rare opportunity. We were entertained at dinner by the Swiss Apothecary Society and in the afternoon were invited by Prof. Tschirch to visit the Pharmacy Institute of Berne University. Afterwards a reception in honor of our party was given at Prof. Tschirch's villa. I consider this the best treat of the entire tour; first of all to have come in personal contact with Prof. Tschirch, an authority in botany and pharmacognosy, and, secondly, to have been one of the guests at his home. It is good to be in the presence of such a great man. The Pharmacy Institute is not of the latest up-to-date kind, yet is complete in every detail. Prof. Tschirch prides himself upon having the most complete pharmaceutical library and museum in the world. The museum is a wonder; it contains many thousands of samples of original packages and containers of drugs from all parts of the world. Many of his specimens cannot be duplicated to-day. The professor has ordinarily from twenty to thirty students and hopes never to have more as he makes it a point to give each student personal attention at least once a day. Is it any wonder, therefore, that under such a teacher, Switzerland produces eminent pharmacists?

On Aug. 1st we arrived in the city of Heidelberg. This city has many old historic sights. The famous Heidelberg Castle is located here. Germany had declared war on Russia by this time and we found it rather difficult to visit places of interest. The University was no longer in session but we were able to go through several of the buildings. The guide showed us the room where the final oral examinations are held. The examinations are very hard and occasionally a candidate for a degree, failing to pass will take his life rather than to be disgraced. Students from all countries attend this famous university. Several of our party climbed a hill, of several thousand feet in height, to see the Heidelberg observatory. We were well repaid for our exhausting trip. We were shown a number of powerful telescopes and an instrument which records the vibrations of the earth. Out of curiosity we asked to be shown the chart showing the disastrous earthquake of San Francisco. This chart was produced, much to our astonishment.

Darmstadt was the next city we visited. Merck's Chemical Works are located here. Our party was invited to inspect the factories, but the day before we arrived in Darmstadt, about 5000 of the employees were called to the army, which necessitated the closing down of the factory temporarily. We were greatly disappointed at not being able to visit this noted establishment. Here the party broke up, some remained in Germany thinking it to be safer to remain than to leave, while others left for London. Only fourteen out of the party arrived in the United States on August 20th.

TRUMAN GRIFFIN

Minneapolis.

Responding to a request for a recital of my experiences on my trip abroad with the German-American Apothecary Society of New York City, I will say, I had a most interesting and instructive time and, after we arrived in the war zone, a most exciting time; certainly one hard to duplicate. The ambition of my life to make a foreign tour was fully satisfied.

I visited sixteen cities and the five countries: Germany, Austria, Switzerland, Holland and England. Aside from the educational enlightenment pertaining to pharmaceutical matters acquired, my interest was centered on the characteristics of the people as expressed in their dress, their mode of living and the architecture of their buildings. While the people as a whole do not differ in appearance essentially from those of our own country, I was impressed with the peculiar head-dress of the women of Leipsic, consisting of a very large black ribbon about eight inches wide and two feet long, worn on the back of the head; the wooden-shoe clad people of Holland, and the many colored and peculiarly styled dress, adorning the women of Bremen, were of great interest. The peculiar homes of the people, some of Flemish styles and the peculiar gabled roofs, covered with tiles and even some with sodded moss were very interesting. The architectural beauty of all their government buildings, museums, universities and cathedrals, adorned with works of art and sculpture, and filled with the finest specimens of craftsmanship, faithfully represents the work of men with ideas and imagination.

The palaces of the Imperial families were not impressive, architecturally. Their massiveness, however is pronounced. Their parks and gardens plainly show the work of the landscape artist. Standing at their entrance, you look down broad avenues and roadways, bordered with shrubs and trees, across splashing fountains and broad pools of water, over the many hued colors of their flower beds, on to vine clad walls and columns. Time will not permit me to describe, except in a very general way, the sights I saw; Bremen: Cathedral with its lead chamber of mummies, and the famous Rathskeller. Berlin: University and Pharmaceutical Institute with Botanical Gardens. Auto-ride through the city, famous street

"Unter den Linden," Palace of Kaiser Wilhelm. Entertained by Berlin Pharmaceutical Society at their club building. Suburb of Potsdam; through the Palace of Frederick the Great.

Leipzig: Visited exposition, aerodrome field and drive through the city. Dresden: Visited Grüne Vaults of Royal Palace, wherein were contained precious gems, jewels and antiques handed down by kings and queens.

The art gallery, with over 1500 works of art, contained the priceless treasure, Raphael's "Madonna di San Sisto," within a sanctuary of its own. Vienna: Was received in person by the Burgomaster in the beautiful city. Visited University of Vienna, Museum of Natural History, Vienna Hospital, "Schönbrunn," the summer home of the Emperor. At the Palace of the Emperor we visited the Royal treasury vaults, containing jewels, crowns and coronation robes of kings and queens. Here were exhibited ancient religious relics of the Romano-Germanic times: a piece of wood and a nail from the cross of Christ, a remnant of cloth taken from the table-cloth used at the "Last Supper". Nurnberg:—St. Sebaldus' Church, built between 1240-1477, Church of Our Lady, between 1355-1361, famous wall around the city preserved from olden time with its towers for protection of the city. Munich: "Nymphenburg," the Kaiser's summer palace and park; visited "Alte Pinakothek" containing paintings of old masters, Rembrandt, Van Dyke, Rubens and others; also "Glyptothek" which has a collection of classical sculpture. Lucerne: Alps and beautiful Lucerne. Strassburg—Capital of Alsace Lorraine; drive through old French part of city. Also visited large fort where our carriage was stopped by soldiers who searched us for fire-arms, my first war



BERLIN. OUR SPECIAL TRAIN.



VIENNA. HOLY GHOST DRUG STORE.

experience. Heidelberg: Aug. 1st, war declared against Russia. Reached Frankfurt Aug. 3rd, where we were held for ten days during mobilization; were under restraint all the time. Aug. 3rd, I was awakened at one o'clock, by a bombardment of over twenty minutes; soldiers were firing on a French air-ship which was attempting to drop bombs on a station from which were to depart, that night, thirty-eight train-loads of troops. I was held under suspicion as a spy, but was released on showing my passport. Secret service men were at every hand. We had no direct casualties and on Aug. 13th we folded our tents, asserted our American independence and stole away, sailing nearly two hundred miles down the Rhine into Holland; crossed the English Channel to London and then, via Liverpool, home to our native soil. This was a trip never to be forgotten.

MAX MENZEL

Minneapolis

Since returning to the United States the question has been asked me a number of times: "Are you disappointed in your trip?", referring, of course, to the disturbance and inconvenience caused travelers by the war. To all, I am ready to reply "No." Although I found it necessary to change my program a few times because of the war, I have seen enough to counterbalance any trouble, by witnessing the excitement incident to the soldiers going into the field, which will leave an everlasting impression on my mind.

Perhaps a short synopsis of my trip to Europe will best illustrate the pleasant times I had on the excursion.

July 2nd, the day of our departure across the Atlantic arrived, so we wend our way toward Hoboken, where the North German Lloyd S. S. Barbarossa is anchored, ready to take its load of human freight to the shores of our forefathers. Already most of the passengers are on the dock ready to embark. It is a motley crowd of American citizens, consisting of

about 400 souls, of which about 125 belong to the druggist's party, those who have joined the excursion fostered by the N. Y. Deutscher Apotheker Verein. All is hustle and bustle for about an hour, a farewell shake of the hands of the friends, who have come to see us off, when the band strikes up the national air, the gangways are drawn up, the anchor is raised and soon we are moving away from the dock on an eleven-day journey on the sea, leaving our cares behind. Gliding slowly down the New York harbor, we watch the unequalled line of skyscrapers and the statue of Liberty disappear in the distance, and then a feeling of loneliness creeps over us, which however is soon dispelled, for we look up our Minnesota delegation, consisting of Mr. and Mrs. Chas. Robinson, Mr. and Mrs. Truman Griffin and Prof. Gustav Bachman. Although the weather was fine and the water was smooth, the sea soon demanded its tribute, to which a number of the passengers were hastening to respond before evening. Even our Minnesota crowd did not fail to contribute their little mite.

July 4th, our national holiday, was duly observed by a march of the passengers around the decks, preceded by the band. Patriotic orations were then delivered in English and German.

In the evening a concert was given by the ship's orchestra, interspersed by readings and remarks.

A week passes. Fishing boats and steamers are getting numerous and sea-gulls are following in the wake of the ship, an indication that we are nearing land. Soon the first lighthouse comes into view and then the Scilly Islands. Although almost bare, they are welcome sight after the endless ocean of water.

Sunday, July 12th, about noon, we reached Boulogne-sur-mer, France, where the ship makes its first stop to unload 32 passengers. It seems like losing old friends, for we have become very well acquainted with some of them.

Another 24 hours and we catch the first glimpse of Germany, the mother-country, from which I parted 30 years ago, and to which, next to my adopted country, I owe so much.

After inspecting our baggage, we board a special train for Bremen, where we spend the balance of the day and the next, admiring the old buildings, so rich in history, built centuries ago. One of the most notable being the Cathedral, with its historic lead-cellar, erected in the 12th century.

Arriving in Berlin, during the afternoon of July 15th, the American druggists received a cordial reception by a delegation of Berlin druggists. Arrangements had been made to convey us to our hotels. The next day we were elaborately entertained by the German Druggists' Association. After a sight-seeing tour about the city, we were received at the Association building, where a speech of welcome was delivered by Dr. Salzman, the President of the association, which was responded to by Prof. Alpers of Cleveland, Ohio. We then inspected the manufacturing and wholesale establishment of the association, conducted along coöperative lines and an institution, the workings of which might well be copied in this country. After a sumptuous dinner, we were again taken in "autos" and driven to the Pharmaceutical Institute of the University of Berlin, where a lecture, given by Dr. Thoms, was the principal feature, and then guides took us through the large botanical gardens adjacent to the institute. To finish the day so full of instructive entertainment and enjoyment we were taken out to the beautiful lake "Wannsee". A boat ride around the lake dampened our appreciation of this somewhat, for a heavy rain came up during the trip, which drenched a number of the passengers who were on the edge of the boat. Landing at the "Swedish Pavilion," another feast awaited us, after which, to the music of a fine orchestra, some terpsichorean exercises were indulged in, lasting until the last train took us back to the city. The American druggists all agreed that the Berlin druggists are indeed royal entertainers, and the hope was expressed that an opportunity would be presented to show our appreciation by entertaining them on American soil.

After another day in Berlin, one day was spent in Leipzig and two days in Dresden. On the way from Dresden to Vienna, Austria, we passed through some of the prettiest sections of Germany, called the Switzerland of Saxony. An ever-changing panorama of natural beauty was presented to the eye and fields of various products were spread over the hill-sides and valleys like checkerboards. The harvesting of grain, principally rye, of which there seemed a good crop, was in full swing, most all of the work being done by hand, the women working like men.

We arrived in the city of Vienna on the evening of July 21st, where we were officially received by the druggists of Vienna. We assembled at the University of Vienna, for which the distinction is claimed of being the oldest university in existence. At the Rathhaus we were received by the Vice-Burgomaster, and as a token of good will and of appreciation of our visit, he presented us with an album of the city. His speech of welcome was responded to by Prof. Alpers, who translated the message of the Burgomaster to the non-German-speaking members of our party. While in Vienna, a number of us visited the Imperial Military Direction, where most of the supplies for the Austrian army are prepared. There we witnessed the packing and cutting of cotton and gauze and the filling of ampoules by the vacuum system. We found this place a very busy one, for the war cloud was then already hanging over Austria. We visited a couple of well-appointed pharmacies and found that business is conducted there about as it is here. The patent medicine evil seems to have

encroached upon the foreign market about as much as here. Found many of the old-time American nostrums on the shelves of the drug stores in Austria as well as in Germany. One thing that struck us odd was that every drug store is named after animals or other objects, the strangest one, perhaps, being the "Apotheke zum Heiligen Geiste." (Pharmacy of the Holy Ghost).

Leaving Vienna on the morning of July 24th we started for Nuremberg. One of the places pointed out to us on the way was the castle of the late crown-prince of Austria and his wife, whose untimely death is the cause of the present European war. They are interred there in a mausoleum, built under the direction of the crown-prince during his life.

No doubt, from an historic point of view, Nuremberg is the most interesting of the cities we visited. The old buildings and their quaint style, give the city an appearance so different from any place I know of. In feudal times this city was surrounded by strong city walls with moats between them. Much of these walls still remain in a fair state of preservation with many towers. Four main towers represented the four seasons of the year, twelve smaller ones to represent the twelve months of the year, 52 to represent the 52 weeks and 365 to represent each day in the year, with an additional one for the extra day in leap-year. However, I would not vouch for the correctness of this statement as the veracity of the sight-seeing guides is sometimes questionable.

Sunday, July 26th, we arrived in Munich, where great excitement prevailed on account of



MAX MENZEL, MINNESOTA.
"A Soldier of the Legion."



BERN. AT THE HOME OF DR. TSCHIRCH.

the declaration of war between Austria and Servia. Thousands of people were lined up in the square adjacent to our hotel, where the night before an altercation had arisen between a Servian restaurant-keeper and his guests, because he had refused to allow patriotic songs to be played by the orchestra. His guests, mostly students, became angry at his refusal and demolished the place. All of the fine marble tables, chandeliers and furnishings and every plate glass window, of which there were many, became a prey to the fury of the mob. It took a number of foot and mounted police to keep order about the place and open the way for street cars and vehicles to pass. July 28th found us on the way to beautiful Switzerland. Feasting our eyes on the wonderful scenery during this trip, we arrived in Lucerne about supper time. Unfortunately the next day was somewhat cloudy and unsuitable to get the full benefit of the scenery for which Switzerland is so justly famous. So while the greater number of our party decided to climb the noted "Rigi," with the expectation that the clouds would be lifted, a few of us decided to accept the hospitality of the celebrated botaniker and pharmaceutical instructor, Dr. Tschirch of Bern. Dr. Tschirch, who received us in person at the depot in Bern, at once conducted us to the Pharmaceutical Institute of the University, of which he is the dean. He showed us a great many things of interest, of which might be mentioned his pharmaceutical library, the second largest in existence, also a very unique collection of containers of crude drugs, perhaps the only collection of its kind in the world. A hurried inspection of the industrial exposition of Switzerland was then made, of which I want to say that although it was small, it was the best of its kind I have ever had the pleasure to see, showing the wonderful resources of this small republic. Not content with administering to our intellectual need, Dr. Tschirch and several of his able assistants did not neglect our physical wants, but took us to a very fine restaurant of the

exposition, where previous arrangements had been made for a sumptuous banquet. A drive about the city of Bern, surrounded by majestic snow-capped mountains, to the beautiful villa of the doctor, where another luncheon awaited us and a few hours of unrestrained enjoyment in the circle of his estimable family was spent, ended our visit, which will ever stand out in our remembrance as one of the most pleasant events of our European trip.

Regretting to leave this land of natural beauty we departed for the city of Strassburg, Germany, on the morning of July 30th, arriving there after a five hour ride. The time to look over this city was very limited, for we left again the next day for the University city of Heidelberg. A guide conducted us through this famous place of learning, where the traditional student life with its duels and drinking feasts are still carried on as of yore. One of the features for the tourists to see, is the "Carcer" or prison of this institution. It seems to be the ambition of the students to bear the distinction of having been incarcerated there, and they will sometimes go to extreme lengths to realize their desire. A visit to the ruins of the old castle Heidelberg, is worthy of mention. One of the features to be seen there is a colossal wine barrel, holding 49000 gallons. During its existence it has been filled three times the last time in the 18th century.

August 2nd, the first day of the mobilization of troops for the war, finds us in Darmstadt, the home of the world renowned house of Merck. Entertainment was to have been provided there for us, with a visit to their factory of chemicals, but the war is about to begin and time is too valuable to stop for the entertainment of guests. Great excitement prevails, caused by the gathering of troops of cavalry and artillery. Big auto-trucks are busy all over the city, picking up supplies and hundreds of "autos" and trucks are gathered together on a vacant square ready to be rushed to the front. Sight-seeing is a thing of the past, for our crowd is about to break up. We are told that our special train will not take us any farther and that everybody must look out for themselves, to get to the next place on our list. The exodus of people has commenced and various trains, crowded to the utmost, land our party at Frankfurt. Informed that the railways will take passengers only two days longer, that thereafter every train is to be used for the movement of troops only, we lose about half of our crowd, who rush to various ports to get transportation to our peaceful country. The balance stayed at a very good hotel, where arrangements had been made for our care, until the excitement incident to the first days of the war and the movement of troops was over, and arrangements had been made for the return to our beloved U. S.

C. A. ROBINSON

Minneapolis.

We sailed on a German boat, the Barbarossa, leaving New York July 2, under the auspices of the German Apothecaries' Association of New York. Ten days' time was consumed in the passage from America to Germany. On the 13th of July, we arrived at the city of Bremen, a beautiful place of well-kept homes, public buildings and residences. I must certainly give the German nation credit for the great care they take and the immense amount of work they must do in keeping their cities, villages, and the entire country in a clean, wholesome and well-kept condition. Members of our party were much interested in one sort of business that I for one did not know existed in that country and that was known as a droguerie; that is, a store where supplies are sold and dispensed outside of the prescription business or what would be known as a dispensary. These stores sell patent medicines, proprietary articles, fancy and toilet goods but do no dispensing or prescription work whatever. Our method of travel was by a small special train of six cars or coaches. We were under the direction of a conductor who in turn was guided by the company in whose care we were, and from whom we purchased our steamship, hotel, railroad, transportation, "bus" and baggage tickets. The time consumed in traveling between Bremen and Berlin was far from being tiresome or uninteresting as we passed through many small cities, towns and a beautiful country. The latter resembles our western territory with the exception, of course, that it is under a high state of cultivation and well populated. There are very few large farms, nearly all being, as near as we could judge, from five to forty acres in extent. The principal crops are rye, wheat, oats, sugar-beets, poppy seed. Very seldom would we see a field of what we call Indian corn. Arriving at Berlin, we were met by the professors, instructors, and members of the college of pharmacy and conducted to our hotels. Berlin is a beautiful city and as you know the largest in Germany, with clean, well paved, wide streets, beautiful parks, and even the congested part of the city as wholesome and clean as the outlying districts. The medium and high-class hotels are a great credit to the city, everything about these places showing great care as to general cleanliness. There are no back-alleys, for tin cans, rubbish or garbage. The courts of these hotels, usually filled with unsightly objects in our country, are perhaps the cleanest and best kept parts, where white cloth-covered tables and chairs, graveled walks and overhanging trees and palms enable one to enjoy a meal in a very pleasing and satisfactory manner. The story would be too long to tell you of the many receptions and entertainments afforded our party in the city of Berlin, all carried out in a business-like manner by the members of the colleges and places of learning who received our party.

Of course, the entire trip gave us only a bird's-eye view of these cities and the country, and yet to tell you every point of interest visited and every entertainment afforded us would take

too much time. While in Berlin, our association and party was given a reception by the American Ambassador, and his wife, Mr. and Mrs. Girard. Several of our party were somewhat startled at receiving this invitation, thinking that perhaps they would be called upon to wear dress-suits, but Mr. Girard at once eased our minds, by saying that it would be strictly informal, and, when we arrived at his house, we found that this democratic gentleman had kept his word and he appeared in his business suit, not at all more showy than any member of our party. He and his wife mingled with the company, expressing themselves as pleased indeed to see friends from America.

Our next stop was at Leipzig, certainly an interesting city, where we were very much interested in seeing the general conditions existing and the manner of living in this old German town. From Leipzig we went to Dresden, another beautiful, well kept, small city where we visited numerous old churches and enjoyed trolley and automobile trips about the city and surrounding country. From Dresden we proceeded to Vienna, the capital of Austria and here we were again received by those interested in pharmacy and they seemed untiring in their efforts to see that our party of Americans were well taken care of. Interesting visits were made to the hospitals and places of learning, and to the many beautiful parks and museums. I believe our most interesting ride was from Vienna to Nuremberg, and hardly a moment passed but what exclamations of surprise were heard as we passed through the beautiful country and along the valley of the river Danube. Fruits were being gathered, the harvest was just commencing and as our train passed through the country, we saw the methods of harvesting and general farming carried out in Europe. Very little machinery was seen. Occasionally, one of the old time reapers was observed. Most of the grain is cut with what we would call a cradle, not the heavy sort used in America but a light three-pronged affair, the grain, of course being laid on the ground and bound later. Hundreds of smaller fields were cut in the manner of Bible times by grasping a handful of grain and then cutting with the old fashioned grass sickle. A great deal of this, of course, was done by women. The farmers do not have their little homes located on each separate farm or tract of land but build them in little villages from two to three miles apart. Occasionally, where there was a large population, a small church spire would be noticed. Nearly all railroad crossings are either over or under the tracks; there are very few grade crossings, but where there are an attendant is at hand and gates are raised and lowered. As far as the eye could reach, these small farms could be seen stretching away over the rolling country all in the highest state of cultivation. In passing through wooded sections, no rough territory would be seen; that is, every log, branch, or twig had been cut and preserved in the homes of the villagers, piled up and covered, so that all could be made use of in winter. A certain wild flower or weed that is troublesome in that country, is a wild poppy, a very pretty blossom and was really ornamental. At nearly all of the larger stations that we passed through our train would stop long enough for the members of our party to disembark and obtain light lunches, such as sandwiches and the liquid refreshments which Germany is so famous for; beer, Rhine and Mosel wine. Nuremberg is the center of the German toy industry. From this point we went to Munich and in describing a trip in Germany, our strictly temperance hearers must bear with us if we mention the all important industry of this city, as it is known as the beer center of Germany. Beer, however, in Germany must not be compared with the product of this country, as you all know that the amount of alcohol in beer in Germany has been considerably reduced, as we understand the Kaiser realized the vast amount consumed and that perhaps it would be better for his people that this step be taken. At this city, the first, (or at any rate the first we saw) marked indications of war presented themselves and on the morning of our arrival we saw large plate glass windows in the retail stores that had just been broken by the mobs in their endeavors to capture Russian spies. Nearly all night long, great crowds paraded the streets singing German songs and cheering for their country. We went to Lucern, Switzerland, next, a beautiful country of snow-capped mountains, fertile valleys and pretty towns.

An invitation was received at Lucern on our arrival extending an invitation for those of our party who were interested to visit the capital, Bern, about fifty miles from Lucern. Here is located the pharmacy college under the direction of Professor Tschirch. Nothing was left undone to make it very pleasant for about 15 members of our party who decided to make the trip to Bern. Strassburg, located near the French border, was our next viewpoint, equally as interesting as the other cities we had visited and noted for its beautiful churches, statuary, and interesting scenery. Heidelberg, next on our list, was interesting on account of its University and the great number of students, its old historic castle, which brings many visitors to the city. At this city we were astonished to see such strong manifestations of war, troops marching, cavalry mobilizing, cannons and horses being transported and every day appeared stronger manifestations of war. In fact at this point some of our party, who were perhaps a little too free with their cameras, were arrested, in view of the fact that war had been declared at this time, but they were quickly released when it was known that they were Americans and members of our party. On our arrival at Darmstadt where the firm of Merck & Co. is located, a reception committee from this company met us on our arrival, and informed us that if it was our intention to endeavor to proceed to France, they greatly feared that we would never reach that country and would not have an opportunity of seeing the city of Paris and I regret to say that this proved true. These representatives of Merck & Co.

informed us that over five thousand men had been taken out of their laboratory and were already in uniform prepared for war. Darmstadt is a mobilizing point, barracks being located there, and all day Sunday, the day of our visit, soldiers of all ages, from seventeen to fifty years, were parading the streets in their new uniforms. All day, trains were arriving bringing, from the surrounding country, men and boys, in their citizen's clothes, with their little parcels of personal belongings, to the barracks that they might receive their uniforms and equipments. We left Monday morning going directly to Frankfort, but were destined to be disappointed regarding the balance of our trip, for while we were enjoying our luncheon, the conductor of our party informed us that the last regular train would leave Frankfort at 3 o'clock that afternoon. After that hour, all the trains would be taken over by the war officials for moving their troops to the front. A hurried consultation was held and about thirty-five of our party decided to take this train and go hurriedly across the country to Cologne on the Rhine River, crossing that river at Coblenz, where the famous Appollinaris Springs are located. The ride along the Rhine afforded us many beautiful sights.

We arrived at Cologne about 10 o'clock at night but were not allowed to get out of our coach. We were ordered to keep all lights burning and windows closed. The railway officials informed us that while it was known that we were an American party, the German army officials did not know who might be with us, as spies who might drop messages from the windows. From this point our route was almost due west through a small part of Germany and across Holland to the town of Flushing, on the Holland coast, where we arrived the next morning at about 9 o'clock. At this point we embarked on a Holland boat to cross the English Channel.

We arrived at the town of Queensboro about 6 o'clock in the evening, after having been stopped a number of times by British cruisers who sent officers on board our boat to investigate as to what passengers were carried. Our party arrived at the city of London about 9 o'clock in the evening, and experienced some difficulty in securing hotel-quarters, owing to the general rush to London from the continent by American tourists. Our stay in London was quite pleasant for about ten days, and we were enabled to visit many interesting points in the city and surrounding country. At the end of this time our party gradually broke up, different ones leaving London on the many steamship lines, especially British and American, that would take them back to good old America.

At this writing even, Oct. 20th, not all of our party have reported as having returned, as all did not take advantage of the last train as we did in getting out of Germany, but trusted that opportunities would present themselves, to enable them to eventually leave the country safely.

The statue of Liberty certainly did look as good to the many returning tourists, we feel sure, as it did to the writer. We are now very glad that we went and are equally pleased and satisfied to get back.



MEDIEVAL EXECUTION TOWER, NUREMBERG

Proceedings of the Local Branches

CHICAGO.

The November meeting of the Chicago Branch of the American Pharmaceutical Association was held at the School of Pharmacy Building, Tuesday evening, the 17th.

President James H. Wells presided and introduced Mr. Fred A. Miller, Botanist of Eli Lilly & Co., Indianapolis, who addressed the meeting on the subject, "The Cultivation of Medicinal Plants." His address was illustrated with many lantern slides, showing the detailed processes for the practical cultivation of various drug plants, including those yielding Belladonna, Digitalis, Stramonium, Althæa, Larkspur, Cannabis and Conium.

The address was very enthusiastically received by the audience of more than one hundred who voted it not only interesting but very instructive. A number of druggists outside of Chicago were present, including Mr. J. C. Wheatcroft, of Grayville, W. C. Irwin, of Salem, P. L. Gain, of East St. Louis, and Professors G. D. Timmons and E. H. Wisner, of Valparaiso, Indiana.



CINCINNATI.

The regular monthly meeting of the Cincinnati Branch, A. Ph. A., was held at the Cincinnati College of Pharmacy on Tuesday evening, November 10th.

President E. H. Thiesing directed a short business session, during which the minutes of the previous meeting, as read by the Secretary, were approved.

The President then introduced Mr. D. E. Murphy, who presented a very efficient paper, entitled: "The Folly of Not Filling the Demand." He aimed to show that, by the antagonism manifested by the druggist toward the products of the manufacturing pharmacists, who spend large amounts of money, special thought and energy to create a market for them; that the druggist has himself to blame for the coining of such words as "Substitutor" or "Substitution," and not alone that, but he has created an impression upon the public mind, of hesitancy and suspicion, not alone against medicinal products in general, but against the druggist himself.

The paper is full of meat and it led to a discussion, in which Mr. Freericks, Mr. Greyer, and others took part, and there is no doubt, that this subject will be taken up again for discussion at future meetings. Mr. Murphy was tendered a vote of thanks, after which President Thiesing introduced Prof Chas. T. P. Fennel, who chose for his subject: "The Early History of Chemistry." The lecture was profusely illustrated with pictures showing the earliest evolution of mankind, laying particular stress upon the ever recurring presence of Fire, which always attended the first development of man, the first workings of the precious metals, the first application of distillation, and always, the sacrifices of the people's offerings to their gods. The lecturer took his audience from the earliest pre-historic times to the Phœnician, Egyptian and Arabian periods; to the recognition of Fire, Water and Air as elementary bodies; through the field of alchemy up to the more modern development of chemistry. A very pleasing feature was the exhibition of books and manuscripts, some more than 300 years old and bearing the individual writings and signatures of such men as Scheele, Priestley, Lavoissier, Gay-Lussac, and others.

Professor Fennel was given a rising-vote of thanks. The meeting was well attended by members and their friends; the student body of the Cincinnati College of Pharmacy, as well as a number of the faculty and students of the Cincinnati Eclectic Medical College being present.

All voted to have spent an enjoyable and instructive evening.

CHARLES A. APMEYER, Secretary.



NASHVILLE.

The Branch held its regular meeting at Bloomstein's Hall on Church street, Thursday evening, November 19th, with President J. O. Burge in the Chair. Dr. E. A. Ruddiman made a full report of the Detroit meeting of the A. Ph. A., stating that it was the best meeting he had ever attended.

Mr. C. S. Martin, Ex-President of the National Wholesale Druggists' Association, by invitation, addressed the Branch on the subject of "The Effect of Recent National Legislation on the Drug Business." He gave a short history of the enactment of the war stamp tax bill by Congress and congratulated

the druggists of the country on their united efforts in defeating the tax on proprietaries. The Senate, he said, were very insistent on the provision and only receded, after they had been flooded with an avalanche of protests from all over the United States.

He explained the section of the law imposing a tax on toilet articles and cosmetics. Most retail druggists, he said, are manufacturers of some toilet preparation, and he urged them to be ready to comply with the law when it becomes operative December 1st. He reminded them of the tax on cigars and tobacco stands, doing a business over \$200 a year. Also of the tax to be levied on telephone messages over 15 cents, and on telegrams, promissory notes, contracts, deeds, insurance policies, bills of lading, express receipts, etc. He urged them to study the Clayton bill, especially the provision relating to exclusive agencies.

Dr. E. A. Ruddiman and J. B. Sands were appointed as a nominating committee to select the names of candidates for the various offices of the Branch to be voted on by mail. The Branch decided to meet at Bloomstein's Hall on the third Wednesday of each month at 3 p. m. Refreshments were then served.

W. R. WHITE, Secretary.



NEW YORK.

The October Meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of the 19th. Dr. H. V. Army was in the chair.

The minutes of the previous meeting were dispensed with.

Dr. Joseph Weinstein's report showed the Treasury to be in a healthy condition.

T. D. McIlhenie reported progress for Council of the parent association.

Louis Berger, Chairman of the Committee on Fraternal Relations, had no special report to make but referred to the work done during last spring and stated that matters generally were progressing satisfactorily.

R. P. Fischelis was elected to membership and at that time the Secretary called attention to the fact that 36 new members had been added to the roll in the past nine months.

Dr. G. C. Diekman reported on the Progress of Pharmacy, covering the determination of Camphor in ointments, the assays of certain volatile oils and Cinchona, Weinber-

ger's Whooping Cough Mixture, the decomposition of Linseed Oil by microorganisms, and the estimation of free Sulphuric Acid in Copper Sulphate. The report was discussed by Messrs. McIlhenie, Raubenheimer and Army.

Dr. William C. Anderson, Chairman of the Committee on Legislation, discussed the present status of the Harrison Bill, called attention to the Stevens Bill, the Stamp Tax, and also stated that Attorney-General Parsons of the State of New York had rendered an opinion that the amended section 182 of the Sanitary Code of the City of New York was in conflict with the Boylan State Law. He stated that the Boylan Law was working out satisfactorily. The report was discussed by Messrs. Murray, Raubenheimer, Fried and Weinstein.

The speakers of the evening were Messrs. Caswell A. Mayo, William C. Anderson, William Mansfield and Jeannot Hostmann. They reported on the association meetings of the past summer.

Caswell A. Mayo, President of the parent association, reported on the recent meeting of the A. Ph. A. and strongly urged all members to make it a practice to attend the yearly meetings. He pointed out that, aside from the valuable information and benefit gained by hearing the opinions of the members of the profession, friendships were made which continued throughout life. He stated that each year the meeting was conducted in a more businesslike manner. He praised the local committee whose work was efficient. Mr. Mayo stated that the papers presented before the Scientific Section were not of transcending importance this year. He has recommended to Dr. Herman Engelhardt, the newly-elected Chairman of the Scientific Section, that the work and study for this year should be concentrated on specific subjects. He recommended that all members of the association should feel that they are on the membership committee and laid stress upon the desirability of increasing the membership of the A. Ph. A.

Mr. Mayo stated that the meetings of the Section on Commercial Pharmacy were very interesting and well attended.

Dr. Weinstein's request for a report on the Diastase Club met with applause, as did also the report, which was interesting and amusing.

Dr. William C. Anderson made the report

on the Philadelphia Meeting of the N. A. R. D., calling attention to the price protection work being done. He stated that the membership had been increased and that the treasury had a good balance on hand.

Extensive reports were made by the Legislation Committee, as well as the Committees on Pharmacy Laws, Telephone, and Propaganda.

The discussions were interesting, stated the speaker, and the entertainment was characteristic of hospitable Philadelphia.

Dr. Anderson dwelt upon the importance of the vast amount of work being done by the Legislation Committee, and stated that all retail druggists should join the N. A. R. D. and support them in the good work they are doing.

Dr. William Mansfield reported that the New York Pharmaceutical Association Meeting was fairly well attended.

The real interest was the President's address in which important recommendations were made.

An unprecedented increase in membership was made during the year due to the efforts of Messrs. Riefflin and Smith.

Dr. Mansfield called attention to the scarcity of scientific papers.

Dr. Jeannot Hostmann followed with an interesting account of the New Jersey Pharmaceutical Association Meeting held at Lake Hopatcong. He indicated that about 260 were present and stated that President Holzhauer's annual report dealt largely with legislative matters. He stated that the association had a membership of about 850. Some twenty papers were read and all, with the exception of two or three, were written by retail druggists. It was the speaker's opinion that Raubenheimer's paper on "Dont's in Pharmacy," and Gallagher's paper on "Poison Laws" were of particular interest. He also stated that the entertainment given by the Commercial Travellers was unusually good. The reports were discussed and commented upon by Messrs. Raubenheimer, Diner, Army and Roemer.

The meeting then adjourned.

FRANK L. MCCARTNEY, Secretary.



PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held on Tuesday even-

ing, November 10, at the Philadelphia College of Pharmacy. President E. Fullerton Cook presided. The minutes of the last meeting were read and approved.

The committee, appointed at the October meeting to audit the treasurer's accounts, reported them to be correct.

Under the heading of "new business," Prof. C. H. Lawall introduced a resolution protesting against the opinion of the Chief of the Bureau of Chemistry of the Department of Agriculture, in which he states that the word "dram" unqualified, means 1/16 of an avoirdupois ounce. The resolution was passed and copies were ordered to be sent to the Chief of the Bureau of Chemistry of the Department of Agriculture and to the various pharmaceutical journals for publication. The full text of the resolution is as follows:

"The Philadelphia Branch of the American Pharmaceutical Association do hereby

Resolve: That we emphatically disagree with the opinion of the Chief of the Bureau of Chemistry of the United States Department of Agriculture as expressed in General Information Opinion No. 66, issued July, 1914, in which he states that the word "Dram" unqualified, means 1/16 of an avoirdupois ounce.

This is contrary to all pharmaceutical teaching and usage, and as the use of the word would largely be applied to medicinal products the impression created by the use, thus authorized, of the word would be misleading and might lead to serious results. The word dram, unqualified, should be held to mean 1/8 of an apothecaries (or Troy) ounce, which is 60 grains."

Professor Lawall also introduced a resolution protesting to the editors and publishers of Pearson's Magazine, against the publication of the article "Pills and Piracy," by Sloane Gordon, in the November issue of that magazine. The resolution was passed and copies ordered sent to the editor of Pearson's Magazine and to the various pharmaceutical journals for publication. The full text of the resolution is as follows:—

"The Philadelphia Branch of the American Pharmaceutical Association do hereby

Resolve: That we protest most energetically to the Editors and Publishers of Pearson's Magazine against the publication of the article "Pills and Piracy" by Sloane Gordon, in the November issue of the Magazine and condemn it as unfair and misleading in that it takes no cognizance of the care and skill exercised and the high educational attainments required to conscientiously practice pharmacy and avoid errors in the preparation and dispensing of physicians' prescriptions. If the underlying principle upon which

the author's article is based be admitted then barbers would only charge for the soap used in a shave and authors would only be permitted to charge for their paper and ink.

We not only ask that such articles be refused in the future but that some editorial expression of error or regret at the publication of the article in question be made in one of the issues of the near future and that this resolution be sent to the Editor of Pearson's Magazine and to the various Pharmaceutical Journals for publication."

The programme of the evening was then taken up and Dr. C. E. deM. Sajous read a paper dealing with "The Use and Therapeutic Value of the Popular Animal Glands."

Dr. William Jay Schieffelin, of New York, read a paper discussing, "The Use of Standardized Radium Emanations in Medical Practice."

The papers were interestingly discussed by Messrs. W. L. Cliffe, F. E. Stewart and H. C. Wood.

Mr. Franklin M. Apple was unable to present "The Review of Current Pharmaceutical Literature," being called out of town by the illness of his father. (Mr. Apple's paper appears in this issue.)

A vote of thanks as proposed by Prof. F. P. Stroup, was given to the contributors of the programme after which the meeting adjourned.

J. ED. BREWER, Secretary.



WASHINGTON.

The November meeting of the City of Washington Branch of the American Pharmaceutical Association was held on the 18th instant, at the National College of Pharmacy.

After disposing of the routine business and the selection of Messrs. Lewis Flemer, Martin I. Wilbert, and H. C. Butler, as a nominating committee to report at the December meeting, nominations for officers, Mr. W. S. Richardson introduced Dr. Wm. J. Schieffelin, of New York, the principal speaker of the evening, who gave a most interesting and instructive lecture on the physics and chemistry of Radium. A number of instruments used in the estimation of various forces which Radium exerts, were presented and their application fully explained. Dr. Schieffelin volunteered to answer questions on the matter of Radium and was kept long in the evening answering the queries of the members and their guests.

The meeting was the best attended since the organization of the City of Washington Branch.

The program for December, in addition to the election of officers, includes two papers, "Poison Plants of Stock Ranches," by Dr. C. D. Marsh, postponed from the November meeting, and "Chenopodium, or American Wormseed," by Dr. William Salant.

HENRY B. FLOYD, Secretary.



SAINT LOUIS.

The twenty-eighth meeting was held in the Saint Louis College of Pharmacy, Friday evening, November 27, 1914. After the disposal of the routine business, President Buehler announced his appointments on the Committee on Membership—Dr. Charles E. Caspari, William F. Kahre, Victor H. Krummenacher; Committee on Program—Leo R. Suppan, Louis Lieberstein, E. A. Sennewald; Committee on Legislation—Julius C. Hoester, Francis Hemm, J.P. Schoenthaler; Memorial Committee—William Gunn, Gustav Kring, Otto N. Speckart; Honorary Members on the Advisory Board—William Mittelbach, Ambrose Mueller, Adolph Brandenberger.

The Secretary then read a letter from Prof. Charles H. Rogers, Morgantown, West Virginia, in which he complimented the Branch upon the work it has accomplished. The Chair called upon Dr. Whelpley, who detailed the work that Mr. Rogers is doing for the upbuilding of pharmacy and of his efforts in promoting the West Virginia Branch.

Mr. Buehler read a paper on "Restrictions in the Distribution of Poisons." The paper, "The Sale of Poisons," as contributed by Mr. Mittelbach, Booneville, Mo., was read. Both papers were discussed from many viewpoints by Messrs. E. H. Wolff, Charles Gietner, Dr. Rehfeld, J. P. Schoenthaler, Paul Goodale, Prof. J. M. Good, Dr. Whelpley, M. J. Noll, Dr. O. F. Claus, Frederick Wolff, C. H. Bierman, Julius C. Hoester, Dr. O. A. Wall, Sr., and J. W. Mackelden.

The Chair stated that nominations were in order for a delegate in the Council of the parent body to succeed Mr. Ilhardt, whose time had expired. Mr. Jerome A. Wilkerson was elected unanimously to represent the Branch for three years.

The Chair stated that the next meeting will be held, December 18, at 8:30 p. m.

JULIUS C. HOESTER, Secretary.

College and Society

ILLINOIS PHARMACEUTICAL ASSOCIATION.

The semi-annual meeting of the Executive Committee of the Illinois Pharmaceutical Association was held at the office of the Secretary in Chicago on Tuesday, November 17, 1914.

The morning session was called to order at 10 o'clock and it was decided to hold the next convention at Centralia, June 15, 16 and 17, 1915.

The treasurer's report was read and showed that the expenses since the annual meeting were \$537.98, the receipts \$400.00 and the balance on hand in the general fund \$1122.65 and in the permanent fund \$600.00. Appropriations for the various standing committees were granted as follows: Legislative Committee, \$600.00; Propaganda Committee, \$100.00; Trade Interest Committee, \$25.00; School of Pharmacy Committee, \$25.00.

It was voted to charge a registration fee of one dollar for each person for registration at the annual convention.

A committee consisting of Messrs. W. C. Irwin, R. E. Dorland and I. M. Light were appointed to cooperate with the Illinois Pharmaceutical Travelers' Association in making arrangements for the Centralia meeting. Upon motion, Mr. Henry Schaper, President of the Chicago Drug Club, was added to this committee.

Upon motion the Secretary was instructed to write to the Postmaster General in regard to a ruling concerning the mailing of poisons, especially when these are physicians' prescriptions.

Nominations for the voting cards were made as follows:

Board of Pharmacy—W. W. Klore, O. U. Sisson, D. P. Seibert, C. M. Friesenecker, John Chwatal, L. P. Larsen, Geo. Moyer, Henry Eckart, C. A. Storer, Frank Ahlborn, C. F. Schultz, J. T. Murray, R. H. Slade, Aug. Sundine, Geo. G. Johnson, John Harsch, Chas. Frison, F. E. Blake, E. P. Hilligoss, Byron Armstrong, R. E. Dorland, P. L. Gain, Fred Pfaff, T. D. Gregg and H. C. Schuh.

Advisory Board—O. P. Stephan, C. F. Moritz, J. T. Lueder, F. M. Mares, Chas. Foucek, A. E. Letzler, George J. Guerten, John Lambrecht, Otto Mentz, C. H. Burkett, L. C. Staudt, W. B. Hattenhauer, Chas. Gustafson, F. G. D. Walker, W. S. Clintock, W. V. Dufner, S. D. Van Deventer, H. B. Rowe, S. M. Riggs, J. W. Doyle, E. A. Sells, P. H. Paul, F. J. Nirider, Royal Davenport and F. H. Kroh.

Several letters from members of the Committee who were unable to be present were read and correspondence with several other Associations was presented by the Secretary, who likewise made a report of his efforts in behalf of the Stevens Bill. None of these matters required action. The meeting adjourned late in the afternoon after an invitation had been received from the Chicago Branch of the A. Ph. A. to attend its meeting held the same evening.

W. B. DAY, Secretary.

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THE COLLEGE OF PHARMACY OF THE STATE UNIVERSITY OF IOWA.

The Junior class has elected the following officers: President, R. E. Everly, Canton, Ill.; Vice President, J. C. Lick, Dubuque, Ia.; Secretary-Treasurer, Lucile S. Shirchiff, Solon, Ia.; Yell Leader, W. R. Jennings, Red Oak, Ia.

The first annual conference of the College of Pharmacy was held at the Pharmacy building Friday afternoon, October 23. The conference was opened by Dean Teeters, who extended a welcome to the visiting alumni. The first paper, "Price Cutting and Its Demoralizing Effects," was by H. H. Springer, who emphasized the point that price cutting does not inspire confidence or help to establish a reputation for business integrity. The "Medicine Wagon" was the subject of a talk by Prof. R. A. Kuever. Prof. Kuever reviewed some papers published recently in a drug journal. His discussion brought out the fact that the use of patent medicines is on the decline and that no druggist should encourage their sale, particularly by sending wagons into rural communities, when he knows that self-medication is dangerous. Such a business is unprofessional and unscientific and especially to be discouraged

when ethical pharmacy offers a field broad enough for all and remunerative as well.

Following is the program in full:

"Why Experience Counts," O. L. Moffett.
 "Price Cutting and Its Demoralizing Effects," H. H. Springer.

"Salesmanship," E. M. Wertz.

"Drug Sundries," M. B. Herrald.

"The Peddler's Wagon," Prof. R. A. Kuever.

The papers were discussed by J. M. Canty, H. E. Weld, W. E. Palmer, G. E. Mace. Arrangements were made to hold a conference each year at "Homecoming," and a committee will be appointed by the president to arrange a program. The following officers were elected: President, H. H. Springer; Vice President, H. H. Gibbs; Secretary-Treasurer, H. M. Doden.

Phi Delta Chi held the first initiation of the year at the College on the evening of October 23. The initiates were W. R. Jennings, C. A. Pates and R. S. Potter.

Mortar and Pestle began their programs for the year on the 20th of October. Professor Bohumil Shimek gave a most interesting talk about his experiences in Europe during the past summer, dwelling especially upon the conditions of life among the common people. He also told some very interesting things which show the contrast between systems of education in universities there and in America. The second meeting was held November 3. G. J. Zopf talked on "What Constitutes an Efficient Drug Clerk."

Phi Delta Chi celebrated Founder's Day, November 2, with a banquet at the Hotel Jefferson. Dr. C. S. Chase acted as Master of Ceremonies, and the following after-dinner program was carried out:

"The Pharmacy College and Phi Delta Chi,"—Dean W. J. Teeters.

"Our Grand Council"—A. B. Wagoner.

"Fraternity,"—Professor R. B. Davis.

"The History of Phi Delta Chi"—Professor R. A. Kuever.

"E. Pluribus Unum"—Dr. W. J. Karslake.

"The View Point of the Pledge"—W. R. Jennings.

"The Fraternity House"—L. K. Fenlon.

This was the thirty-first anniversary of the founding of Phi Delta Chi fraternity at the University of Michigan. The chapter at the University of Iowa, known as Nu Chapter, is in good condition and their records of scholarship are of the highest order.

Of General Interest

COMPLIMENTARY DINNER.

The Northern Ohio Branch of the American Pharmaceutical Association and the Trustees and members of the Cleveland School of Pharmacy entertained Dr. W. C. Alpers at dinner on Wednesday evening, December 2, at the Cleveland Athletic Club, the occasion being in honor of the election of Dr. Alpers as President of the American Pharmaceutical Association.

The banquet was attended by all of those prominent in the profession in Cleveland, and was a most interesting and enjoyable function, a well-bestowed honor to the next President of our Association.



"The result of the balloting for officers in the American Pharmaceutical Association is of unusual interest and especially gratifying to Clevelanders, inasmuch as Dr. Wm. C. Alpers of this city was elected President of the Association, and Dr. H. V. Army, formerly of this city, was made a member of the Council. Quite apart from any justifiable local pride we feel that the A. Ph. A. is to be congratulated in securing the services of these two men in an executive capacity. That they have commanding ability, wide experience and erudition goes without saying, no man is called to leadership in the A. Ph. A. who has not these. But beyond that both have an intimate and first-hand acquaintance with the rank and file of the drug trade, and this is fortunate. The A. Ph. A. is unquestionably the oldest and most representative pharmaceutical association in America, but there is extant a very definite and widespread though ill-founded notion that the A. Ph. A. is a "high brow" organization. That its members and leaders are pharmaceutical "blue stockings," so to speak, men who have not had the experiences of the average druggist and therefore can not be in sympathy with him. Wherever this notion has prevailed it has invariably produced a feeling of indifference, if not indeed hostility, towards the association on the part of the retail druggist and his clerks, and the election to executive positions of men like Alpers

and Army will do much to dispel it. And this, we repeat, is fortunate. The average druggist needs the A. Ph. A. and what it stands for quite as much as he needs anything; and the A. Ph. A. in turn can not afford to get too far away from him, lest it lose "the common touch" and so fall short of what it aims to be, "the clearing house of American pharmacy."—*Association News, Northern Ohio Druggists Assn.*



EXECUTIVE BOARD OF THE A. D. F. I. CO.

The third quarterly meeting of the A. D. F. I. Co. was held in Cincinnati on Friday and Saturday, November 20th and 21st. Messrs. Chas. H. Avery, L. G. Heinritz, Jas. H. Beal, Geo. B. Kauffman, Walter Rothwell, A. O. Zwick, and Frank H. Freericks were in attendance. Preliminary arrangements were made for the directors and stockholders meeting, which takes place on the 9th and 10th days of February. Many important matters found consideration on the part of the Committee, inclusive of entering some additional states for business.

The first nine months of the year have shown a splendid growth in the business of the company, and it seems now that from every viewpoint the year will end as the most successful one in its history.

During the first nine months of this year, the company saved its policyholders \$37,341.88 in premiums, this amount being retained by the policyholders, and such savings will be in excess of \$50,000.00 for the year.

For the first nine months of the year the company wrote insurance amounting to \$10,941,121.70 at a premium of \$112,025.64, which is an increase over the corresponding period of the preceding year amounting to \$1,681,886.37 at a premium of \$17,094.13. On October 1st the company had in force business amounting to \$13,919,115.70 at a premium of \$144,135.38. So far this year the fire loss has amounted to \$31,935.41. The expense of conducting business for the first nine months amounted to \$34,843.14. Business re-insured for the first nine months was at a premium of \$13,890.88. The Re-Insurance Reserve of the company was increased to \$63,632.24. The total assets on October 1st amounted to \$370,304.55, and the total liabilities, other than re-insurance reserve, amounted to \$5,823.85.

DR. F. B. POWER.

Dr. Frederick B. Power announces his retirement from his position as Director of the Chemical Research Laboratory of the Burroughs, Wellcome Company of London, Eng., and his return to this country, where his address will be 535 Warren St., Hudson, N. Y. He will be succeeded in his former position by Dr. Frank L. Pyman. Dr. Power has occupied the position he vacates for eighteen years, and during that time he has contributed many papers of great interest and benefit to the profession.



MODEL PHARMACY LAW.

The Section on Education and Legislation of the American Pharmaceutical Association is at work on a difficult and important task—that of drafting a Model Pharmacy Law. Each state pharmaceutical association and each state pharmacy examining board has been asked by the chairman of the Section to appoint one man who is particularly interested in present pharmacy laws to cooperate in this work, thus making a sub-committee of two in each state.

It will be the work of each sub-committee to go over their present pharmacy law, indicate changes which they deem necessary and make suggestions for additional provisions. These suggestions will be sent to the Chairman of the Section on Education and Legislation, and from the material thus gathered the members of the Section will make the first draft of a uniform Model Pharmacy Law.

This first rough draft will then be submitted to the members of the various sub-committees for such changes as they may deem necessary to suggest. Important differences of opinion on any one or all provisions will be submitted to the vote of the members of the various sub-committees by mail, together with arguments pro and con, and the decision of a majority is tentatively to control.

The tentative draft thus agreed upon will be submitted by the sub-committees of each respective state to its next meeting of the state pharmaceutical association, for discussion, approval or disapproval, either in whole or in part. The decision of each respective state association will then serve as a guide to their sub-committee in their final portion of the drafting.

These various sub-committees together in one body will be known as the Voluntary

Conference of the Section on Education and Legislation—each man having signified his willingness to serve and his interest in the work.

This Voluntary Conference will assemble in meeting under the auspices of the Section on Education and Legislation at the next annual meeting of the American Pharmaceutical Association where the final draft of the Model Pharmacy Law will be agreed upon.

Carrying on the work in this manner it is hoped that it will provide the best thought on the subject and the combined opinion of the best qualified pharmacists in the United States—thus making a Model Pharmacy Law which will be thoroughly representative.

RUDOLPH A. KUEVER,
The Secretary of the Section.

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A CORRECTION.

The motion and the remarks, on p. 1498 of the November number, in relation to the recommendation that a special committee be appointed upon the subject of standardizing pharmaceutical degrees, were erroneously attributed by the stenographer, to Mr. Henry M. Gordin. They should have been ascribed to Professor C. B. Jordan of Purdue University of Lafayette, Indiana.

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PANAMA-PACIFIC EXPOSITION NOTES.

Norway broke ground for a Norwegian pavilion on the grounds of the Panama-Pacific International Exposition on October 31. Other nations have used silver and gold spades in the formal ground breaking, but Norway used two shovels of special significance, having a part in Viking romance. One is an ice shovel of the "paddle" type, made of wood from the ship *Victoria*, of the Sir John Ross Arctic expedition. The wood is held together by thongs and the blade is tipped with whalebone. Walrus tusks form a part of the handhold. The other shovel is one brought through the Golden Gate by Capt. Roald Amundsen, discoverer of the Northwest Passage and the South Pole. It was a part of the equipment of the *Gjoa*, which now rests in Golden Gate Park.

The State buildings now under construction on the grounds of the Panama-Pacific International Exposition represent a cost of \$1,200,000. The cost represented by the foreign pavilions in course of construction is \$1,000,000. These figures are exclusive of

the cost of interior fittings and furnishings, landscape gardening, installing of exhibits, and maintenance. The States most recently taking steps to construct buildings are Alabama and Nebraska. The most recent nation starting a pavilion is Switzerland.

Capt. Asher Carter Baker, U. S. Navy (retired), director of exhibits of the Panama-Pacific International Exposition, has left San Francisco for Europe, where he goes as a special commissioner of the exposition to assist European exhibitors in the final preparation of 1915 exhibits for shipment and display. No nation has changed exhibit plans because of the war.

Word has been received from Germany by officials of the Panama-Pacific International Exposition that German exhibitors are preparing exhibits for the 1915 exposition in spite of the war. With the exception of a few manufacturers near the border, there have been no withdrawals on the part of German merchants. German architects are in San Francisco at this time constructing the German sections for the nation's exhibits. Germany has established a New York office for exposition activities. One of Germany's most striking exhibits will be the Leichner Fountain, which will be shown in America for the first time. It is more than 100 feet high and appears as a great flame, yet the hand can be run through it as safely as through water.

It is announced that the Canadian Pacific Railway, which has its headquarters in Calgary, and which decided, on the breaking out of the war, to abandon an exhibit of some pretensions at the Panama-Pacific exposition, has now determined to make an exhibit along the lines originally planned.

A very large proportion of the specimens, especially the exhibits representing Alberta, have been collected. These include grains and grasses of every description that grow in the west. The north country, with its varied and wonderful animal life, will contribute its quota, while the minerals will come from British Columbia.

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NECROLOGY.

James E. Cooper, aged 44 years, in Lexington, Ky., on Saturday, September 5, 1914. He became a member of the American Pharmaceutical Association in 1907.

William H. Lacey, aged 65 years, in Philadelphia, Pa., on Wednesday, September 30,

1914. He became a member of the American Pharmaceutical Association in 1907.

Gustavus Alexander Knabe, in Montgomery, Ala., on October 5, 1914. He was a life member of the American Pharmaceutical Association, joining in 1876. J. W. E.



Letters to the Editor

Mason G. Beebe, the Secretary of the Board of Pharmacy of Vermont, states that Dr. D. A. Bisbee, who sold the Wood Alcohol from the use of which, as a beverage, thirteen deaths have resulted, is not a registered pharmacist of that state and that he was not conducting a drug-store recognized as such, by the State of Vermont at the time of the sale of the poisonous liquor. Bisbee is a graduate of a medical college, but his license as a pharmacist, which he secured by registration when the Pharmacy Law was passed, had been previously revoked by the Board of Pharmacy, and at the time of the sale he was conducting a store for the sale of general merchandise, among which were a few patent medicines.



Little Rock, Ark., Nov. 24, 1914.

Editor Journal A. Ph. A., Columbus, Ohio.

I wish to congratulate you on the superb November issue of the Journal.

Every paper you admitted to the pages is a gem! I think I can see dear old chum Hynson when he read his "All Fool's Day, etc." How scientifically he punctures the conceit of some "d-d Doctors," as he meanders along! Big-hearted old fellow "his bark is worse than his bite."

But must I acknowledge it? The pictures first of all, claimed my loving attention. Just look at Remington in the front! Well is he placed. Next to his cordial smile and hand-grasp, which I had to miss at Detroit, comes the delight of looking at his masterful but still modest countenance.

Am I wrong in detecting some little "falling away" of his once luxuriant locks? It seems to me he is following the fashion set by Whelpley, my *enemy* in 1861-5, but *friend* ever since! If he was not in the Union army *bodily* he was in *Spirit*.

Then look at Army and Wulling! They both want to talk. West reminds me of Boston where I was treated so royally that I thought I was a sure enough Yankee!

I am so glad you found space for those lovely faces of some grand women! I sometimes imagine that Mrs. Godding showed me *particular* attention at the Boston meeting, but in my cooler moments I recall that she

showered smiles and kind words to every stranger she met. She was a help-mate to John G. Godding in every sense of the word. Mrs. Culley's face proves that there are good-looking women out in Salt Lake! "Howdy, Mrs. Whelpley," may you live forever.

Were I to mention the names of my dearly beloved personal friends, printed in your Journal, you would surely bar out this effusion. If you print it, however, allow me to recognize Mayo, Mason, England, Beringer, Payne, Anderson, Day, Apple, Rudiman, Wilbert, R. H. Walker, the rough diamond of Texas, Lemberger, Eberle, Diehl, Wallace of Pennsylvania, the state from which I "escaped" in 1840 when at the early age of four years!! However, I must close these reminiscences because your space is rather valuable.

John B. Bond, Sr.



FORNEY, TEXAS, Nov, 20th, 1914.

The Editor, Journal of the American Ph. Assn., Columbus, Ohio.

My Dear Sir:—On the first page of the Journal of the November issue in a biographical sketch of Prof. Joseph P. Remington, in recounting the different societies and associations of which he is an honorary member, I regret to have to be compelled to call your attention to the fact that you omitted his being an honorary life member of the Texas Pharmaceutical Association. On page 127, Proceedings of 1910, you will find "Upon motion of Secy. Eberle, Prof. Remington was unanimously elected an honorary life member of the Texas Pharmaceutical Association."

I realize that the honor Texas would do to Dr. Remington, is really an honor to Texas, rather than to the doctor. We are proud to have great men as members of our association, but when a man is both great and good we are particularly interested in his being counted as one of our number—and Dr. Remington is both great and good.

With best wishes I am,

Walter D. Adams,
President.



The Pharmacist and the Law

LICENSES—RECIPROCAL REGISTRATION—REGULATION BY BOARD OF PHARMACY.

Under Kentucky Acts 1910, c. 113, the State Board of Pharmacy is authorized to exchange certificates of registration with other states, under such rules as the board shall determine. The board adopted a rule that

applicants must have been registered in the state from which they apply at least one year before reciprocal registration is granted. In mandamus against the board to compel them to grant the petitioner a pharmacist's certificate, it appeared that his application had been denied, because he had not been registered in Georgia, the state from which he applied, for one year. He subsequently, on the elapse of the required year, made another application. Meanwhile the board had passed an additional rule, requiring that the applicant should have, for one year prior to examination, been a bona fide resident of, and been engaged in the drug business in the foreign state. As the petitioner had not been an actual resident of Georgia for one year prior to his registration in that state, his application was again denied. He claimed that the board's rules destroyed the right of reciprocal registration. The court did not concur in this. It said that, apparently, persons living in Kentucky, who were unwilling to stand the Kentucky examination, went to other states where they did not reside to get certificates, and then presented these certificates for reciprocal registration to avoid standing the Kentucky examination. But for the rule of the board, a person who had failed in the Kentucky examination might immediately go to another state, obtain a certificate, and return to Kentucky, and as a matter of right, have a certificate issued to him by the Kentucky board. The rule was held to be not arbitrary, but reasonable. The petitioner's constitutional rights had not been violated. The rule did not discriminate against the citizens of another state. It was neither harsh nor unwarranted. The petitioner was a citizen of Kentucky. The purpose of the rule was to prevent citizens of Kentucky from evading the statute of that state requiring them to pass an examination, in order to obtain a certificate as a pharmacist. Mandamus was refused.

King v. Kentucky Board of Pharmacy, Kentucky Court of Appeals, 169 S. W., 600, decided October 6, 1914.

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INTOXICATING LIQUORS—SEARCHES AND SEIZURES.

In an action of trover against a sheriff and his deputies, it appeared that the plaintiff was a registered druggist and pharmacist in a village in Michigan. He had given no bond for the sale of liquor as a druggist on May

1, 1911, and did not give such bond until July of that year. On May 19, 1911, at an early hour in the morning, the defendants, holding a search and seizure warrant, made a search of the plaintiff's premises, and seized and took away liquors of the claimed value of \$284.

Michigan Pub. Acts, 1909, No. 107, Section 27, provides that if any person makes a sworn complaint or affidavit before a magistrate, that he has cause to believe, and does believe, that liquors are being manufactured, sold, furnished, or given away as a beverage, or kept for the purpose of being sold, etc., the magistrate shall issue his warrant to an officer, commanding him to search the premises designated, and, if such liquors are found, to seize them. Section 29 provides that no warrant shall be issued, until there has been filed an affidavit describing the house or place to be searched, the things to be searched for, and alleging substantially the offense in relation thereto, and that the affiant believes, and has good cause to believe, that such liquor is there concealed. In the present case, the affidavit merely alleged that the affiant believed that liquor was being sold, furnished and given away and kept for that purpose in the plaintiff's drug store, but did not allege that he believed and had good cause to believe that such liquor was there concealed. It was held that the affidavit was fatally defective, and did not give the magistrate jurisdiction to issue a warrant, and that the warrant issued was no justification to the officer for the seizure of liquor found on the plaintiff's premises.

Bullock v. Ward, Michigan Supreme Court, 148 N. W., 651, decided October 2, 1914.

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UNFAIR COMPETITION—"SECONDARY TRADE NAMES."

Suit in equity was brought in the Oklahoma Federal district court, to enjoin the defendants from an infringement of the plaintiff's trade name, and to prevent unfair competition. It was held that there was no evidence tending to show that the defendants had been guilty of the use of the plaintiff's trade name. The facts with regard to the allegation of unfair competition, as stated by the court, are as follows: The trade name of the plaintiff's product is "Coca-Cola." The defendants prepared and sold a beverage which is called "Koke." Both beverages are made from syrups mixed with carbonated

water. Both are put up in bottles, and are served by the glass at cold drink stands. The bottles containing "Koke" are a little taller than those containing "Coca-Cola." The bottles containing each beverage have a tin cap over the stopper. The words "Coca-Cola" and "Koke" appear in script on these tin caps. "Coca-Cola" and "Koke" are similar in color. The defendants sold to dealers exclusively. It appeared, in testimony, that, in some instances, persons who wanted Coca-Cola would say, "Give me a dope," or "Give me a Koke." There was also proof to the effect that two or three dealers in Tulsa, Okla., gave "Koke" to their customers when they had called for "Coca-Cola." There was no proof that the defendants sold "Koke" for "Coca-Cola," or advised their customers to do so. In that respect this case differs from the case of Coca-Cola Co. v. Gay-Ola Co., 200 Fed., 720. In that case, the defendant claimed to have discovered the complainant's formula, and to be in fact making the same thing. There the Court of Appeals for the Sixth Circuit held that a case of unfair competition had been made out, in that the defendant sold its product "as and for Coca-Cola." Nothing appeared in the testimony, in the present case, connecting the defendants with any effort to sell their product for Coca-Cola. There was nothing to show that they had such intention. In the case of Coats v. Merrick Thread Co., 149 U. S., 562, where unfair competition in the manufacture and sale of thread was charged, the court said: "We think the defendants have clearly disproved any intention on their part to mislead the dealers who purchase of them. Indeed, such dealers could not possibly fail to know what they were buying, and the fraud, if any, was practiced on the buyer of a single or a small number of spools, who might be induced to purchase the thread of the defendants for that of the plaintiffs. If the purchaser of such thread desires a particular make, he should either call for such, in which case the dealer, if he puts off on him a different make, would be guilty of fraud, for which the defendants would not be responsible, or should examine himself the lettering upon the spools." Although it appeared in testimony, that it was the custom of dealers, in serving the two beverages, to remove the tin caps from the bottles, so that the purchaser did not see the name thereon, that would be true as to any beverage of like or similar color to Coca-

Cola. According to the testimony of the plaintiff's agent, there are 181 beverages having practically the same color as Coca-Cola. The defendants, it was held, could not be held responsible for what their customers did without aid, suggestion, or inducement from them.

The plaintiff also argued that "Koke" had become the "secondary name" of its product, because it appeared from the proof that some persons desiring that product say to the dealer, "Give me a Koke." A trade-name may be acquired by adoption or use. But the plaintiff had never used the word "Koke" in connection with its product. It has taken and used the name of "Coca-Cola." The use of the word "Koke," as applied to the product of the plaintiff, had been, so far as the testimony showed, by persons upon their own volition without being moved thereto by the defendants. If the use of the name had been observed by the defendants, and it was afterwards adopted by them with the purpose and intention of taking advantage of that fact and to engage in the manufacture and sale of a beverage and call it "Koke," and sell it "as and for Coca-Cola," then a case of unfair competition would undoubtedly be made out.

Assuming that there is such a thing as a secondary trade-name, the right to its exclusive use must depend upon adoption and use, just as in the case of a primary name. There is such a thing as a name having acquired a secondary meaning. But it was held that the facts in this case did not call for an application of that rule. The relief sought here, was the prohibition of the use of a name that the defendants had neither adopted nor used. There was nothing to show that the defendants were using the name for the purpose of selling the beverage manufactured by them for Coca-Cola. The plaintiff's bill was therefore dismissed.

Coca-Cola Co. v. Branham, 216 Fed., 264, decided July 15, 1914.

Council Business

COUNCIL LETTER No. 6.

Philadelphia, Pa., November 12, 1914.

To the Members of the Council:—

Motion No. 10 (Election of Members; Applications Nos. 31 to 36, inclusive) has received a majority of affirmative votes.

In connection with the subject of time of holding the sixty-third annual meeting of the American Pharmaceutical Association and the suggestion that it be held either before or immediately after the time set for the annual meeting of the A. M. A., in June, 1915, Local Secretary *Pro-tem*. Schneider opposes the suggestion on the ground that the colleges of pharmacy do not close early enough to allow some of the most active members of the Association to leave for San Francisco.

Frank H. Freericks writes as follows:

"I am just in receipt of Council Letter No. 5, and note that Mr. Wilbert requests consideration for the holding of our Annual Convention some time in June, either immediately before or immediately after the meeting of the A. M. A. Of course, it would be most desirable to arrange for the respective conventions at about the same time, especially since otherwise it may interfere with the attendance at our convention of some of our most valued members. However, I cannot help but point out, that the holding of the convention at that time in June will conflict with the dates set for a great many State Association meetings, most of which take place late in June and early in July. As Chairman of the Section on Education and Legislation, I would say, also, that the Section has mapped out an elaborate plan for the drafting of "A Modern Pharmacy Law," with the support and co-operation of State Boards of Pharmacy and of State Pharmaceutical Associations. It is a feature of this plan to have the drafting of such a modern law discussed at the annual meeting of all of the State Associations, and then to have it finally agreed to and final changes made at the sessions of the Section on Education and Legislation. This will work-out well, if the convention is held during the middle or the latter part of August, but it will not be possible if the convention is held in June. Of course, you will please understand that the Section on Education and Legislation does not desire in any manner to interfere with the most suitable date for holding the convention, even if this should prevent altogether the carrying-out of its tentative program. However, I believe it but right that the Council should be made acquainted with the facts herein stated."

General Secretary Day writes:

"I have Council Letter No. 5. I presume that the matter of fixing the date for the Sixty-third annual meeting at San Francisco is now up for discussion. I would call attention to a serious disadvantage in holding our meeting in June and that is, that we would certainly conflict with the meetings of many of the state pharmaceutical associations. Nearly all of the state associations meet in June. There would not be so much conflict if we held our meeting immediately following the A. M. A. meeting, say the week beginning June 28th, but I would think that

the date suggested by the local committee, August 9th to 14th, is to be preferred.

The suggestion of the local committee to so arrange the program that the business meetings would not interfere with the entertainments conveys a subtle irony and raises the question of whether we are going to San Francisco chiefly to be entertained. As the Sage of East Aurora has remarked, "If cigarette-smoking interferes with your business cut out the business," but, seriously speaking, I believe that the entertainments are a great attraction and will be so especially at the coming meeting, but it will be difficult enough to hold our members of the sessions when there is so much to be seen at the Exposition. If the method of handling simultaneous sessions can be developed so successfully as it was at the recent Detroit meeting, perhaps it may be possible to condense our business sessions within five days or even within four so as to allow more time for the entertainments. To make entertainment the prime feature, however, I believe would be a serious mistake."

No further comments have been received and the vote will now be taken on the recommendation of the Local Committee in Council Letter No. 5, that the time of holding the sixty-third annual meeting of the American Pharmaceutical Association be set for the week of August 9th to 14th, 1915, inclusive.

Do you favor the above recommendation? It will be regarded as *Motion No. 11, (Time of Holding Sixty-third Annual Meeting of the American Pharmaceutical Association, i. e., week of August 9 to 14, inclusive).*

Local Secretary *Pro-tem*. Schneider writes as follows:

"I am enclosing a copy of a letter from the Secretary of the Canadian Pharmaceutical Association which should receive immediate attention. In order to save time I move that the American Pharmaceutical Association extend a hearty invitation to the Canadian Pharmaceutical Association to meet in San Francisco in 1915 about the same time as the time to be fixed for the meeting of the A. Ph. A."

Canadian Pharmaceutical Association,
Office of the Secretary,
Toronto, Oct. 20, 1914.

Mr. J. A. Barr,
Panama-Pacific Exposition,
San Francisco.

Dear Sir:—I have your letter of the 14th re. the 1915 convention of the Canadian Pharmaceutical Association.

The convention of the Association which was called for Winnipeg this year was postponed on account of war conditions and of course this leaves the place of meeting for 1915 wide open.

The general feeling is that Winnipeg will be the point of assembly but the matter will have to come before the Executive for decision on the 23rd of the month. I will immediately

sion and, as yet, nothing has been done. When a decision is arrived at, will communicate with you.

Yours sincerely,
G. E. GIBBARD, Secretary.

Motion No. 12 (Invitation to Canadian Pharmaceutical Association). Moved by Albert Schneider, seconded by Dr. F. E. Stewart, that the American Pharmaceutical Association extend a hearty invitation to the Canadian Pharmaceutical Association to meet in San Francisco in 1915 at about the same time as that fixed for the meeting of the American Pharmaceutical Association.

The following communication, addressed to the Secretary of the Council, has been received from Charles A. Rogers, of Morgantown, W. Va.:

"I have your esteemed favor of the 4th inst. notifying me of the favorable action of the Council regarding our petition. I, in turn, will take great pleasure in reporting the same to the pharmacists of the state. I note that the Branch is called the Morgantown, W. Va. Branch of the A. Ph. A. I might suggest that it would be advisable to have the nomenclature changed to the West Virginia Branch, etc. This would not convey the idea that it is a localized affair and would facilitate the work of getting pharmacists throughout the state interested. As soon as I am positive that my list of members is correct, I will inform you regarding the number. At the present time I feel sure that we will have twenty-five members. We will act accordingly with regard to the member of the Council. We hope to hold our initial meeting on the evening of November 19th."

Do you favor the change of title of Morgantown, W. Va. Branch, A. Ph. A., to West Virginia Branch, A. Ph. A., as requested above? This motion will be regarded as *Motion No. 13 (Change of Title of Morgantown, W. Va. Branch, A. Ph. A. to West Virginia Branch, A. Ph. A.)*

General Secretary Day writes:

"The expenses of the stenographic report for the Detroit meeting were \$379.18. We had originally appropriated in our 1914 budget, \$250.00, but there was a balance due on reporting the Nashville meeting of \$100.00, which has since been paid, also a small item for the House of Delegates of \$1.50. We now need \$230.68 to cover the expenses of the stenographic report of the last meeting. The Finance Committee has approved of this proposed addition to the budget.

Motion No. 14 (Appropriation of \$230.68 for Stenographic Services). Moved by W. B. Day, seconded by J. A. Koch, that an addi-

tional appropriation of \$230.68 be made for stenographic services for the Detroit meeting.

J. W. ENGLAND,
Secretary of the Council.



COUNCIL LETTER No. 7.

Philadelphia, Pa., November 24, 1914.

To the Members of the Council:—

Motion No. 11 (Time of Holding the Sixty-third Annual Meeting of the American Pharmaceutical Association, i. e., the week of August 9 to 14, inclusive), No. 12 (Invitation to Canadian Pharmaceutical Association), No. 13 (Change of Title of Morgantown, W. Va. Branch, A. Ph. A., to West Virginia Branch, A. Ph. A.), and No. 14 (Appropriation of \$230.68 for Stenographic Services), have each received a majority of affirmative votes.

Dr. H. M. Whelpley writes as follows:

"*Entertainment at the 1915 Meeting.* I have read with much interest the suggestion that the real work of the A. Ph. A. at the 1915 meeting be so arranged that it will not interfere with the ambition and good intentions of the local Committee of Arrangements, in charge of the entertainments. Our meeting at Detroit was one of the most enjoyable in the long series of A. Ph. A. conventions. It was also a meeting for real work. What may be termed the 'business' of the association was given first consideration, as I feel it should be every year. If we are going to San Francisco merely for entertainment, I believe it would be better to hold an A. Ph. A. meeting in some central location and then go on to the Pacific Coast for our entertainment. The A. Ph. A. meetings are generally held with a view of increasing the local interest in the association. I hope the recently formed San Francisco Branch will make a good showing. We need more members on the Pacific Coast, more papers from them for the different sections and larger delegations at the annual meetings. The San Francisco Branch has the opportunity of accomplishing much good work in this direction."

At the fourth general session of the recent annual Convention held at Detroit, the "Committee on the Recommendations of the Retiring General Secretary and Editor" (Journal A. Ph. A., Nov., 1914, 1503), recommended the following:

"Your committee in conclusion recommends that, in testimony of the unusually valuable services of the former General Secretary and Editor, James H. Beal, that an honorarium of \$1000 be presented to him with the grateful thanks of the Association, and

with the expression of the hope that many years of usefulness be vouchsafed to him."

The recommendation was referred to the Council for consideration.

Dr. Beal was not present at the meeting and it was not known whether an honorarium would be acceptable to him or not, and there was no one present to speak for him. Hence, the Council-reference.

The Secretary of the Council wrote Dr. Beal as to his wishes in the matter and the following reply has been received:

"While I am grateful to those who thought of voting me an honorarium, I feel that a precedent of this sort should not be set. If such an honorarium should be voted me by the Council, I would expect to immediately turn it over to the Endowment Fund."

The term of Thomas F. Main, of New York, as a member of the Commission on Proprietary Medicines, has expired, and he is nominated to succeed himself by C. A. Mayo, seconded by J. W. England.

Do you favor his re-election? This will be known as *Motion No. 15 (Election of Thomas F. Main as a member of the Commission on Proprietary Medicines for term expiring 1919)*.

It is the business of the Council to annually designate the member of the Commission on Proprietary Medicines who shall act as Chairman. In 1914, Dr. James H. Beal acted as Chairman. Do you favor his re-appointment? This will be known as *Motion No. 16 (Appointment of Dr. James H. Beal as Chairman of Commission on Proprietary Medicines)*.

Albert Schneider, Local Secretary *pro-tem*, writes (November 18, 1914) that:

"I have just written a letter to Dr. W. N. Nagai, President of the Pharmaceutical Society of Japan urging the Society to meet in San Francisco in 1915. I hereby move that The American Pharmaceutical Association extend a hearty invitation to the Pharmaceutical Society of Japan (Nippon Yaku-gakkwai) to meet in San Francisco in 1915 at the same time as the A. Ph. A. Dr. Nagai's address is No. 8, Shino-miyabicho, Ushigomeku, Tokyo, Japan.

The Local Committee will have a meeting write you of any recommendations and actions taken. I will lay your communications before the committee.

I may inform you that the work at the Exposition is well ahead of the schedule time. I may also state that the Exposition will prove a wonderful revelation to all visitors.

I greatly fear that the A. Ph. A. Exhibit plan will have to be abandoned. If anything

is to be done it must be done *at once*. The San Francisco Branch of the A. Ph. A. at the meeting of November 10, were in favor of the proposed exhibit but were in doubts as to the source of the funds necessary to put the proposition into execution."

Do you favor extension of invitation to Pharmaceutical Society of Japan to meet in San Francisco in 1915 at the same time as the A. Ph. A., as moved by Albert Schneider? This will be known as *Motion No. 17 (Invitation to Pharmaceutical Society of Japan)*.

Motion No. 18 (Election of Members). You are requested to vote on the following applications for membership:

No. 37. Frances Edith Hindman, University of Washington, College of Pharmacy, Seattle, Wash., rec. by C. W. Johnson and Forest J. Goodrich.

No. 38. Thomas J. Casey, 227 High Street, Morgantown, W. Va., rec. by Charles H. Rogers and J. H. Beal.

No. 39. Amos Jones, 543 E. Thompson St., Philadelphia, Pa., rec. by Quintus Hoch and George M. Beringer.

No. 40. Ernest Franklin Trolinger, 1410 Forrest Ave., Nashville, Tenn., rec. by E. A. Ruddiman and J. T. McGill.

No. 41. Mrs. Maria Gonzalez Llaena, Jesus del Monte 518, Havana, Cuba, rec. by W. B. Day and J. W. England.

No. 42. Eugene A. McLadden, Cor. Main and Mercer Sts., Hackensack, N. J., rec. by George M. Beringer and G. M. Beringer, Jr.

No. 43. Joseph J. Easley, Hastings, Pa., rec. by Charles H. Rogers and Wm. H. Moore.

No. 44. A. T. Davis, Warren, Ark., rec. by W. R. Appleton and A. L. Morgan.

No. 45. Cyrus Jacob Fuhrman, Coquille, Oregon, rec. by M. E. Everitt and J. Lee Brown.

No. 46. Charles B. Clark, P. O. Box 387, Atchison, Kansas, rec. by M. Noll and L. D. Havenhill.

No. 47. Charles C. Orr, 541 E. 112th St., Chicago, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 48. Joseph Trienens, 819 Buena Ave., Chicago, Ill., rec. by William Gray and William B. Day.

No. 49. John Smith Donnet, 1225 Hull St., Baltimore, Md., rec. by H. A. B. Dunning and O. W. Muehlhause.

No. 50. Andrew Grover DuMez, University of the Philippines, Manila, P. I., rec. by Edward Kremers and Emerson R. Miller.

No. 51. Campbell A. Neptune, 600 Market St., Parkersburg, W. Va., rec. by Charles H. Rogers and W. A. Ream.

J. W. ENGLAND,

Secretary of the Council.

415 N. Thirty-third Street.

COUNCIL LETTER No. 8

Philadelphia, Pa., December 1, 1914.

To the Members of the Council:—

Motions No. 15 (Election of Thomas F. Main as member of Commission on Proprietary Medicines for term expiring 1919), No. 16 (Appointment of Dr. James H. Beal as Chairman of Commission on Proprietary Medicines) and No. 18 (Election of Members; Applications from Nos. 37 to 51 inclusive), have each received a majority of affirmative votes.

With reference to *Motion No. 17 (Extension of Invitation to Pharmaceutical Society of Japan to meet in San Francisco in 1915 at the same time as the A. Ph. A. meeting)*, the following communication has been received from William C. Alpers:—

"The motion to invite the Pharmaceutical Association of Japan to meet with us appears to me odd and untimely. What is the cause of such a move? I cannot understand it. To receive an invitation from The American Pharmaceutical Association is certainly an honor, the highest probably that American pharmacy can extend. Why offer this honor to the Japanese with whom we have so little in common and who for various reasons are objectionable to many of us?

If we are to engage in international courtesies why not invite the nations that are related to us in blood, science and civilization? Why not invite the English, French, German, Italian pharmaceutical associations? I can find no motive whatsoever why we should invite men whose language we do not understand, whose habits and manners are different from ours and with whom many of us and our ladies would not wish to associate socially."

If any members of the Council who have voted wish to change their vote on Motion No. 17, they can do so.

J. W. ENGLAND,
Secretary of the Council.



COUNCIL LETTER No. 9.

To the Members of the Council:—

Further comments have been received upon *Motion No. 17 (Extension of Invitation to Pharmaceutical Society of Japan to meet in San Francisco in 1915 at the same time as the A. Ph. A. meeting)*, as follows:—

Frederick J. Wulling writes:—

"Concerning Motion No. 17—Invitation to Pharmaceutical Society of Japan; I would say that in matters like this we should go slowly and with deliberation. To extend an invitation implies the assumption of all responsibilities that devolve upon hosts. I do not know what would be expected of the A.

Ph. A., if it invited a foreign pharmaceutical body. No doubt we would have to live up to the customs prevailing in the country to whose association we issue the invitation. On the whole, I feel that we give too little consideration to most of our transactions. A matter of such significance as an invitation to a foreign body to meet with us should have the fullest kind of thought by a competent committee and such a committee should have sufficient time to enable it to make its report and possibly recommendations authoritative. While I would be more than delighted to greet our Japanese colleagues within our own territory, I yet would urge that we think the matter of an invitation over very carefully.

Of course it should be noted that the letter written by Dr. Schneider to the President of the Pharmaceutical Society of Japan was an individual letter not binding upon the A. Ph. A. in any wise. I feel very strongly that we should not vote upon Motion 17 without further consideration."

Dr. Francis E. Stewart writes:—

"Regarding the motion to invite the Pharmaceutical Society of Japan to the meeting in San Francisco in 1915 at the same time as the A. Ph. A. meeting, I voted in the affirmative, but since the matter is still open for consideration, I wish to reconsider and vote against it.

My reasons for so doing are not the same as those of Mr. William C. Alpers, for I have no objection whatever to cultivating international friendship and good will between all of the nations of Europe, whether related to us in blood, science or civilization or not; but it would seem to me that an invitation of the kind at the present time would be a breach in the neutrality which the United States is maintaining toward the warring factions in various parts of the world, unless we include in our invitation on equal terms the pharmaceutical associations of all of the nations now at war."

George H. Schafer writes:—

"Propinquity of Japan and time was probably the cause for Mr. Schneider's motion No. 17. As I may have erred in voting yes on such motion, I would favor its reconsideration and amendment to meet the well-taken objections of William C. Alpers. If in order, will move its reconsideration or will second such motion if made by others."

No motion for a reconsideration of Motion No. 17 is necessary at this time, as no vote on the motion has been announced. The subject is still before the Council for consideration and members may change their votes, or table the motion, or substitute it by another motion. Members are asked to express their opinions on the subject.

J. W. ENGLAND,
Secretary of the Council.



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